

Dublin Institute of Technology, DIT

Vibes, emotion mapping

A location based, emotion mapping app for the iPhone allowing you to
search for the Vibe of your city.

by

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1	Introduction	1
1.1	Purpose of the report	1
1.2	Contents of the report.....	1
1.3	Intended Audience.....	2
2	User Needs Analysis	1
2.1	Introduction.....	1
2.2	Identifying the User Needs.....	1
2.2.1	<i>Concept Overview</i>	1
2.2.2	<i>User Needs</i>	3
2.2.3	<i>Device Affordances.....</i>	4
2.3	Requirements Overview	5
2.3.1	<i>Functional Scope.....</i>	5
2.3.2	<i>Initial Specification.....</i>	6
2.3.3	<i>Requirements list</i>	7
2.4	Validating the Need	8
2.4.1	<i>User Research.....</i>	8
2.4.2	<i>Survey</i>	8
2.4.3	<i>Potential users</i>	10
2.5	Critical Success Factors	12
2.6	Personas.....	12
2.6.1	<i>Persona 1: The casual user</i>	12
2.6.2	<i>Persona 2: The active User</i>	13
2.7	Assumptions, Issues, Risks and Constraints.....	13
2.7.1	<i>Assumptions</i>	13
2.7.2	<i>Issues</i>	14
2.7.3	<i>Risks.....</i>	14
2.7.4	<i>Constraints.....</i>	14
2.8	Requirements Definition.....	15
2.8.1	<i>High Level Overview</i>	15
2.8.2	<i>Functional Modules.....</i>	18
2.8.3	<i>Minimum Viable Product (MVP)</i>	22
2.9	Conclusion	24
3	Background Research	24
3.1	Introduction.....	24
3.2	Competitor Analysis.....	25
3.2.1	<i>Super</i>	25
3.2.2	<i>MoodGecko</i>	29

3.2.3	<i>Emojli</i>	34
3.2.4	<i>Conclusion</i>	37
3.3	<i>State of the Art</i>	37
3.3.1	<i>Viber</i>	38
3.3.2	<i>Stats of the Union, SOTU</i>	40
3.3.3	<i>Tunepics</i>	41
3.3.4	<i>Conclusion</i>	44
3.4	<i>Design Requirements</i>	45
3.4.1	<i>Design Overview</i>	45
3.4.2	<i>Scenarios</i>	45
3.4.3	<i>Use Cases</i>	47
3.4.4	<i>Use Case Diagram 2. Search</i>	49
3.4.5	<i>Use Case Diagram 3. Post</i>	53
3.4.6	<i>Design Requirements</i>	57
3.5	<i>Conclusion</i>	61
4	Development	62
4.1	<i>Methodology</i>	62
4.1.1	<i>Development Environment</i>	62
4.1.2	<i>Project management</i>	62
4.2	<i>Design</i>	63
4.2.1	<i>Overview</i>	63
4.2.2	<i>Iteration 1 – Sensus</i>	66
4.2.3	<i>Iteration 2 – Emo</i>	71
4.2.4	<i>Vibes – Final design</i>	74
4.2.5	<i>Emotions</i>	81
4.2.6	<i>Content</i>	87
4.2.7	<i>Functionality</i>	103
4.2.8	<i>Conclusion</i>	106
4.3	<i>Code Iterations</i>	107
4.3.1	<i>Build 1.0</i>	107
4.3.2	<i>Build 2.0</i>	108
4.3.3	<i>Build 3.0</i>	111
4.3.4	<i>Build 4.0</i>	124
4.3.5	<i>Build 5.0</i>	128
4.3.6	<i>Build 6.0</i>	132
4.3.7	<i>Build 7.0</i>	138
4.4	<i>Conclusion</i>	141

5 Testing.....	143
5.1 Introduction.....	143
5.1.1 <i>Methods</i>	143
5.1.2 <i>Testing Results</i>	148
5.1.3 <i>Tutorials Used</i>	154
6 Evaluation	157
6.1 Introduction.....	157
6.2 Critical Success Factors	157
6.3 Minimum Viable Product.....	158
6.4 Code Critique.....	160
6.4.1 <i>Map Zooming and Popups</i>	160
6.4.2 <i>Filtering Vibes and Time</i>	161
6.4.3 <i>App Responsiveness</i>	161
6.4.4 <i>App State</i>	161
6.5 Design Critique.....	162
6.5.1 <i>Button animation</i>	162
6.5.2 <i>Interaction and animation</i>	162
6.6 Team Dynamic.....	163
6.6.1 <i>Working environment</i>	163
6.6.2 <i>Decision making</i>	163
6.6.3 <i>Division of work</i>	163
6.6.4 <i>Communication</i>	164
6.7 Marketing.....	164
6.8 Future Work	166
6.8.1 <i>Statistical Analysis</i>	166
6.8.2 <i>Maps</i>	166
6.8.3 <i>Like Button</i>	166
6.8.4 <i>Share Button</i>	167
6.8.5 <i>Report Button</i>	167
6.8.6 <i>Map Navigation</i>	168
6.8.7 <i>Expansion</i>	168
6.9 Conclusion	168
7 Conclusion.....	169
8 Appendix	171
9 Bibliography	233

List of figures

Figure 2-1 Research into Happy news.....	8
Figure 2-2 Goodwill App, survey results	9
Figure 2-3 User survey	11
Figure 2-4 Navigational module diagram.....	17
Figure 3-1 Viber sticker collection examples	39
Figure 3-2 Use Case Diagram: Use Case 1	48
Figure 3-3 Use Case Diagram, Use Case 2.....	50
Figure 3-4 Use Case Diagram, Use Case 3.....	54
Figure 3-5 Navigation wireframe.....	58
Figure 3-6 Content Wireframe.....	59
Figure 4-1 Mood board.....	67
Figure 4-2 Sensus splash screen	68
Figure 4-3 - Sensus site map	69
Figure 4-4 EMO logo	71
Figure 4-5 Brain storm sketches	71
Figure 4-6 EMO site map	73
Figure 4-7	75
Figure 4-8 Mood board.....	76
Figure 4-9 Vibe logo mock-ups	77
Figure 4-10 Vibes design workings.....	78
Figure 4-11 Vibe logo mock-ups	78
Figure 4-12 Vibes Final Logo	80

Figure 4-13 Vibes logo breakdown	80
Figure 4-14 Typeface.....	81
Figure 4-15 Plutchiks colour wheel of emotion	85
Figure 4-16 - Colours, hex values and corresspnding emotions.....	87
Figure 4-17 flat custom emoji	89
Figure 4-18 more detailed design.....	90
Figure 4-19 Emoji final design	91
Figure 4-20 Emoji design breakdown.....	92
Figure 4-21 Custom emoji breakdown	93
Figure 4-22 Descriptive emoji.....	97
Figure 4-23 Icon images.....	98
Figure 4-24 Custom icon images.....	98
Figure 4-25 Menu icons.....	99
Figure 4-26 Menu Icon	99
Figure 4-27 Image capture.....	100
Figure 4-28 Vibes info in menu.....	101
Figure 4-29 Map view	102
Figure 4-30 Vibe breakdown wheel.....	103
Figure 4-31 All Vibes selected	104
Figure 4-32 Four Vibes selected.....	104
Figure 4-33 Vibes sitemap	105
Figure 4-34 Hexbin function flow diagram	114
Figure 4-35 Image upload diagram.....	135

Figure 6-1 The Vibes team at Meet the Masters	165
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List of tables

Table 2-1 Requirements List.....	7
Table 2-2 Critical success factors.....	12
Table 2-3 Functional Modules.....	18
Table 2-4 Functional Module Breakdowns for the navigation module.....	19
Table 2-5 Asset requirements	20
Table 2-6 Content module breakdown.....	20
Table 2-7 Asset requirements	21
Table 2-8 Minimum viable product	22
Table 3-1 Use Case actors.....	47
Table 3-2 Use Case 1 - actors	47
Table 3-3 Data model, Use case 1.....	49
Table 3-4 Use Case 2 - actors	50
Table 3-5 Data Model Use case 2	51
Table 3-6 Use Case 3 - actors	53
Table 3-7 Data Model, Use case 3.....	55
Table 3-8 Asset list	60
Table 4-1 Map and Hexbin class creation, js/vibeMap.js	115
Table 4-2 HexbinLayer called on map js/vibeMap.js	120
Table 4-3 HexbinStyle function js/vibeMap.js	121

Table 5-1 User testing results.....	147
Table 5-2 Test results Build 6.0.....	152
Table 8-1 Emotion Image Survey.....	212
Table 8-2 Emoji Colour Survey	216
Table 8-4 Build 4.0 Test Results.....	222
Table 8-5 Build 5.0 Results	225
Table 8-6 Build 6.0 Results	228
Table 8-7 Build 7.0 Results	232

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Glossary

Hexbin. The data visualisation method used in the project.

Vibe. An emotion represented by a colour and an emoji, accompanied by an image with an emoji description.

Chapter 1

1 Introduction

1.1 Purpose of the report

This document is intended to give a detailed account of the research, production and testing of Vibes, an iPhone 5 app built by Sona Harrison and Keith McGinley for their major project as part of an MSc in Creative Digital Media at Dublin Institute of Technology (DIT).

1.2 Contents of the report

The report will begin with a chapter outlining the user needs analysis process. In this section the steps taken to gain a clear understanding of what users both want and need will be shown, as well as how these needs and wants have been validated through surveys and research. The aims and objectives of the project will then be detailed in a list of Critical Success Factors.

The next section will explain the research phase of the project; detailed accounts of competitors will be analysed and the current state of the art technologies that are being used in similar apps will be discussed. The findings from this research will then be assessed relative to the aims and objectives of this project.

The production process will be outlined clearly, explaining in detail the methods used to define the final design and how the design ultimately influenced the code and final build of Vibes. The agile methodology used throughout the production of Vibes will also be demonstrated, showing how every decision, in terms of both coding and design, the user

influenced. In this section the social media platforms used to garner interest about the app as well as user feedback will be discussed.

This will lead on to a chapter demonstrating the testing methods used at every pivotal stage of development. The design and purpose of each test will be explained before illustrating the results and analysing the outcomes. As in the previous section, it will be proven that an agile approach was taken when testing and that the results directly influenced the production of the final design and build.

The report will conclude with a critical evaluation of the project. The final build will be compared and contrasted with the criteria set at the start of the project, as well as being reviewed alongside competitor apps and apps using current state of the art technology. Finally, an outline of future work of the app will be discussed in addition to potential routes for commercialization.

1.3 Intended Audience

This document is intended for college lecturers, examiners and any other interested party, in either an educational or business capacity.

Chapter 2

2 User Needs Analysis

2.1 Introduction

This chapter will give a detailed account of how the user needs were established through research and surveys. The aims and objectives set out in the Major Project Proposal in May will also be discussed and analysed relative to the affordances of new apps. This will lead to the definition of the critical success factors of the project.

Once the user needs were defined, a list of project requirements could be finalized. These were then broken down into a list of assets, which were used in the next chapter when construing the design of the app.

The final section will define the Minimum Viable Product (MVP) of the project, which was established by using the MoSCoW technique, whereby the delivery of each requirement was prioritized in terms of importance.

2.2 Identifying the User Needs

In this section the concept of the app will be outlined briefly. The user needs will be summarized before discussing the affordances of the chosen device, the iPhone 5, and how these will be used in the development of the app.

2.2.1 Concept Overview

The app concept has progressed and developed since the first bout of testing began in April. The concept outlined in the Project Proposal stated that the aim was to create a location-based app allowing users to visually record, track and view their emotional states as they occur. It

should also aim to be an effective form of visual social communication with easy, user-friendly data-visualization.

This concept was finalized through user research and surveys and has proved to be fairly solid throughout the production phase.

After conducting initial user research and surveys, it became clear that there were two target audiences for the app, one in the age demographic of 40-60 who is the casual user and one between the ages of 18-35 who is the active user. The casual user is interested in using the app to view stories from around the world and as a new way of visualizing the mood of an area. The active user creates the content, they want to input to the app for various reasons such as keeping a visual diary of how they feel, which matches the apps concept as outlined above.

Competitor research was conducted; this will be discussed in detail in section 3.2, which revealed a certain number of apps allowing you to track your mood, however, nearly all were seriously lacking in either design or functionality. With a clear user need and no user-friendly apps on the app store, a gap in the market became apparent.

Based on these findings the final concept was defined. Vibes is an emotion-mapping app for the iPhone 5. Using 8 emotions with 8 corresponding colours the app allows the user to take a photo, tag it with an emotion and upload it to the map. When a user does this they are adding their content to the map and in turn contributing to the general Vibe of an area. The map is the main page of the app and is where all the content is shown.

Each Vibe that is uploaded is represented on the map by a coloured hexagon, the colour is determined by the users choice of emotion. The

hexagons act as pins and can be interacted with by tapping. When a hexagon is tapped, it will either disperse or the attached image will be shown, this depends how zoomed in on the map the user is. When there is a multitude of emotions in one particular area they are all represented by the dominant emotion, but as a user zooms closer the hexagons disperse and a colour wheel appears indicating which emotion and how many are being represented in the dominant hexagon.

The search function allows the user to search the map for all 8 Vibes or to turn some off and only search for a select few. There is an advanced search option, which allows the user to select the Vibes they would like to see and to input a date range, so, for example, they could compare the happy and sad Vibes in Dublin on the day of the water charges protests.

2.2.2 User Needs

As stated in the previous section, there are two main users, the casual user who wants to use the app only to view stories on the map and who is generally in an older age demographic, and active users who want to input images to the app, keep track of how they feel and easily view the Vibe of an area to potentially find things to do based on how they feel at a certain time.

Both users are interested in the mood of their city, however, the survey results showed that the casual user generally isn't active on social media and is not as up to date with the latest technologies as the active user.

The active user is young, social, on the go and up to date with current affairs. They use some form of social media daily, mainly to communicate with friends but also to view pieces of media.

With this knowledge the basic needs for both users were established and can be summarized as:

- A dynamic app that delivers information in a clear and concise manner.
- An app that is easy to navigate and where each function can be found easily.
- The means to accurately describe how you are feeling.
- The emotion/colour relationship needs to be coherent and intuitive to the user.

2.2.3 Device Affordances

The chosen device for this project is the iPhone (specifically the iPhone 5 and up). The decision to choose a portable device such as the iPhone 5 was an informed decision based on researchⁱ conducted in Ireland in the past year showing that 1.6m people now own a smartphone. The study showed that Irish people are embracing technology in every facet of their lives and are demanding more and more online access while on the go with 71% using their smart phone in the car and 51% on public transport.

According to the user needs, the app needs to cater for the active user who is more likely to be inputting to the app while on the go and also the casual user who will most likely only view the apps content. Based on these needs and research, the chosen device was finalized.

The iPhone 5s has the following affordances, which can be used in the app:

- Retina display: This will enhance the quality of the data visualisation presented on the app. The map is rendered in SVG to utilise the retina displays high PPI. Camera
- Touch: The app can make use of the many touch interactions afforded. Swipe, pan, pinch and zoom and tap are all required.
- Geo location: The location-based services are essential to the users experience of Vibes app.
- Data network access: The map loaded from tile servers and rendered on phone. Access to Wi-Fi or data networks is essential to this feature.

This section defined the app concept, determined the user needs and outlined the affordances of the chosen device; these findings will be validated in section 2.4.

2.3 Requirements Overview

2.3.1 Functional Scope

The aim of this project is to design and build a location-based emotion-mapping app for the iOS platform. The core aim of our app is to allow users to communicate visually how everyday moments in their life or specific events make them feel in terms of their emotional state, this project aims to depict the “in the moment” feeling. How do you feel right now, as the event is happening or just happened?

The initial scope of the project is to deliver a functioning app that can obtain the users current location, categorize their emotion by selecting from a set of parent emoji, and register their “Vibe” to the map accompanied by a user generated image. The image is taken using the

affordance of the device and embedded with the parent emoji and a descriptive emoji sentence. To complete the scope the app must be able to visually present the collective data to the user on a map. Upon successful implementation of these features the app will be in a position to expand the scope and add features.

2.3.2 Initial Specification

The main function of the app will be presenting data to the users to be consumed while providing the features to generate the data.

The following are required:

- Strong data visualization
- Register and login with user accounts
- UI/UX
- Location based services
- Data visualization
- Mapping
- Emotion posting features
- Filter and search the data
- User profile, track their data

2.3.3 Requirements list

The initial requirements are listed in Table 2-1 below:

Table 2-1 Requirements List

Requirement	Description
Load app	The app must load on iPhone
Register and Login	Register user accounts and allow them to log into the app
User Guide	Show the user a guide on how to use the app.
View Map	Have a working map centered on the users location.
Data Visualization	Present the data available to the user on the map. Showing the 'Vibes' in their location.
Post Vibe	Register users Vibes on the app using camera, location and user generated emoji description.
View Profile	The user can view their Vibes in a profile page.
Search Map	Users can search the map by Vibe (emotion) or time range.
Logout	The user must be able to logout of app.
Change password	The user can change password or login when
Forgot password	password is forgotten.

2.4 Validating the Need

In this section documents the data gathering process and results of initial surveys and questionnaires with potential users.

2.4.1 User Research

Statistical Research

Research into Social Media trends centered on the increase in demand for happy news, goodwill stories and content aggregators serving happy articles. Figure 2-1 charts the Facebook likes of the growing content aggregators.

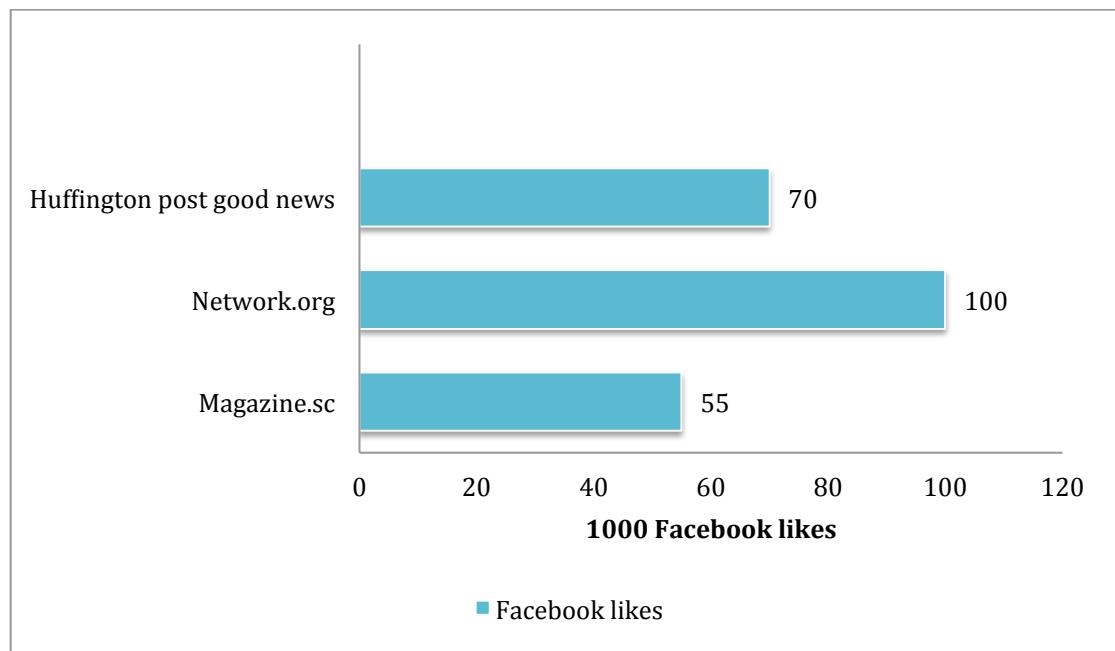


Figure 2-1 Research into Happy news

2.4.2 Survey

Core Idea

The initial User Needs Analysis focused on the original idea, an app that represented user inputted acts of goodwill on a map. In Figure 2-2 below the results of a survey into the Goodwill App core idea can be seen. There are potential consumers of the data, but not enough potential

contributors to feed the app with data. The results of this survey meant an increased focus on User Needs to find a user hook.

USER NEEDS

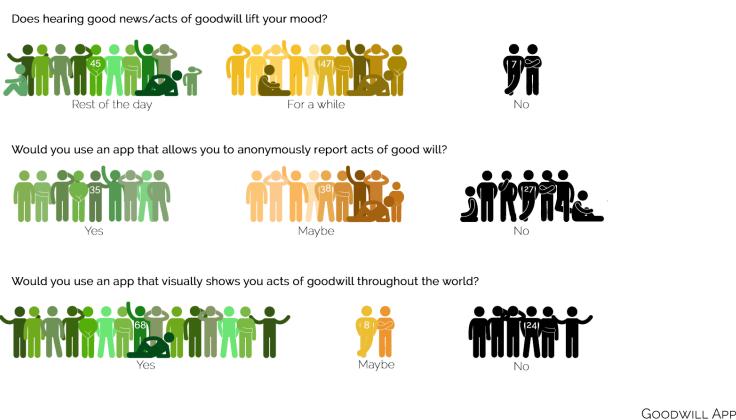


Figure 2-2 Goodwill App, survey results

Through communication with users in the demographic of 20-36 it became clear that only being able to input stories relating to good will or happiness was too restrictive. The anonymous aspect had merit and was relevant in that we wanted to stay away from self-indulgent statuses, however problems relating to censoring arose. Further brainstorming, reading and critical thinking to ascertain a strong core aim for the app was carried out. Including research on Goodwill, happiness and what defines happiness or goodwill.

This research led to the introduction of a range of emotions to the app. Instead of trying to define or constrain what the user inputs, the app now presented the user with 8 core emotions to choose from in order to depict their mood.

Although the core idea of the app changed from good will mapping to emotion mapping, there was still factors to be considered such as verification, content control and potential verbal abuse. The idea of allowing the user to only using emoji to describe their post was

discussed to make the experience of using the app as easy and visual as possible.

Data Visualisations

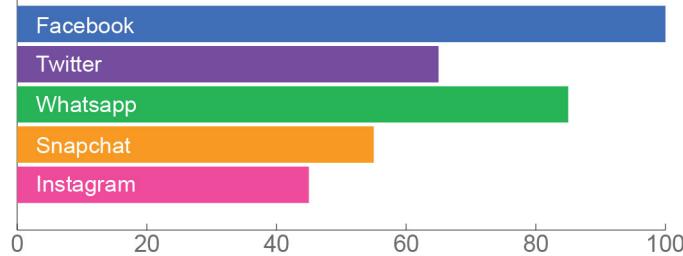
Extensive research was carried out into data visualization while taking into account the scope of the project, resources available and what can be achieved in the time frame. Having experimented with a number of techniques including map marker clustering and heat maps, the technique Hexbin was identified. Hexbinⁱⁱ is a form of binning, a general term for grouping a dataset of N values into less than N discrete groups. In the case of Vibes, the Vibe data is plotted to the map using the coordinates. The map is divided into bins that then group the vibe data inside each bin. The decision to use the Hexbin technique would directly influence the design aesthetic, which will be discussed in chapter 4.

2.4.3 Potential users

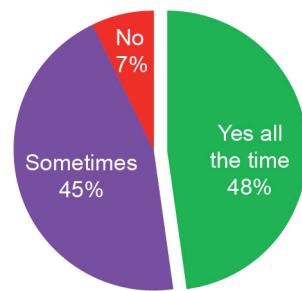
A user survey was undertaken to determine if users were open to the idea of using just emoji to describe their post. A summary of the main results can be seen below in Figure 2-3. The survey was distributed using Twitter and Facebook; there were 30 responses that can be viewed in the appendix. The survey showed that all testers used some form of social media or messaging service. When asked if they used any form of emoji or emoticons when communicating via social media, users indicated that 93% either used emoji all the time or sometimes. This indicated that emoji, as form of communication is prevalent throughout the potential users.

User Survey Results

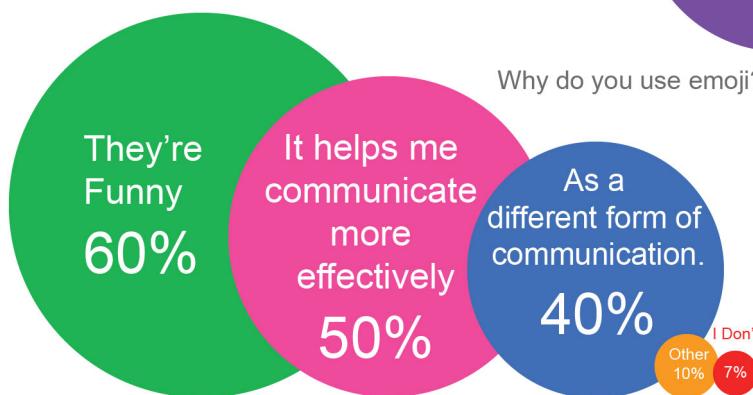
Do you use any of the following app:



Do you use any form of emoji/emoticons when communicating via social media?



Why do you use emoji?



What piece media do you feel is best suited to describe emotion or feelings?

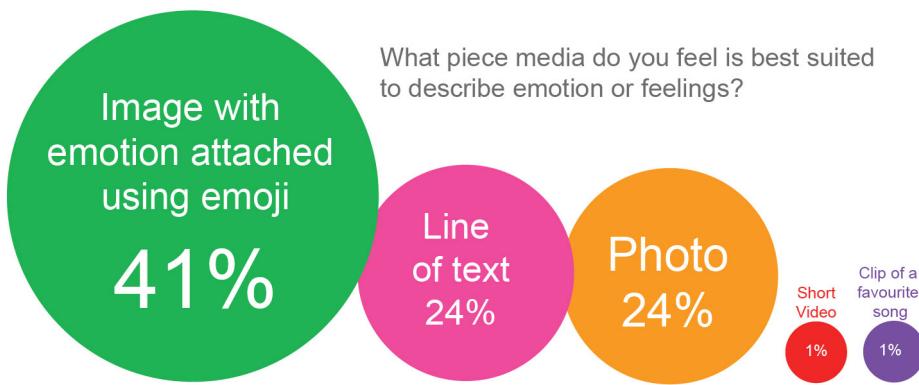


Figure 2-3 User survey

When asked why they used emoji, the results indicated that users found them funny and helped to communicate their message more effectively. Users were also asked what piece of media they thought would be best suited to describe an emotion or a feeling. The results of this question showed a strong 41% would opt for an image with emoji when presented with the option.

2.5 Critical Success Factors

The critical success factors are the key functionalities and aspects of the app that the users outlined as important to them in the survey and research stages. It is essential that these needs be met in order to successfully achieve the project goals and ensure the users deem the app a success.

Table 2-2 Critical success factors

Critical success factors
Interaction with the map
Easy navigation
Upload an image
Clear colour and emotion relationship
Smart design
Search/filter by emotion
Quick and easy upload for on the go users

2.6 Personas

2.6.1 Persona 1: The casual user

Mary is 55. She owns an iPhone and is getting used to the new technology. Mary uses her smart phone to communicate with family and

friends using Whatsapp, Messages and Facebook. She has no interest in other communication apps such as Snapchat and Instagram. Mary likes to keep up with current affairs and is especially interested in what's going on in her area, as well as the areas that her children and extended family live. She likes to browse News apps such as The Irish Times, The Journal and The Guardian.

2.6.2 Persona 2: The active User

Derek is 19 and is a media student at DIT. He loves to keep up to date with the latest technology and has just bought himself a new iPhone 5. Derek is constantly online and uses a multitude of apps to communicate with friends such as Whatsapp, Snapchat, Facebook, Twitter and Instagram. Derek is an active Instagram user, he uploads at least one photo a day, which he also shares on his Facebook and Twitter accounts. When communicating with friends via Whatsapp, Derek always uses the emoji keyboard to further describe what he is communicating. Sometimes he uses emoji such as the little poo just because it is funny. He also regularly checks various news apps to make sure he is up to date with current affairs.

2.7 Assumptions, Issues, Risks and Constraints

This section outlines the assumptions, issues, risks and constraints that are being considered while defining the user and will also be considered while defining use cases and task cases in section 3.

2.7.1 Assumptions

It is assumed that the user:

- Owns an iPhone 4,5 or 6.
- Uses some form of communication app such as Whatsapp.
- Has Wi-Fi access.

- Is familiar with Google Maps or an app that affords the user to navigate around a map.
- Is interested in current affairs.
- Either uses or is familiar with the standard emoji keyboard.

2.7.2 Issues

The issues that must be considered are:

- The Post function will only work on an iPhone 5 or 6. On a 4 a user can browse the map and make use of all other functions except post.
- Some users may not have the emoji keyboard installed on their device; this raises issues when describing a Vibe.
- Content is all user generated.

2.7.3 Risks

The risks that have been considered are:

- The app may contain an unknown bug and may not work properly.
- Wi-Fi, 3G or 4G is needed for the map to load and to post a Vibe, if the user doesn't have access to any of these services they may assume the app doesn't work.

2.7.4 Constraints

The constraints that have been allowed for are:

- The final version (prior to App store release) will only allow users with an iPhone 5 or 6 to post a Vibe.
- The design of the app must adhere as much as possible to the Apple Human Interface Guidelines.

This section has defined the assumptions, issues, risks and constraints. These were taken into account at all stages of production and development.

2.8 Requirements Definition

Based on on-going user feedback the app requirements have gone through a series of iterations since the beginning of the production process. This section will define the final project requirements, starting with a high level overview of the app and how both a casual and active user could typically use it.

2.8.1 High Level Overview

This section will explain and illustrate the basic functions that a user is afforded and various paths that can be taken through the app.

The user will open the app. A splash screen is in place as a holding image while the map loads, this will stay in view for a maximum of 8 seconds (depending on which device the user has). Assuming the user has not used the app before, he or she will be required to sign up, by providing an email and password. Next, the user is directed to a short User Guide consisting of four pages explaining the ethos of the app and how the basic functionality works. The guide can be swiped through easily and the user can exit at any time by tapping the X in the top right corner.

Upon leaving the guide, the user is directed to the main page of the app, the map. Here the user can navigate through the map by pinching and zooming, dragging or tapping on a hexagon to view a Vibe. If they move away from their current location they can easily get back by tapping on the icon on the bottom right of the map. Additional functionality on the main map page includes the post function, which can be found in the navigation bar on the top right of the screen. This was added to adhere

to the needs of the active user, who is on the go and needs quick and easy access to the functionality.

All other functionality is located in the menu, which is accessed through the “Hamburger” icon on top left of the screen. The functions include:

Map – this ensures that the user can always get back to the map quickly and easily, as the menu icon is visible in every screen of the app.

Search – Here the user can choose which Vibes they want to view on the map, and also use the advanced search function which allows users to view the Vibe of an area within their chosen time frame.

Post – The post function is repeated here for added convenience.

Profile – This is where users Vibes are stored, allowing them to view (from newest to oldest) their images, how they felt and when.

Settings – Here a user can update their information, read a short blurb about what Vibes is and the team behind it view the user guide and change their password.

Vibes – This function allows the user to easily see which Vibes are available to them. By tapping on a Vibe, a pop-up appears showing a snippet of information explaining what emotion is being represented and why.

Logout – By tapping on this function the user is immediately logged out and is redirected to the login/sign up page.

The user can navigate through the app, view Vibes on the map or post a Vibe. Following this they close the app. This overview is illustrated in the following diagram.

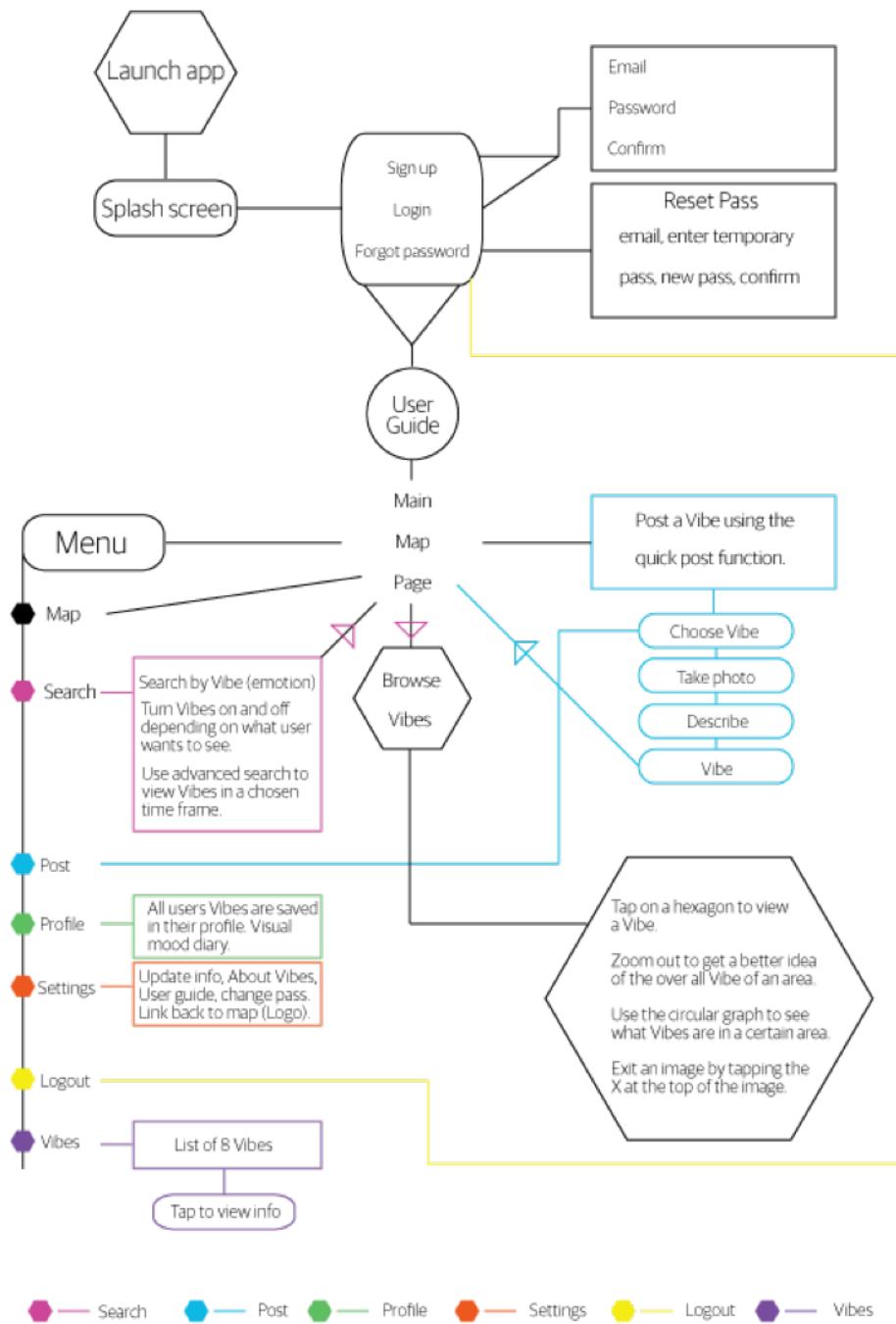


Figure 2-4 Navigational module diagram

2.8.2 Functional Modules

The app has two main functional modules the navigation and the content.

Table 2-3 Functional Modules

Name	Description
Navigation	This is the main navigation that is available to the user upon opening the app. It is displayed as hexagons on the map.
Content	All of the content in the app is user generated. A user can add their own content by using the post function found in both the main map page and the menu.

Navigation: Functional Module breakdown and Asset requirements

The table below Table 2-4 illustrates the Functional Module Breakdown for the navigation module.

Table 2-4 Functional Module Breakdowns for the navigation module

Name	Description
Navigation	<p>This is the main navigation displayed to the user when they open the app. It is displayed on the map page as hexagons containing Vibes (emotion stories). The user can navigate around the map by pinching and zooming and tapping on various hexagons. By tapping on a hexagon the map automatically zooms in and the hexagon disperses, revealing more Vibes. The user is assured of which Vibes are in each area by a circular graph illustrating the ratio of colours in the area that they are interacting with.</p> <p>The user can choose which Vibes can be seen on the map by using the search function in the menu. The navigational structure remains the same but the content is updated to reflect the users request.</p>

The table below lists the asset requirements for the navigational module explained above.

Table 2-5 Asset requirements

Asset requirements
Map page - accurately displaying Vibes.
Information in the user guide explaining how the map can be navigated.
User generated content.
Graph illustrating which Vibes are in a certain area (appears when a user taps on a hexagon)
Search function (icon) allowing users to dynamically only view the content that they would like to see on the map.
8 Vibes (emotions) with corresponding colours.
Vibes (icon) in the menu to allow users to quickly and easily reference what each Vibe means.

Content: Functional Module breakdown and Asset requirements

The table below illustrates the Functional Module Breakdown for the content module.

Table 2-6 Content module breakdown

Name	Description
Content	All of the content within the app is user generated. Without users the map would be blank. Users can easily add content to the map by using the post function in the nav bar or in the menu. Content is added to the map by first choosing an appropriate Vibe, taking a photo, describing it and then "Vibe"

it" (adding to map).

The table below Table 2-7 lists the asset requirements for the content module explained above.

Table 2-7 Asset requirements

Description
Access to iPhones camera.
8 Vibes each clearly depicting an emotion.
8 colours, each to correspond with a suitable Vibe.
Search icon in the menu.
Custom emoji keyboard (100 max) so a user can describe their Vibe.
Custom "uploading" animation to assure the user that something is happening.
Animation on the map to show the user where they're Vibe has been dropped.
Button to allow the user to immediately view their Vibe once it has been uploaded.
Dynamic clock icon to give an indication of when each Vibe is posted.

This section outlined the two main functional modules in the app, the navigation and the content. The functional module breakdown gave a description of the functionality of each module. This was followed by a breakdown of the asset requirements for each module. The next section

will outline the Minimum Viable Product (MVP) requirements for this project, as determined by the information gathered in this chapter.

2.8.3 Minimum Viable Product (MVP)

The Minimum Viable Product is the minimum feature set which is required in order to deploy a functional product to the user (Janssen, 2014). Having established the user needs and finalized a requirements list; the app is ready to be tested by the user. If the user deems the app a success, further iterations can then be undertaken with additional functionality included, based on user feedback. For this project, an agile method was used throughout to ensure the user needs were met for their benefit, and to ensure a minimum feature set worked to its best ability to achieve a successful Minimum Viable Product.

The table below describes the MVP for this project. It does not include proposed functionality, but instead just the basic functionality needed to deploy a workable version to users for testing.

Table 2-8 Minimum viable product

Minimum viable product
A clear map that can be easily navigated
8 Vibes with corresponding colours that accurately describe an emotion.
Functions (Search, Post) that is clear, quick and easy to use.
A minimal interface so as not to interfere with the user generated content, which supplies most of the colour within the app.
Custom emoji keyboard to allow users to describe their Vibe.

Additional functionalities, which will be outlined in Chapter 5, are desirable but not essential and so ultimately the app stayed within its original MVP requirements. Unexpected trouble with some navigational and posting aspects meant more time was spent on these elements than was originally planned for in the project schedule.

A social sharing plugin for Phonegap was a feature that was included in the development process. The goal was to share images generated for Vibes on other social media sites such as Instagram, Facebook and Twitter. This would be a vital function for future uptake of the app, the ability to share your Vibe. Unfortunately this feature did not make it to the final build, as the plugin to provide access to the sharing panel on iOS would not work. Extra time resources were given to the feature, and a deadline was set to have the feature up and running. When the deadline passed and the social sharing was still not working the functionality was removed as essential work was scheduled and could no longer be delayed. A social sharing plugin is the main priority in future work and will be discussed in chapter 5.

After testing the MVP, the additional post option was added to the main map page to allow for quick content generation.

This section defined the product requirements for the project. It began by giving a high level illustration of how a user can interact with the app. This was followed by a description of the functional modules of the app and a detailed asset list was then broken down for each functional module. The MVP was then outlined using information garnered in this section and previous sections.

2.9 Conclusion

This chapter outlined the user needs for this project. It began by defining the user as two separate groups, the casual user and the active user. Both users require the same functionality to use the app as it must be assumed that even the casual user will input content to the app at some point. Once the user needs were outlined a concept overview was outlined as well as a description of the affordances of the chosen device, the iPhone 5.

The users, one casual and one active, were described in the persona section. Although the initial needs of each user were different, ultimately the app needed to include every possible option to be deemed a success.

Chapter 3

3 Background Research

3.1 Introduction

In order to create a successful app, it was imperative that apps in the emotion-mapping space were looked at. In this section current applications and technologies will be outlined, discussed and analysed. The current state of the art will also be looked at with a focus on potential future work and integration. By analysing competitors, noting what they have achieved well and also what they have done badly or not done at all, a list of design requirements can be drafted for this project. To ensure these requirements are entirely user centred, use cases and real world scenarios will be created and outlined in this chapter. These use cases and scenarios are based on the personas and user needs defined in the previous chapter and will inform the design requirements for this project.

3.2 Competitor Analysis

In this section an in depth analysis of emotion-mapping apps and apps using an innovative form of communication or expression will be outlined. There are a multitude of these apps available, however, most falls short of being successful in terms of both design and functionality. Because of this, each competitor will be analysed in terms of functionality, design and UX/UI and a conclusion, noting the good and bad points will finalize the analysis. Since the Final Project Proposal was handed in in May some new competitors have been found. In this section only the most relevant competitors will be discussed, these applications are:

- Super
- MoodGecko
- Emojli

3.2.1 Super

Overview

Super is a new social media app whose own bio reads, “Super is like Willy Wonka and Dr.Seuss went up in a spaceship, invented something called social media, and then came back down to earth...” It is a fun, tongue in cheek application that allows users to vent, spread the love or share whatever they want to in a safe and welcoming environment.

Created by one of the founders of Twitter, Super aims to allow users to view visual opinions, with an emphasis on photos and minimal text.

Super was chosen as one of Vibes competitors for its fun and effective use of colour, strong emphasis on visuals and its core aim of allowing

users to say whatever they want to say while focusing on imagery instead of text.

UI

This section will focus on the UI of the app. All functionality and navigation will be outlined and discussed, which will then lead on to a section analysing the design.

Functionality

There are two main functions in this application, to input your own image and to search for anything you want. Other functionality includes an option to share not only your own posts, but also any post to other social media platforms.

The input and search functions are located at the top of the screen above an endless scroll of random images from different users. A pencil icon represents the input function. Upon tapping the icon a list of vague headings such as “The worst”, “The best” appear in bold, colourful lettering. The user chooses one of these headings and then proceeds to take a photo, describe it and sign it.

The search function is located beside the pencil icon and is represented by text. By default the search is set to “everyone” but by tapping on the text, a drop-down menu appears affording the user the option to view pieces of media by everyone, just friends, nearby or just me. Users can also search for anything they would like to see, for example searching for Bill Murray returns a host of results depicting Bill Murray being cool.

Navigation

All of the functionality available in Super is located at the top of the screen; this makes for easy and intuitive navigation. The app itself is laid out in an Instagram style with an endless stream of images. This layout

allows for a clear and easy understanding of the content and easy access to all the functionality the app has to offer.

The one aspect that is not easy or intuitive to navigate to is your user profile. This is where all your images are stored. There may be an easier way, but the only path that was found to bring you to your profile is by dragging right on your image in the public stream, doing this shows the users profile image and user name, which is a link to their profile.

Design

In this section the app will be analysed in terms of graphics, branding, interactivity and content.

Graphics and branding

The graphics used in this app are perhaps the best part of it. The launch image is Bill Murrays face with pop-art style graphics overlaid on top, while the loading icon and image holder is a nostalgic animation of the “Test cards” often seen in relation to videos and VCR.

The content of the app is all user generated, which is not surprising given that it is an app for people to express themselves. Super surpasses other social media and photo-sharing applications by allowing users to customize their photos with eye-catching fonts and colours.

The overall all design is somewhat tacky, but you get the feeling that this is exactly how the designers wanted the app to look. The colour of the nav bar changes dynamically depending on which search function you choose. The font is bold and loud, with a Comic Sans edge to it. It is also all in caps.

Interactivity

There are a number of innovative and exciting interactions and animations available in the app, all of which seem relevant to the design and concept of Super.

When posting an image the user taps on the pencil icon in the top left corner of the screen, they are then directed to a page asking “Whats up”, below is the words “THE BEST” in white font with a bright green background. As this is the only thing on the screen it can be assumed that it is some sort of a button, by tapping it, a list of other headings in a range of bright colours appear below. The user can choose from any of these headings, then describe what they are posting. There does not seem to be any limit on the amount of characters that can be used.

Depending on what the user writes, Super offers up a background image based on the keywords, indicating that a personal image is not a requirement. Users also have the option to customize their post by pixelating it or changing to black and white.

The final step affords the user all the usual options of sharing and adding their current location, as well as an “Anonymish” option. By turning this function on the users post remains the same, however, when the image is dragged right, instead of seeing a profile picture and user name it is replaced with a funny illustration.

By dragging left on an image the user can share or report a post. By double tapping anywhere on an image the user can “Love” a post, when this action occurs a little heart icon on the bottom left changes from white to red and an animation depicting a little explosion of hearts appears. This is a nice detail and something to consider when adding the final touches to Vibes.

There is also the option to respond to a post, although this can only be done with posts that are not anonymous. In keeping with the rest of the design, users can only respond visually, so the responses are like a post in themselves.

Content

Super is all about the content; it is a photo-sharing, social media application, but as their app statement suggests, that is where the similarities end. Photos are the main piece of content and are generated by the user, but unlike other photo-sharing applications, Super is different because it allows the user to be creative with their photos in a way other than filters. This application is for people to express themselves in whatever manner they choose. The fun, colourful features compliment the content rather than hinder it, which indicates that the design is successful.

Conclusion

Super was chosen as a competitor to Vibes because it is a highly visual and colourful platform for user to express them selves. It is also supposed to be fun and playful, which Vibes aims to be as well. There are major differences between Supers and Vibes concepts and design, however, a lot was learned about how colour can compliment content and the importance of little details such as animation.

Overall Super has lived up to its name through daring design and clever interactions.

3.2.2 MoodGecko

Overview

MoodGecko is an online social community “that is all about how you feel, and about caring how others are feeling”. By first requesting the users

current location the app allows users to share where they are and how they are feeling. There are a number of options available to protect the users privacy such as fuzzy locations and anonymous posting.

MoodGecko is a near direct competitor with Vibes as it affords the user much of the same functionality as Vibes hopes to achieve, such as the use of a map, a form of emoji and the aim to allow users to view the mood of their surrounding areas, however, it does not afford the user to include photos when posting how they are feeling. MoodGecko will be analysed in terms of UI, functionality, navigation, design and content to see which aspects of the app are successful and which are not.

UI

This section will focus on the UI of the app. All functionality and navigation will be outlined and discussed, which will then lead on to a section analysing the design.

Functionality

The main function of the app allows the user to choose from a range "feelings" and drop a pin in their location. The pins on the map represent the feelings using basic icons and colours, however there is no apparent relationship between the colours and feelings. Other functionality available to the user includes a "mood radar" which shows the pins dropped by other users on the map, the "trail" function shows the moods you have dropped, in what time frame and where you were.

The settings function affords the user the option to change their ID and password and alter their privacy settings. As well as this there is the option to customize the map to the users personal taste and to edit their trail preferences by choosing to either show all the moods that have been dropped, or alternatively to only display active moods.

Other functionality includes two buttons above the map that allow the user to quickly change from a personal to an anonymous state when posting and to “Fuzz” their location, which basically means your pins will be dropped somewhere close to your current location but it won’t be exact.

[Navigation](#)

The navigation of the app is successful in that the interface allows for all functionality to be available and visible at all times without appearing too cluttered. My mood, Mood radar, Trail and Settings are all located below the map.

The user can choose their feeling by scrolling through a set list; there is no option to personally input their own.

When in the “My mood” function, the choice of feelings or moods is displayed overlaid on the map, this stays static while the map can be navigated through below. Although this makes sense in terms of dropping pins quickly and easily, the map is the main source of information in the app, having this option overlaid at all times detracts the user from having a fully immersive experience. There is no option to hide this function.

The options to become anonymous and fuzz your location are located above the map, beside these is the option to message or email somebody. On choosing this function, the user is directed to a message service, which automatically displays a message inviting the receiver to join MoodGecko.

Overall the navigation is a success as the user never finds themselves stuck on a page, and the functionality is always visible and available. All

of the functionality below the map is represented by both icons and text, which minimizes confusion, giving the user some idea of what they mean. A mask icon represents the anonymous function above the map and a pin icon represents the fuzzy location function. Both of these icons seem fairly intuitive. When a user taps on either function, a pop up appears assuring the user that they have either enabled or disabled said function.

Design

In this section the app will be analysed in terms of graphics, branding, interactivity and content.

Graphics and branding

The main branding of the app is comprised of a fun, cartoon style Gecko that stands to represent each user. The concept behind this icon is presumably symbolic of the name, however, what a Gecko has to do with ones mood is unclear. Regardless, the icon serves as a “leader” throughout the app.

Upon first registering an account the user is directed to a guide explaining the main features of the app, instead of the intuitive swipe motion to get from one page to the next, the user must “high five” the Gecko in order to move forward.

In keeping with the general presumption that lizards are green, the gecko is designed as a happy, smiling, green creature. This lends to the overall design of the interface, which is overwhelmingly green, apart from the map, which is a standard Google map.

The functionality available below the map is displayed on a green background. The functions themselves, as stated in the previous section, are represented in a dull grey by both icons and text. Although the grey

colour against the green is arguably difficult to see, the icons and text change to white when the user chooses a function, effectively making the other functions fade to the back and assuring the user knows where they are at all times. A simple solution to this problem would be to make the background white and the text/icon change to green when in an active state.

The interface was created while adhering to iOS guidelines in order to cause minimal confusion when navigating around the app. The font used throughout is san-serif. In the main functionality such as “My mood” and “Mood Radar” the green background is prevalent, and so the text is displayed as white. This contrasts nicely and, along with simple flat icons, makes for a clear user interface.

Interactivity

MoodGecko is not a hugely interactive application. Although there are three main functions (My mood, Mood radar and Trail) the only interaction a user has is to input how they are feeling to the map.

In the user guide it states that there is an option to “Gift” another user, so basically if you saw that someone dropped a pin indicating that they are feeling sad, you could empathize with them and send a hug or a smile their way. This function was nowhere to be found which implies that it is not intuitive at all for the user.

Content

This app is lacking in content. There are no images, videos or audio to entice the user to keep using the app. The text content is comprised of 41 set “feelings” for the user to choose from to describe their mood, many of which are not feelings, but activities which could be confusing

for the user as presumably they downloaded the app to track their mood as described on the app store.

The content shown in the guide is clear, although there is a lot of text, which implies the functionality, may not be as intuitive as the creators had hoped.

Conclusion

The analysis of MoodGecko has shown that it is successful in some aspects but falls short in others. Their app statement implies that it is a new and innovative form of social media, after using the app extensively it is clear that there is really nothing social about it. This is likely due to the fact that you need friends to also be using the app, but even the function allowing you to empathize anonymously with another user is not readily available.

The navigation is intuitive and clear and although the design is not aesthetically very pleasing, it fits together, making for a positive user experience.

Overall MoodGecko is an app with successful and unsuccessful traits, all of which have been outlined and should be taken into account while developing Vibes.

3.2.3 Emojli

Overview

Emojli is an emoji only social network. This app was chosen as a competitor because it allows users to only communicate visually, which is similar to Vibes descriptive emoji option.

UI

This section will focus on the UI of the app. All functionality and navigation will be outlined and discussed, which will then lead on to a section analysing the design.

Functionality

Users must create an account before accessing the app; this involves making a username, which can only be comprised of emojis. This makes sense after all it is an emoji only application, but its annoying for the user when it comes to adding friends as this can only be done by searching by username, there is no integration between Twitter or Facebook. Having friends when using Emojli is absolutely essential, otherwise the app is completely useless.

The only other function available in the app is to communicate using emojis, assuming you have managed to find a friend. The standard emoji keyboard is the only available keyboard when constructing a message, however it appears that if this keyboard is not enabled on a users device the app does not work at all. This is something to think about when constructing the emoji keyboard for Vibes. A custom keyboard would solve this problem.

Other minor functionality includes deleting a contact, changing an email or password and logging out.

Navigation

The functionality in this app is located at the top of the screen and, typically, uses emoji to represent the functions. This is a bit confusing but since the app has minimal functions they are quite intuitive to figure out, especially when familiar with the emoji keyboard. The functionality represented is the users profile, add friends, settings and when

constructing a message, and I in the top right corner allows the user to delete a contact.

There are no back buttons, getting from one page to another and back again is all achieved by tapping on the emoji icons

Design

In this section the app will be analysed in terms of graphics, branding, interactivity and content.

Graphics and branding

The design of Emojli is basic and looks very like Facebook in terms of colour. There is a simple dark blue background for the functionality; the rest of the app is empty, white space. The design seems unfinished but at the same time it serves a purpose, there is no need for lots of colour and embellishment in a messaging application.

The logo is an emoji (a girl) on the same dark blue background.

Interactivity

There are no interactions in this app, apart from tap.

Content

The only content in this app is the emoji keyboard, which is only available if the user has it activated on their device. Considering this is “The only emoji only social network” more care could have been taken to ensure that the app is fully functional for every potential user. This is something that definitely has to be considered when building Vibes.

Conclusion

There was a lack of thought put into the construction and functionality of this application. The most integral parts of a social network are connection and communication, both of which are difficult to achieve in

Emojli. The importance of creating a custom keyboard for Vibes was highlighted through analysing this app.

3.2.4 Conclusion

A great deal was learned through analysing these apps. When the project was starting off and the concept had not been finalized, studying these apps helped immensely to gain a clear understanding of what can and is being done in a similar field to that in which the project aimed to be. Knowing the success and failures of similar apps was an extremely important aspect of building an initial framework for the project, as it became clear that there was a gap in the market for a well designed, functional emotion mapping app.

3.3 State of the Art

In order to create a state of the art application it must be understood what state of the art means. The term state of the art refers to the highest level of general development, as of a device, technique, or scientific field achieved at a particular time. A state of the art application takes advantage of the affordances of its device and creates an enjoyable, intuitive and functional experience for the user.

State of the art applications have been designed with the user as the main focus, with relevant and useful functionality, a strong understanding of user needs and meaningful content.

In this section, apps that are considered to be state of the art will be discussed and analysed much in the same way as in the previous section by looking at their strengths and weaknesses under the criteria of functionality, design and UX/UI.

The applications being discussed are:

- Viber
- Stats of the Union
- TunePics

3.3.1 Viber

Overview

The use of emoticons is becoming increasingly prevalent with regards to communication on social media and messaging apps. Viber supports the existing Emoji keyboard, as does their main competitor Whatsapp, however Viber has expanded their collection to include custom Emoticons and downloadable ‘Stickers’ which are large emoticons.

UI

Functionality

Viber’s core functionality is a messaging application; the secondary functions and features that set Viber apart from competitors are free VOIP calls. The VOIP calls are free to other Viber users and a new credit service allows calls either other numbers, a feature that moves Viber into Skype’s territory.

Navigation

Viber A bottom nav bar has buttons for Messages, Recants, Contacts, Keypad and More Messages display your text correspondences; Recants show your recent calls, Contacts displays your Viber contacts, address book contacts and favourites. The More button lets users invite friends to Viber and adjust settings. Viber conforms to the UI expected of a social messaging app.

Design

Artistically, they provide these stickers in the form of character sets with themes and personality. The availability and wide range of emojis and stickers allows users to communicate in a completely visual manner. Viber's range of stickers has expanded rapidly; they have multilingual Stickers, seasonal stickers and even during the 2014 World Cup Viber released a selection of emoji for all the major countries.

A new form of stickers Viber has introduced is the typographic based images, almost in the form of a fast reply but in a fun playful style. Viber also charges users for access to stickers from popular culture such as Disney and new movie releases.

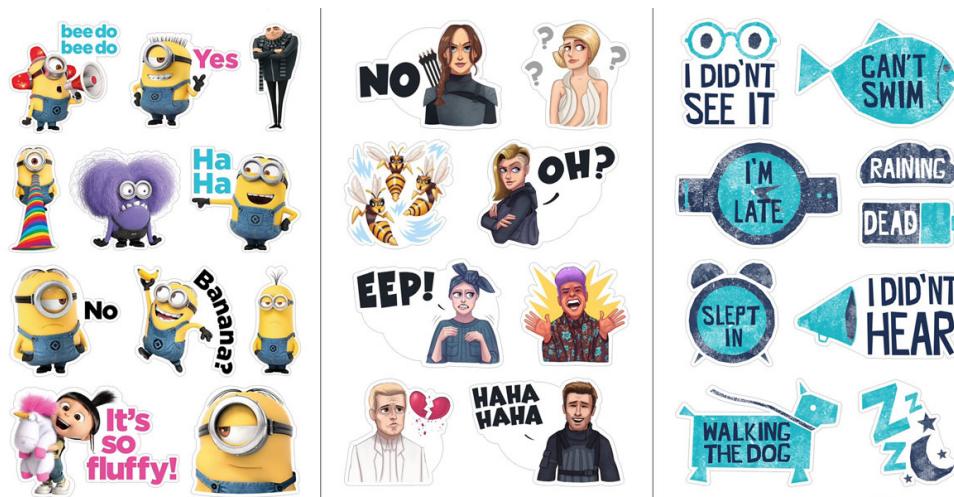


Figure 3-1 Viber sticker collection examples

Conclusion

Viber has benefited from their creation of a custom emoji set for their sticker collections. While they leverage licensed stickers their own emoji collection has created an extension of Viber's identify. With this in mind it reinforced the decision to use custom design for Vibes parent emoji. When the user generates there Vibe the attached parent emoji brands this piece of media as content from Vibes.

3.3.2 Stats of the Union, SOTU

Overview

Stats of the Union (SOTU) is an experiment in Data Visualisation for the iPad. Taking cold stats from US federal reports and beautifully maps them onto the Counties and States of America.

UI

SOTU largest flaws were in the UI. Small errors in menu layout disrupted the view of the map. The overlaid menu covered the map even after the selections had been made.

Design

The first thing that strikes the user about this app is that it is quite visually impressive. The use of clean interesting colours invites the user to engage with the map. The colour contrast between highs and lows looks great, however, as switch between the different views the use of the same colour palette gets confusing. Having black for both the median and the background colour, while allowing for a clean interface, hides a large portion of the data. Yellow to blue is also not an intuitive combination.

Conclusion

'Stats of the Union', SOTU, is an excellent lesson the challenges involved in data visualisation on mobile devices. The balance between beautiful designs versus clear presentation of the data for the user. SOTU uses colour and a neutral map to convey the data to the user. An aim of Vibes was to achieve the fine balance of colour, size and location in the apps data visualisation. SOTU was an influence on the design of Vibes map and the colour overlaid in the Hexbin layer.

Vibes also improved where SOTU failed, Vibes used a panels and menus. The main menu sliding out when required. The filter panel removed

from view once used. This allowed the map to be viewed when use without any interference from UI. The colour palette sacrificed design for function; Vibes project put extensive research in the relationship between emotion and colour.

3.3.3 Tunepics

Overview

Tunepics is a state of the art application. It is a social network that allows users to share music, primarily, while also letting other users know how they are feeling by adding an image and a colour, which corresponds with an emotion. In doing this Tunepics takes advantage of the devices (smart phone) affordances including the camera and microphone. As well as providing an innovative creative outlet, Tunepics is designed beautifully.

This application is a huge inspiration in terms of design, content management and UX. It provides a high standard to aspire to.

Vibes is an application that allows the user to post and keep track of how they feel, as well as easily being able to view the mood of an area. Vibes uses images and emojis to communicate, while expression through music and imagery is the core aim of Tunepics.

The two have some very similar aims and objectives; Tunepics will be discussed in its success and failings relative to Vibes.

UI

Functionality

Tunepics require a login; there is an option to sign up through Facebook, Twitter or by email. Once a user is logged in they can easily search for friends through Facebook, Twitter, email or their personal contacts.

Users can also search for friends or celebrities within Tunepics, once found, adding a friend requires a simple tap on the standard + icon.

The newsfeed is an Instagram style stream of images, which the user can interact with in a multitude of ways. Double tapping “Likes” a post, users can comment, listen to the attached piece of music and add how the image and song makes them feel. This is the most impressive aspect of Tunepics.

A colourful pie chart represents the “add emotion” function. By tapping on this the user can interact with the chart by touching their finger on different areas, when touched, the area fills with colour and the emotion it represents is indicated below. By adding your own emotion to the post, it is added to the over all chart which can be seen in the newsfeed.

Posting an image is straightforward; using the affordance of the device the camera is called up immediately. Once an image has been taken there is the option to apply a range of filters and add a tune. The search is done through iTunes and suggestions appear as the user types. The last step allows the user to describe their post in 140 characters or less as well as the option to add their location and share to social media.

Users are notified every time someone likes follows or leaves an emotion on one of their posts. Every time a user posts it is stored in their profile. The settings functions are available in a users profile, here a user can change their password, edit their profile, delete their account or sign out.

Navigation

The navigation for Tunepics is simple and intuitive. All the main functionality is located in a nav bar on the bottom of the screen which,

apart from when taking a photo or adding a tune, is always visible. This allows for quick and intuitive navigation between the various functions. A very small indicator of which page is active can be seen at the very bottom of the screen. The main page of the app is the newsfeed, which can be scrolled through easily.

Design

In this section the app will be analysed in terms of graphics, branding, interactivity and content.

Graphics and branding

The design of Tunepics is clean and minimal with great use of white space. The colour palette is black and white with pops of colour in the branding and interface such as the icon and camera function, but the majority of colour comes from the users posts and emotion inputs.

The icons used are custom built for the app but are very much in keeping with the flat minimal aesthetic.

Interactions

There are no interactions in this app such as swipe, drag or double tap. The most interesting interaction is the colour-emotion wheel. It is a successful way of allowing users to communicate with one another without the need for words, by allowing users to indicate how a post made them feel. Interactions like this one are outside the scope of Vibes but definitely something to keep in mind for future work.

Content

The main content of Tunepics are the images, which are all provided by the users. Tunepics provides access to iTunes and the colour-emotion wheel, both of which aim to enhance the content generated by the user.

Conclusion

Tunepics is a great app over all. It provides a basic service (photo sharing with music) but does it exceptionally well due to its clever design, intuitive navigation and innovative user-to-user interactions such as the emotion/colour wheel.

Although the core concept of Tunepics differs from Vibes, they do have some similarities; the main points being the treatment of imagery-successfully designing a platform that will enhance any content the user decides to upload, doing this well will ensure that the users have the best chance of communicating their message clearly and effectively.

Clear and direct navigation between functionality makes for a good user experience; Tunepics achieves this exceptionally well with user-friendly custom icons and a menu system that is always visible. With Vibes the main point of interaction is the map, in order to not interfere with the content, the menu, information architecture and navigation system need to be carefully considered.

Tunepics allows users to share their posts to various social media platforms such as Twitter and Facebook. Social media integration is something Vibes aims to achieve.

3.3.4 Conclusion

A state of the art application is one that takes advantage of the relevant affordances of its chosen device. It is a carefully constructed app, designed with the users needs as the main focus, which, if done successfully makes for a great user experience.

The applications discussed in this section are relevant to Vibes in that they each provide a specific service. Viber allows for easy communication and use of emojis, Stats of the Union provides high

quality, interactive maps that successfully communicate information to the user and Tunepics provides an innovative form of social expression with great design and relevant use of its devices affordances.

In analysing these applications it is clear that the standard of each service discussed is high, this presents the challenge of successfully merging these utilities to provide a successful, user-friendly app.

3.4 Design Requirements

3.4.1 Design Overview

The design overview will outline and describe the scenarios, task cases, use cases, use case diagrams and system flows of the app. These are all constructed around the needs of the two user personas described in the previous chapter.

3.4.2 Scenarios

The scenarios have been designed to give a high level overview into the real world context of using the app. They will aim to give a clear understanding of the core uses of the app.

Scenario 1. Browsing – The casual user

Mary has just arrived home to Dublin after dropping her son David to the University of Limerick where he is starting his first year of college. It is his first time living away from home and Mary is anxious about leaving him in an unfamiliar city. She wants to view the mood of the college campus.

Scenario 2. Search - The casual user

Mary is interested in current affairs and has been watching report of the water protests as they unfold on the news. She wants to see the ratio of happy, angry and sad moods at the most recent protest and compare it with the mood of the previous protest.

Scenario 3. Post – The active user

Derek has been feeling stressed and anxious for the past week and he can't figure out why. He decides to keep a visual diary of his day-to-day life, noting where he is and how he is feeling.

The scenarios outlined above describe the most frequent uses of the app for both the casual and active user. A task case for each scenario will be provided in the next section.

3.4.3 Use Cases

The use cases below describe the most frequent uses of the app in step-by-step detail. They are each accompanied by a diagram, which gives a high level overview of the case.

Table 3-1 lists all of the actors who are present in the use cases:

Table 3-1 Use Case actors

Name
System (the app)
Derek (user)
Mary (user)

Use Case Diagram 1. Browsing

The actors present in this case are shown in Table 3-2 below.

Table 3-2 Use Case 1 - actors

Name
System (the app)
Mary (user)

The use case diagram in Figure 3-2 gives a high level overview of the actions required to browse map and view the Vibes.

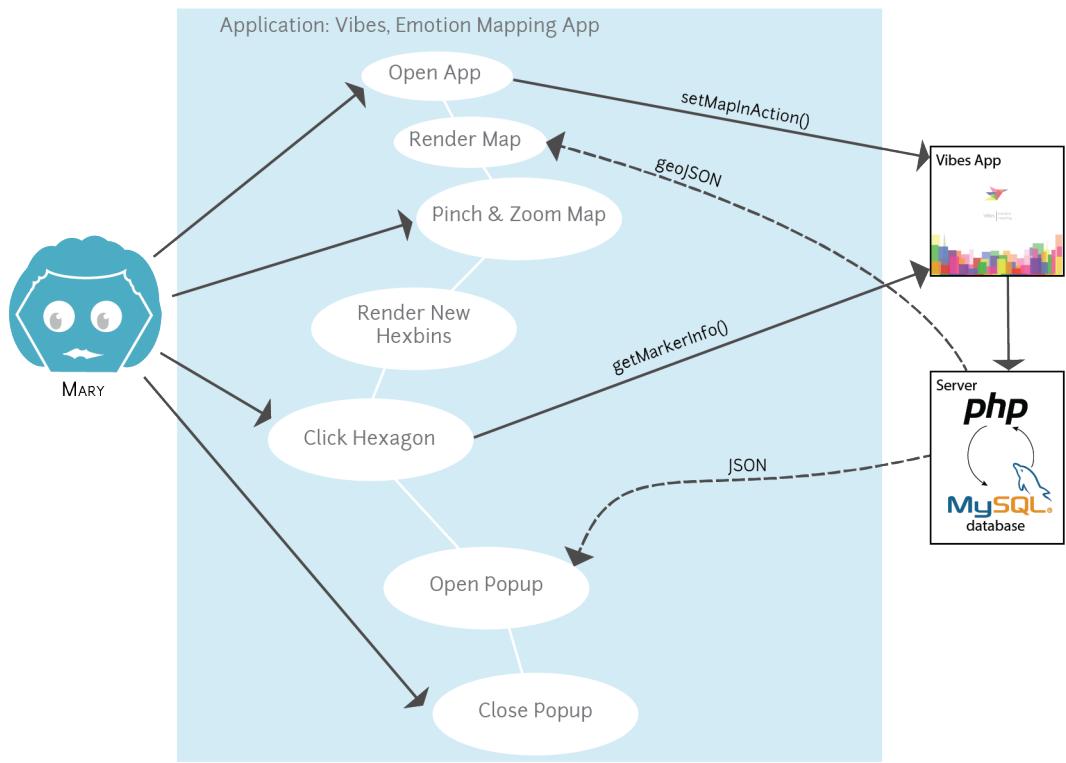


Figure 3-2 Use Case Diagram: Use Case 1

Use Case 1. Browsing

Mary opens the app and can see the map with 2-3 large coloured hexagons covering certain areas of Ireland. She pinches and zooms until she is at a zoom level where county names are visible. Mary then swipes on the screen to navigate around the map. She taps on the hexagons to view a chart that appears when more than one Vibe is dropped in the same area. The chart indicates which Vibes are in the area and the ratio of these Vibes.

Mary taps on an individual hexagon to view the attached image. She notes the Vibe of the post as well as the descriptive sentence and the image. She taps above the image to exit and return to the map where she continues to browse.

Data Model

The data model for the above use case is shown in Table 3-3.

Table 3-3 Data model, Use case 1

User	Software	Input Process Output	Data	Functions
Open App		Input		
	Check if user logged in	Process	Local storage	
	User Logged, render map	Process	LBS, geoJSON	setMapInAction()
	Show Map	Output	HTML, CSS, SVG	
Pinch & Zoom Map		Input	Touch event	
	Change zoom level	Output	HTML, CSS, SVG	
Click Hexagon		Input	Touch event	
	Get hexagon info	Process	AJAX	getMarkerInfo()
	Load Vibe into popup	Process	JSON	
	Open Popup	Output	HTML, CSS	
Close Popup		Input	Touch Event	
	Close Popup	Output	HTML, CSS	

3.4.4 Use Case Diagram 2. Search

The actors present in this case are shown in Table 3-4 below.

Table 3-4 Use Case 2 - actors

Name
System (the app)
Mary (user)

The use case diagram in Figure 3-3 gives a high level overview of the actions required to Search and filter the Vibes.

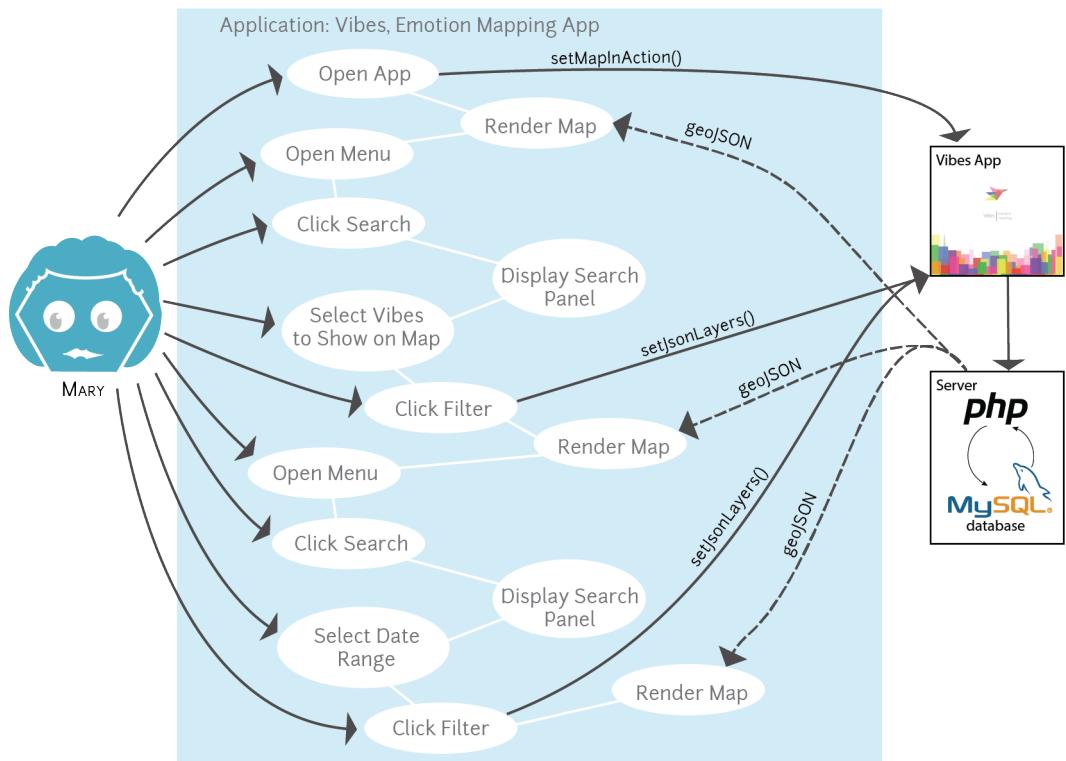


Figure 3-3 Use Case Diagram, Use Case 2

Use Case 2. Search

Mary opens the app and can see the map with coloured hexagons in various areas. She taps on the menu icon in the top left hand corner. On

doing this then menu pushes out from the left and a list of icons can be seen. Mary taps on the search icon, on doing this the menu slides out of view, the map appears and the search function is visible overlaid on the map. She taps the Vibes she does not want to search for, when she does this the opacity lowers so she knows they are not active. Mary then taps on the filter button and she is brought to the map where only the Vibes she searched for are visible.

After viewing the Vibes Mary returns to the search function and chooses the Advanced Search option. Here she selects the same Vibes as her previous search but inputs a date range from the week before to compare the moods of the same area at two different times. She taps the filter button and is brought to the map where only the Vibes she searched for are visible.

Data Model

The data model for the above use case is shown in Table 3-5.

Table 3-5 Data Model Use case 2

User	Software	Input Process Output	Data	Functions
Open App		Input		
	Check if user logged in	Process	Local storage	
	User Logged, render map	Process	LBS, AJAX, geoJSON	setMapInAction()
	Show Map	Output	HTML, CSS, SVG	
Click Menu		Input	Touch event	

User	Software	Input Process Output	Data	Functions
	Open Menu	Output	HTML, CSS	
Click Search		Input	Touch event	
	Close Menu	Output	HTML, CSS	
	Open Search	Output	HTML, CSS	
Select Vibes to show		Input	Touch event	
	Change Vibes Opacity	Output	CSS	
	Add/Remove Vibes from Array	Process	emoFilterAr ray[]	
Click Filter		Input	Touch event	
	Update Map geoJSON	Process	AJAX, geoJSON	setJsonLayer()
	Update Map layer	Output	HTML, CSS, SVG	
Click Search		Input	Touch event	
	Close Menu	Output	HTML, CSS	
	Open Search	Output	HTML, CSS	
Select Date Range		Input	Touch event	
	Change time parameters	Process	timeType Interval startDate	

User	Software	Input Process Output	Data	Functions	
		endDate			
Click Filter		Input	Touch event		
	Update Map geoJSON	Process	AJAX, geoJSON	setJsonLayer()	
	Update Map layer	Output	HTML, CSS, SVG		

3.4.5 Use Case Diagram 3. Post

The actors present in this case are shown in Table 3-6 below.

Table 3-6 Use Case 3 - actors

Name
System (the app)
Mark (user)

The use case diagram in Figure 3-4 gives a high level overview of the actions required to post a Vibe to the map.

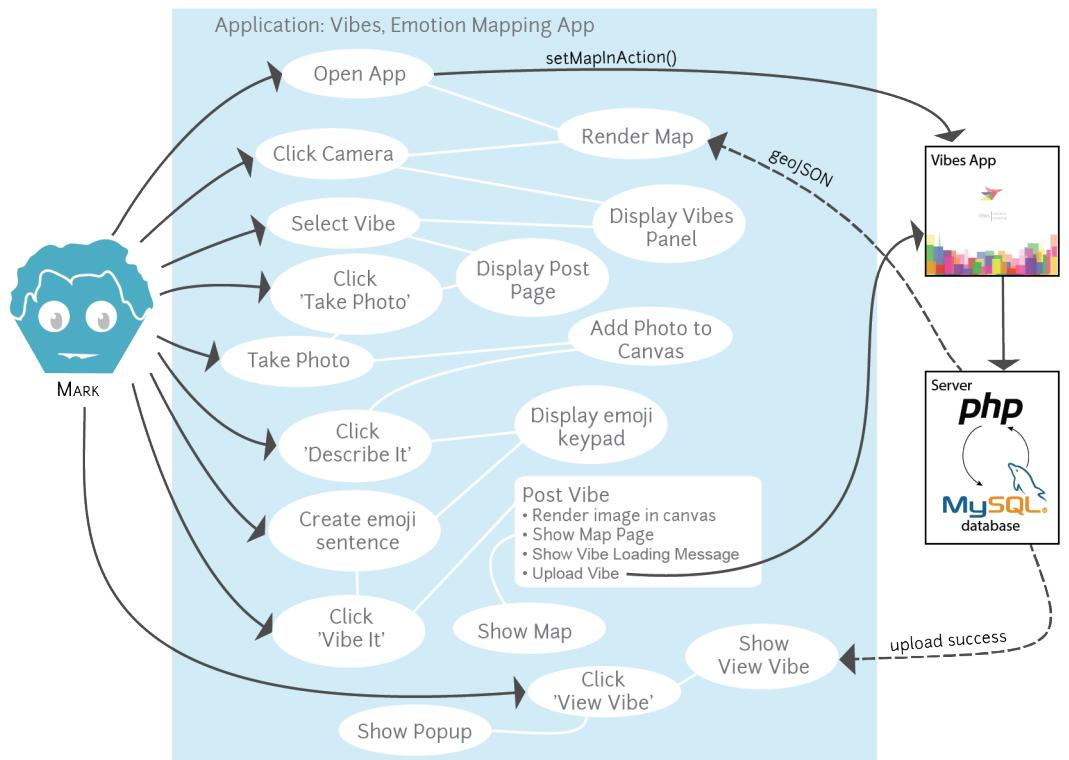


Figure 3-4 Use Case Diagram, Use Case 3

Use Case 3. Post

Mark wants to keep a visual diary of how he feels and how his mood changes on a day-to-day basis. He opens the app and can see the map with coloured hexagons covering various areas. He taps on the camera icon above the map and is presented with a choice of 8 Vibes. Mark chooses the Vibe that best describes his mood, after selecting his Vibe an option to take a photo appears. Mark taps on the screen to call up his iPhone's camera function, flips the camera around and takes a selfie and proceeds to describe how he is feeling using the custom emoji keyboard provided. Next he taps the "Vibe it" button where he is directed to the map and can see that his Vibe is uploading. A 'View Vibe' message

appears once upload is finished, Mark clicks the message to view his Vibe.

Data Model

The data model for the above use case is shown in Table 3-7.

Table 3-7 Data Model, Use case 3

User	Software	Input Process	Data	Functions
Open App		Input		
	Check if user logged in	Process	local storage	
	User Logged, render map	Process	LBS, AJAX, geoJSON	setMapInAction()
	Show Map	Output	HTML, CSS, SVG	
Click Camera		Input	Touch event	
	Display Vibes Panel	Output	HTML, CSS	
Select Vibe		Input	Touch event	
	Set parent emoji	Process	local storage	
	Set #emotionPostPage	Process	tabIcons[]	
			geolocation	
	Show #emotionPostPage	Output	HTML, CSS	
	Change Vibes Opacity	Output	CSS	
	Add/Remove Vibes from Array	Process	emoFilterArra y[]	

User	Software	Input Process Output	Data	Functions
Click Take Photo		Input	Touch event	
	Open camera	Process	Phonegap API	
Take photo		Input	Touch event	
	Add photo to canvas	Process	dataURI	
Click 'Describe It'		Input	Touch event	
	Display Keypad	Output	HTML, CSS	
Create emoji sentence		Input	Touch event	
	Add emoji to emojiRender Div	Process		
Click 'Vibe It'		Input	Touch event	
	Render Image	Process	emojiImgArr[], renderImage()	
	Show Map Page	Output	HTML, CSS, SVG	
	Show 'Image Uploading' message	Output	HTML, CSS, SVG	
	Send info to database	Process	sendPost()	
	Update Map geoJSON	Process	AJAX, geoJSON	setJsonLayers()
	Show Map	Output	HTML, CSS, SVG	

User	Software	Input Process Output	Data	Functions
	Show New Vibe location	Output	HTML, CSS	addMarkerPulse()
	Upload Photo	Process	imgBase64	
	Photo uploaded success	Process	AJAX	
	Load Vibe into popup	Process	JSON	
	Hide 'Image Uploading', show 'View Vibe'	Output	HTML, CSS	
Click 'View Vibe'		Input	Touch event	
	Open Popup	Output	HTML, CSS	

3.4.6 Design Requirements

The design requirements are the steps necessary to create an app, which will fulfil the project requirements as set out in the previous chapter.

These are outlined below with wireframes and an asset list.

Wireframes

The wireframes show the exact location of the project assets on the screen. There are three main wireframes, one for each of the functional modules that were detailed in the previous chapter. There have been several iterations of the wireframes, only the final ones will be shown here.

Navigation Wireframes

The diagram Figure 3-5 Navigation wireframe below shows the navigation available in Vibes.

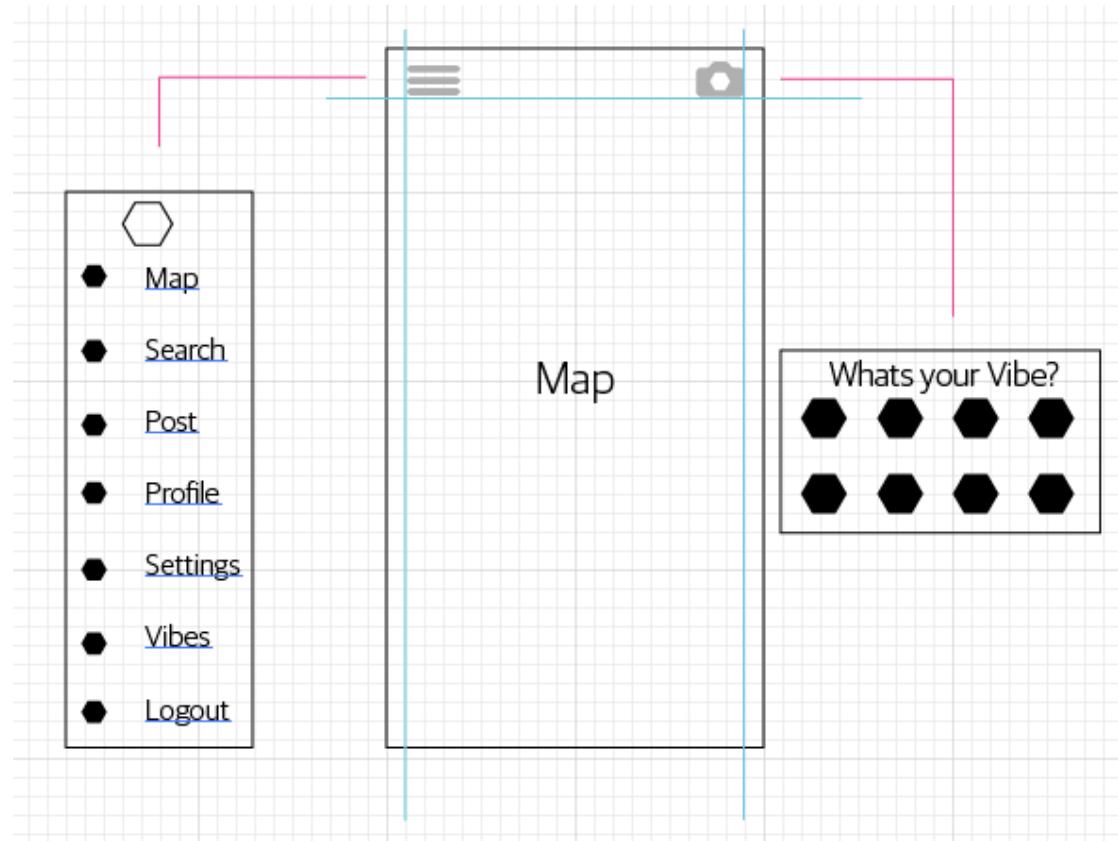


Figure 3-5 Navigation wireframe

Content Wireframe

The diagram in Figure 3-6 below shows how the content is displayed in Vibes. The first image shows how the users posts are displayed in their profile. Underneath the basic layout of how the full size image will be displayed can be seen.

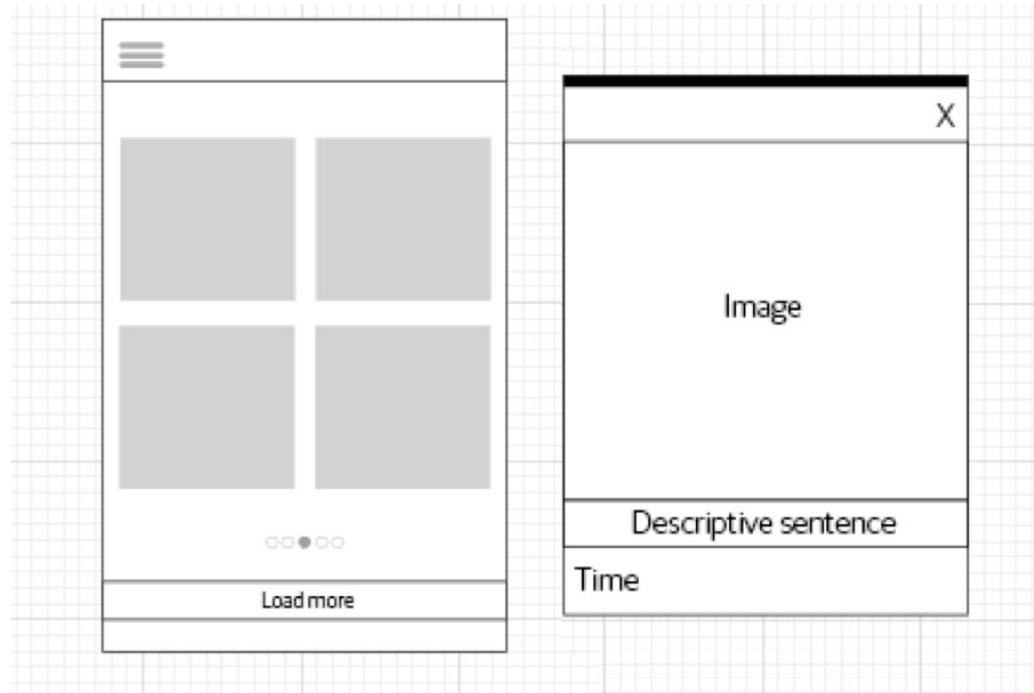


Figure 3-6 Content Wireframe

The process of implementing the Final design will be discussed in detail in the next chapter.

Asset List

The asset list in Table 3-8 Asset list outlines and describes all the assets needed to build the wireframes shown previously. The list specifies the asset location, file type, complexity. If the asset is an icon it will be specified whether it was custom made or a standard one was used. The asset list and wireframes are based on the MVP discussed in the previous chapter and so all of the assets are of equal importance.

Table 3-8 Asset list

Asset	Location	Asset type	Complexity	Custom/standard
Nav bar	All pages	CSS	Low	Custom
Menu icon	All pages	SVG	Low	Custom
Post icon	All pages except profile and settings.	SVG	Low	Custom
Map icon	Menu	SVG	Low	Custom
Search icon	Menu	SVG	Low	Custom
Post icon	Menu (same as nav bar icon)	SVG	Low	Custom
Profile icon	Menu	SVG	Low	Custom
Settings icon	Menu	SVG	Low	Custom
Vibes icon	Menu	SVG	Low	Custom
Logout icon	Menu	SVG	Low	Custom
Load more button	Profile	CSS	Medium	Custom
"My location" icon	Map	SVG	Low	Custom

This section used wireframes to explain the basic navigation of the app as well as outline an asset list, which will need to be created in order for the final design to be implemented.

3.5 Conclusion

In this chapter the applications considered to be the highest competitors with Vibes were analysed, with their strengths and weaknesses providing valuable information regarding what is already being done in the field, what is not and most importantly what there is a need for. Current state of the art applications that provide a specific service were also looked, through doing this a clear indication of what is possible as well as issues to look out for were realized.

Real world scenarios were also created to give a clear idea of the potential uses of the app. And finally, a list of design requirements have been constructed and outlined in Table 3-8.

Chapter 4

4 Development

4.1 Methodology

The Vibes app was developed using an agile methodology. There was a continuous build that was always tested after each function was added. Builds were integrated several times a day and pushed to device.

4.1.1 Development Environment

The design and programming were implemented in Netbeans 8.0 IDE primarily on a MacBook Pro. The project was tested in and Chrome Browser with Netbeans connector and the element inspect utility. Apples XCode IDE was used to export the project to device via a Phonegap project created with the command line interface.

Design assets were created with Adobe suite, primarily with Illustrator CS6. Assets were preferable exported as SVG for image quality. The designer implemented the assets in the project using HTML and CSS and once satisfied synced the assets and code to the major build for on the device testing.

4.1.2 Project management

The project was managed using Github shared repositoryⁱⁱⁱ, both the developer and designer could sync project file daily to the shared repository. The designer worked directly on the Github repository and synced using Github for Mac. The integrated project was then copied to the main project once it was verified the project files were synced without error. Major project changes were developed in repository branches, once the functionality passed unit testing the branch was merged with the main project. Each build was archived in zip file for

versioning backup. Testflight was used to push builds to test groups and to general test team. The version numbering was in the format x.y.z:

- x - Build number
- y - Major release
- z - Minor release

Build number was the overall phase of the project, the final build was 7.0. Major release was a large change to functionality such as the change to the profile page functionality. Minor release would be smaller changes such as changes to css, images or minor adjustments to code. The final build number was 0.7.6.3, the leading zero is because the build has not been released to the AppStore yet.

4.2 Design

4.2.1 Overview

This chapter will explain in the process of designing Vibes. The information garnered through surveys, creating personas and defining the design requirements outlined in the previous chapter has directly influenced the final design. The result of these findings as well as lots of brainstorming and experimenting established a clear direction for the design of the project.

In this chapter the initial wireframes will be illustrated which will lead on to an overview of the two design iterations created prior to the final design. These iterations will show how the layout was finalized through testing and user feedback. The final iteration will be outlined in full, this will include: logo design, colour palette, typeface as well as mood boards and sitemaps for each iteration.

The fundamental concept of Vibes is the relationship between colour and emotion and people's interest in the mood of their surroundings.

Vibes is a platform for users to anonymously map their feelings, view the general mood of an area and discover things to do or places to go based on their mood. The design requirements outlined in chapter 3 gave a clear direction of the assets needed in order to create a successful app. For the app to work the development of 8 custom emojis, referred to as Vibes, have been developed to a high standard.

A lot of research was carried out on the relationship between colour and emotion, universal facial expressions and what is needed to accurately communicate a message without speech or text. An in depth analysis of the findings of the current research and the key points from the studies relevant to Vibes will be detailed in section 4.2.5.

Vibes allows the user to only use emojis to describe their post. Research into the current use of emojis and the reason why this decision was made will be talked about in section 4.7.

This chapter will summarize the main steps taken in creating the user interface for the app. It will aim to give a full and comprehensive overview of the design process of each major section of the app including: mood boards, colour palette, typeface, iOS icons and custom icons, the app logo, the eight Vibes and how they as well as their corresponding colours were chosen and the swipe through user guide. The designs have gone through a series of iterations; in this section some excerpts of each major design decision will be shown as the final design is a result of all the information gathered throughout the process.

Wireframes

The final wireframes depicting the main navigation and placement of assets can be seen in Fig X in the previous chapter. Below is a sketch of the initial proposed layout. These were created in the beginning stages

of the production process. They are shown here to give an idea of where the design started how it developed, and why.

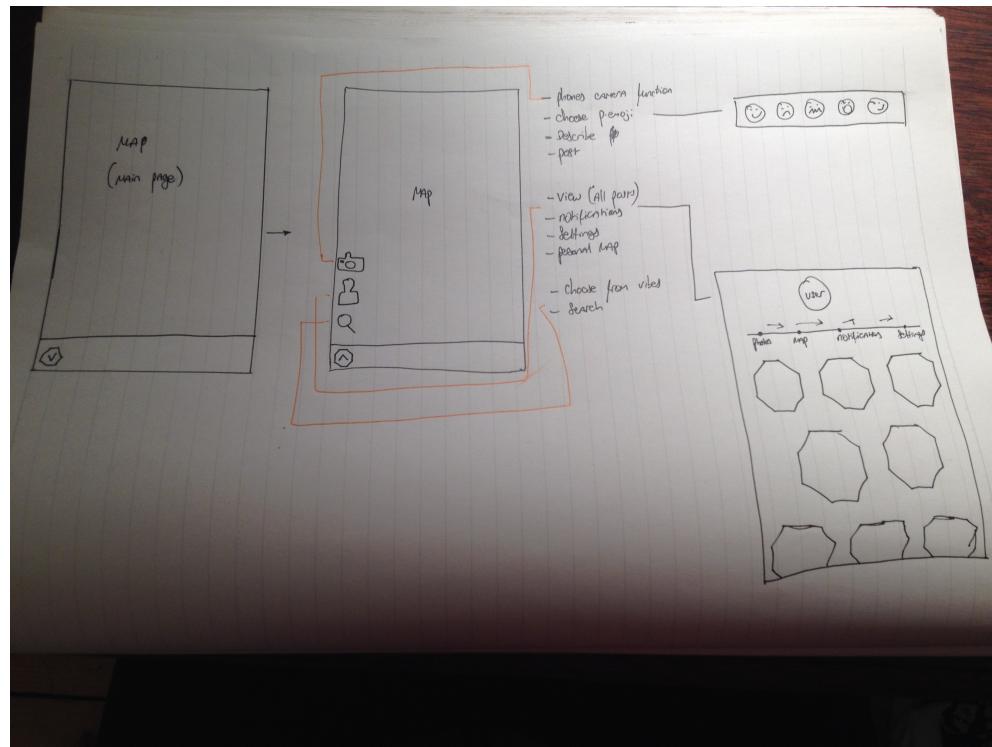


Fig 4 Initial wireframe sketches

The diagram above shows the layout as it was in May and the beginning of the summer prior to any formal testing.

The biggest obstacle faced here was the management and usability of the functions in relation to the map. The map is the main point of interaction and source of information within the app and so an effective menu system needed to be established, one which would allow the user to have access to the functionality at all times while not interfering with the content of the map.

There were three major iterations, which will be discussed and outlined over the next few pages. Each of the iterations were mocked up in

Illustrator, deployed to Flinto and sent to various users for testing. The results of this testing can be seen in chapter 6.

Before writing about the final design, aesthetic, colour palette etc., it is important to see how the design developed and strengthened from the first iteration to the final build.

Code influencing design

At this stage in the project a means of controlling the content on the map had been established. A process called Hexbin was used, which is a clustering technique employed when a lot of information is displayed on a map. Due to the nature of the Hexbin, the content is represented on the map as a hexagon. The design, icon shapes and graphics in the app took on an angular shape in this iteration and developed further in the following iterations.

4.2.2 Iteration 1 – Sensus

The first major design was shown at the July sprint. At the time the app was called Sensus, which is a Latin term, meaning to have felt emotion. It is also a play on “census” which means an official count or survey of a population, our app aims to show the official mood of a population.

Based on the fact that each of the 8 Vibes corresponds with a colour, the decision was made to keep the interface white and minimal. This was for two main reasons, to not draw attention away from the content and to not confuse the user. As each colour is affiliated with a feeling or emotion, using colour to indicate a function could potentially confuse the user so the decision was made to use a grey colour (9e9e9e) for the menu buttons and icons.

Sensus was the first complete branding and design, with all pages of the app mapped out. The interface is white with pops of colour framing the

pages, the UI elements and general aesthetic is clean and flat, in keeping with iOS 7. There are no gradients or drop shadows used throughout. The Vibes are also flat and minimal, the reasons for this are:

The design should stay in keeping with iOS 7 and that meant staying away from skeuomorphic designs.

At this point the Vibes had not been finalized.

Mood boards , Aesthetic and Site map

Shown below is a mood board depicting the design direction in the weeks leading up to the optional sprint in July.



Figure 4-1 Mood board

For the UI design and branding, inspiration was taken from the angular shapes of the hexagons as well as the colours proposed to represent the emotions in the app.

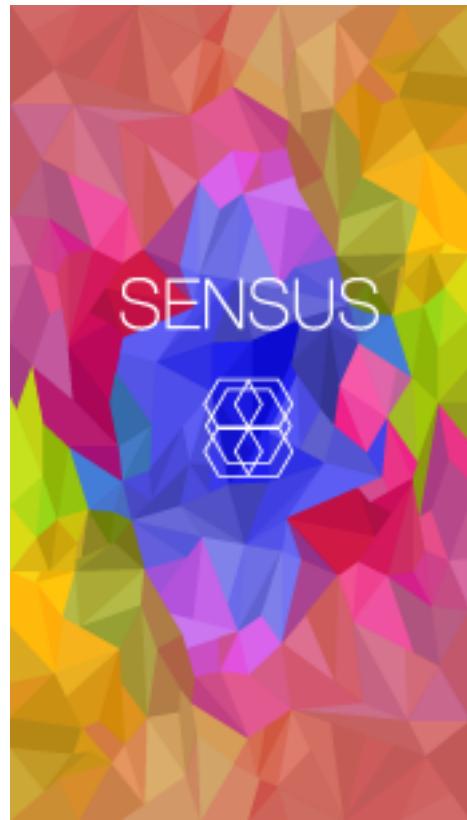


Figure 4-2 Sensus splash screen

At the time of designing Sensus, the app only had 6 Vibes. For this iteration, the colour from each Vibe was taken and included in the design. The reason for the various shades and jagged style of the design was to communicate the varying degrees of emotional states one can feel and how they can overlap. This thought process continued on for the duration of the project.

The main functionality, post and search, had been finalized by the time Sensus was designed and prototyped. In Fig 4.3 is a site map showing every possible path of navigation through the app.

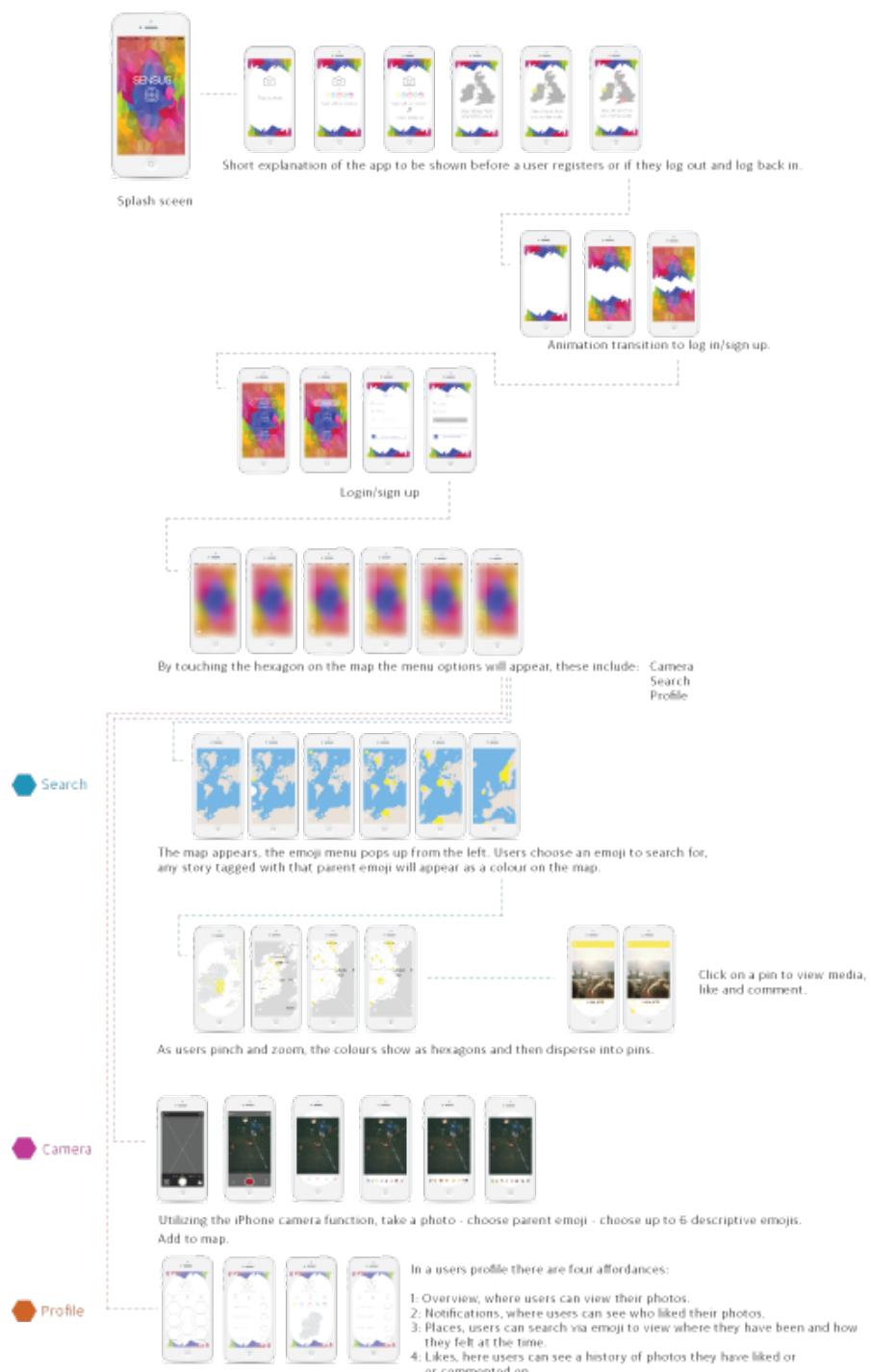


Figure 4-3 - Sensus site map

In this iteration the menu is represented as a small hexagon in the bottom left hand corner of the screen, when tapped, the hexagon flips and the functionality appears above it, tapping the hexagons again will make the icons disappear. The reason for this type of menu was to keep the interface as clutter free as possible while also maintaining an easily accessible list of functionality.

Sensus was deployed to users as a prototype using Flinto. The main findings were that the hexagon as a menu button was not viable, feedback showed that users found it too small, not clear that it was a button and not noticeable enough among the Hexbins on the map.

One on one testing proved to be very helpful as the user could communicate directly how they would like to interact with the app. The over-riding solution, as communicated by the testers, was that intuitively they look to the top left for the “hamburger” icon, which typically symbolizes a menu.

Other feedback from testers included that they liked the use of colour in contrast with the minimal interface, they agreed that either an off screen or pop up menu would work best and they knew to interact with the hexagons on the map. This information proved to be invaluable as it paved the way for improvements in some areas (menu) but gave assurance that content control and UI were on the right track.

Conclusion

As well as being the first full design iteration, Sensus was also created before a full understanding of the content (emotions and colour) had been established. Through testing Sensus, valuable information was gathered regarding how the users want to interact with the map and

how the functionality should be displayed. These points were taken on board when designing the next iteration, Emo.

4.2.3 Iteration 2 – Emo



Figure 4-4 EMO logo

Introduction

Based on feedback from the previous iteration, Sensus, it was back to the drawing board in terms of design and menu layout. Meet Emo, a character that spawned from Brainstorming the apps core values.

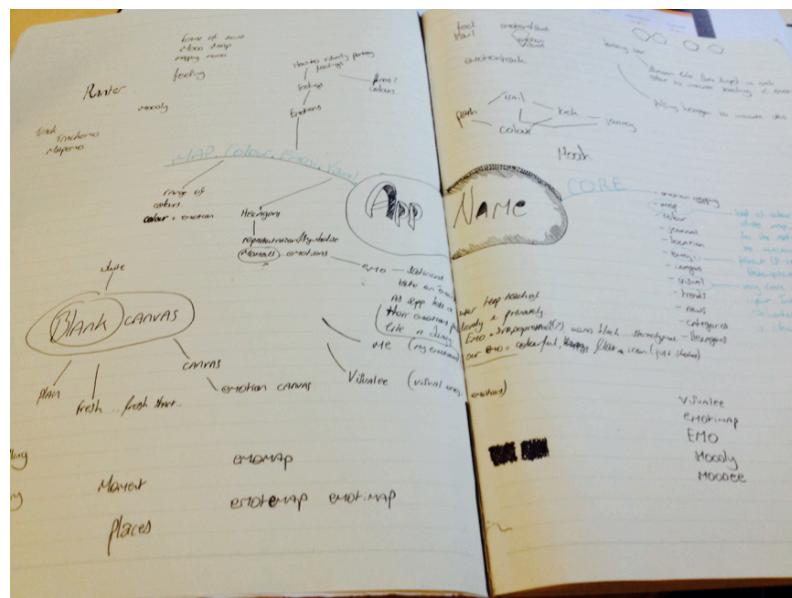


Figure 4-5 Brain storm sketches

What initially started as brainstorming for a new name became a spider diagram delving into the app's core aims objectives and how they can be communicated through both the name and design.

What does Emo mean?

Emo, as it is stereotypically known, is a term used to describe followers of "Emo" music, which is defined as "A type of rock, guitar music with a mainstream sound". Followers of this type of music are stereotypically thought to be "Overly sensitive, full of angst and adopts a certain style characterized by black clothes, black hair and skinny jeans".

The idea of Emo as a name and brand for the app came first and foremost from the obvious, Emo being short hand for emotional. Through brainstorming, the idea that the app could have a character that encompasses all emotions emerged. Emo was supposed to be a satirical take on a stereotypical Emo. Instead of dressing in black and being afraid of the array of emotional states one feels on a daily basis, Emo the character is full of emotions! It shows off its colours with pride.

The design

In keeping with the angular shapes and strong use of colour of Sensus , Emo is made up of all eight emotions and their subsequent colours. Emo is A-sexual and faceless in order to be an anonymous extension for whoever is using the app. As with the design of Sensus, Emo uses block shading to create depth, which aims to communicate the different level of emotions. While creating Emo the colour palette was decided. Initially the colours were faded. But testing showed that users preferred a more vibrant character. This made sense, as Emo looks full of life when vibrant colours were used which is part of the message it was aiming to convey.

Based on feedback from the previous design iteration regarding the menu layout, the interface for Emo used the standard hamburger icon on the top left of the screen to indicate that the functionality is off screen. An example of this can be seen below.

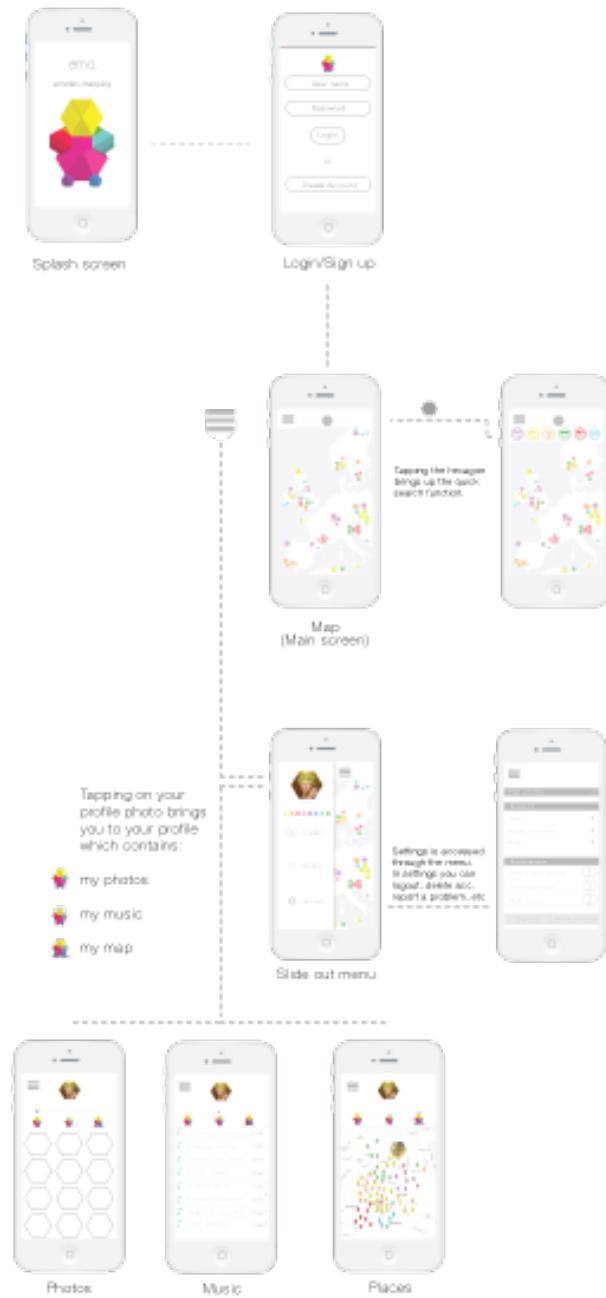


Figure 4-6 EMO site map

At the time of designing Emo, there were plans to include an option to add a short music clip to your image when posting to the map. The music would have been obtained via iTunes. Because of this an “Emo music” character was created using SVG animations depicting Emo wearing a set of headphones bobbing his head.

There was also plans to include a “my places” option in the users profile depicting everywhere they had dropped an image on the map. Another SVG animation was made for this showing the Emo character sitting on interchanging coloured hexagons.

As with Sensus, testing was carried out using a Flint prototype and a survey. (More info on testing can be found in the testing chapter). Feedback from the survey indicated that testers were slightly confused about the name Emo and many thought it had negative connotations. There was however positive feedback regarding the menu layout. This feedback was taken on board when designing the final iteration, Vibes.

4.2.4 Vibes – Final design

Introduction

Vibes is the final name of the app and also the final design iteration. The design is a culmination of the two previous iterations outlined in this chapter. Having taken into account the feedback from both of these iterations, Vibes aims to provide an easy and enjoyable user experience.

The layout of the previous iterations, Emo, proved to be a success with testers. This meant that the design aesthetic needed to be finalized as well as the logo, colour, typeface and custom emojis (Vibes)

The first step taken was to finalize a name and logo for the app.

The name Vibes came about from both team members discussing the app, its affordances and aims. The phrase “Find the vibe of your city” was said when describing what the app can do and Vibes seemed like the most fitting name. The name was discussed with potential users of the app who agreed that it made sense and fit the nature of the project.

The Name

The name Vibes came about from both project team members discussing the app, its affordances and aims. The phrase “Find the vibe of your city” was said when describing what the app can do and Vibes seemed like the most fitting name. The name was discussed with potential users of the app who agreed that it made sense and fitted the nature of the project.

The Aesthetic and Logo

The design process for the logo began on paper through sketching, brainstorming and experimenting. Before creating a logo, the design aesthetic had to be finalized.



Figure 4-7

Through talking to potential users and classmates about the name Vibes it was possible to garner some feedback on how they would visualize the word. Key words included colour, movement, music, pulsing and uneven. The process began by mapping out the colours using watercolours. The use of watercolours meant the colours could easily merge, making it quick and easy to experiment and to create a sense of movement and fun. Using black pen, shapes and cityscapes were defined on top of the colour.

By first working on paper and sketching out ideas it was clear that there were some ideas worth experimenting with. The next step was to create a high standard mood board depicting the aesthetic that Vibes aimed to achieve.



Figure 4-8 Mood board

These rough sketches led on to mocking up ideas in Illustrator and implementing them using CSS to get an idea of what they look like on a device. Below are some examples of initial Illustrator mock-ups.

The official meaning of “Vibes” as stated in the Oxford Dictionary is “A persons emotional state or the atmosphere of a place as communicated to and felt by others”.

These designs were aiming to communicate a sense of movement and excitement, as if the Vibes could pulse above a cityscape depending on the mood.



Figure 4-9 Vibe logo mock-ups

Accompanying the logo is the text “Vibes | emotion-mapping”. This needed to be styled and the font face for the app finalized.

Prior to choosing a font, the same idea of movement was applied to the word Vibes, in particular the V. As always, the idea began on paper, examples of which can be seen below.



Figure 4-10 Vibes design workings

Through doing this, a new idea for the logo emerged. The next step was to create digital mock-ups. Below are a series of examples showing how the idea progressed.



Figure 4-11 Vibe logo mock-ups

The iterations in Fig 4.11 illustrate how the letter V taken from the word Vibes was experimented with. The aim here was to portray a sense of movement and fun, this was achieved by altering the original shape of the letter and including colour.

The final logo takes elements of the V symbols seen above, such as inclusion of colour and the sense of movement. What started out as another “V” shaped iteration turned into something more. Initially the aim was to stay with the V shape but instead of using very structured blocks of colour, to experiment with triangular shapes. The reason for this was to create a logo that was in keeping with the aesthetic of the app, which was influenced by the angular shapes of the hexagons. The result is the final logo.

Combining elements from previous iterations, the final design showcases the core affordances of Vibes. A colourful bird flying above a cityscape of varying heights and colours. The cityscape represents the different vibes of an area, as with the previous iterations, the colours vary in opacity and overlap to demonstrate the mix of emotions a person feels day to day.

The bird is representative of the 8 “Vibes” in the app and is seen flying above a cityscape, in the interface it is placed above the map and the elements in the menu.



Figure 4-12 Vibes Final Logo



Figure 4-13 Vibes logo breakdown

As demonstrated in the Fig 4.13 above, the bird is made up of a series of triangular shapes placed on top of each other. The opacity varies in order to successfully merge two colours to produce either a third colour or a different shade.

Typeface

The typeface used throughout the app is *Guardian sans light*. It is a clean sans-serif font with some detail and personality. There is minimal text within the app apart from the menu but the functions available needed to be clear and legible. An example of the typeface can be seen below in Figure 4-14.

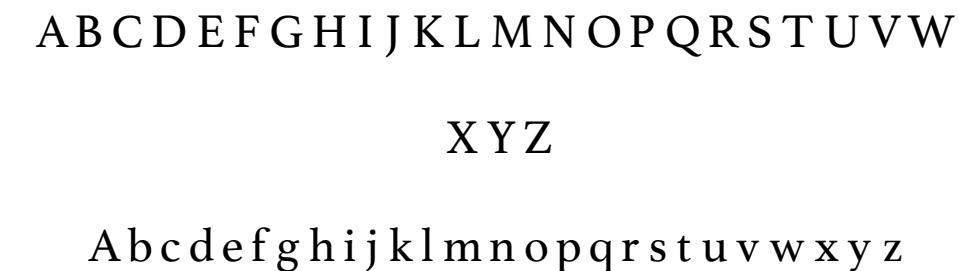


Figure 4-14 Typeface

4.2.5 Emotions

Introduction

The basis of vibes is tagging a piece of media with an emotion and a subsequent colour, in order to contribute to the general Vibe of an area. To make this process as quick and easy as possible for the user a series of 8 emojis each representing an emotion was custom produced. As with all of the graphics in the app, these were made in Illustrator. Detailed breakdowns of how the emojis were made can be seen in Figs 4.19 and 4.18.

The choice of emojis is based on academic research from a range of sources, details of which will be explained in the emotion theory section and colour and emotion section.

When posting a Vibe the user has the option to describe their post in more detail using a custom emoji keyboard featuring popular emojis

such as the “Little poo”. The number and selection of emojis available is based on survey feedback and research, details of which can be found in the Descriptive emoji section.

Emotion theory

In this section the process of choosing the eight “Vibes” will be described in detail, including research undertaken into what constitutes an emotion, as opposed to a feeling or mood, macro and micro expressions, text based vs. visual communication, and various theories up to and including Plutchiks “wheel of emotions” which will lead on to the next section, colour and emotion.

Which emotions and how many to represent was determined by Plutchiks wheel of colour, which will be explained in the Colour and Emotion section. How to visually represent these emotions required in depth research into what constitutes an emotion as opposed to a mood or feeling, and what characteristics, if any, are universally recognized as indicators of a specific emotion.

This research began with Dr, Paul Ekman ^{iv}(facial action coding system). Ekman’s work identifies a very specific set of facial cues associated with a range of emotions. For example, raised eyebrows and the whites of the eyes is an indication of surprise, whereas lowered eyebrows and pursed lips are associated with anger. If this research were put into context with the well known emojis, it would seem that the facial emojis are based on these findings. Are these emojis recognized universally to have one meaning, and one meaning only? Or are they open to interpretation?

Ekman poses the question, “Are there universal facial expressions?” He aims to prove that there are indeed universally recognized Macro emotions by a simple experiment on his website. Four black and white

photos show a man from New Guinea, who lived in an isolated preliterate culture, displaying four different facial expressions that aimed to depict four different emotions. Ekman proposes that if you guess the expressions correctly, facial expressions are universal, however if you guess incorrectly that indicates that facial expressions are culturally specific. The expressions the man in the photos was asked to display were; anger, sadness, happiness and disgust.

The term Macro emotion refers to common expressions on the face. Ekman's research aims to show that a Macro expression alone does not necessarily translate the intended message accurately, in order to gain as full an understanding as possible both Macro and Micro expressions must be taken into account. Micro expressions refer to very brief facial expressions lasting only a fraction of a second. They occur when a person either deliberately or unconsciously shows or conceals a feeling.

In the context of Vibes, the eight emotions used aim to relate closely to what are seen to be universally recognized facial expressions, which would make them the Macro emotions. The attached image is the Micro emotion, allowing the user to capture a fleeting moment in time, showing or concealing whatever they choose.

According to Ekman's research both Macro and Micro expressions are needed in order to accurately communicate an emotion, by affording the user to do both it ensures that the Vibes have the potential to tell a story, send a message or act as an accurate reminder of how you felt at one particular time, in one particular place.

Colour and emotion

In this section how and why the eight represented emotions were chosen, as well as their corresponding colours, will be explained. The

colour palette had already been finalized in that the decision was made to use 8 colours based on 8 emotions, however, which colour should represent which emotion was still to be concluded.

Initially, the plan was to base the custom emojis and their corresponding colours on user testing and feedback. A problem arose however in that a general consensus on the emoji/colour relationships could not be determined despite a lot of one on one testing and feedback garnered from Vibes Facebook, Twitter and Instagram accounts. This led to research into the meaning of certain colours and what emotions they represent.

Plutchiks Colour Wheel

The eight emotions available in the app are mostly based on Robert Plutchiks Wheel of Emotion^v, see Fig 4.14. He considered there to be eight primary emotions with varying levels of intensity, this is communicated clearly through the use of colour.

The eight emotions used in the app are:

- Happy
- sad
- anger
- fear
- embarrassment
- boredom
- relaxed
- love.

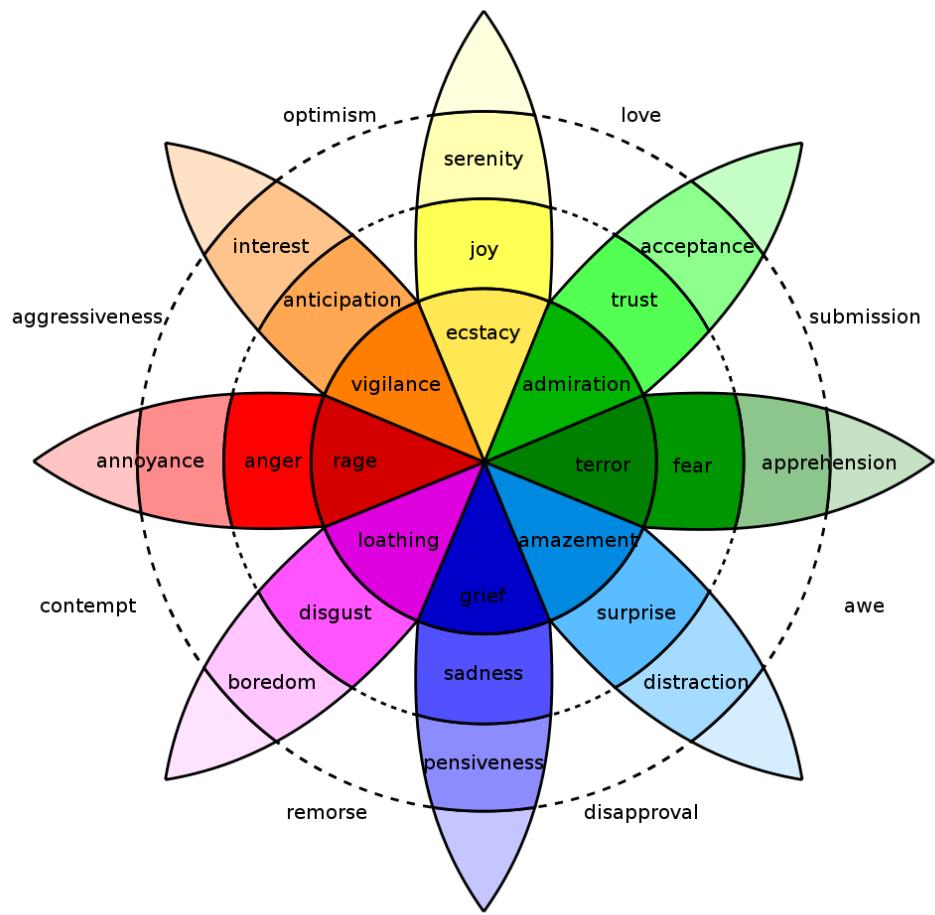


Figure 4-15 Plutchik's colour wheel of emotion

The Vibes and their corresponding colours are mostly based on the above diagram, apart from embarrassment, which is included due to a high demand from the users and is matched with a blush pink colour. Relaxed, or serenity as it is shown in Fig 4.14, is represented in the app by the colour orange. This is because happy is represented by the colour yellow, having another emotion represented by a similar colour could be confusing for the user. Love is represented by a strong pink colour because, as before, love is shown in the diagram to be represented by the colour yellow. Feedback from the users showed that they would

expect a love emotion to be represented by either pink or red, as anger is symbolized by the colour red an informed decision was made to match love with the colour pink.

The significance of colour in Plutchiks wheel is relevant and not just symbolic. The core of the wheel shows the eight core emotions, as specified by Plutchik, represented by strong colours. The outer sections of the wheel show further emotions deriving from the core, each of which progressively lowers in both colour and emotional intensity.

Plutchiks theory and basis for using colour is that primary emotions, like primary colours, can be expressed at different levels of concentration meaning that, as with colour, emotions can be mixed with one another to form a new or different emotion.

This theory directly influenced the general aesthetic of the app, namely the logo and branding, where each representative colour is used in varying levels of opacity. Colours are overlaid on each other to suggest the wide range of emotions one can feel at any one time, this practice inevitably follows Plutchiks theory of mixing colours and emotions to produce something new.

Colour palette

As outlined in the previous section the 8 colours used in the app are based mainly on Plutchiks wheel of emotion, however some were altered to suit the users needs. The colours, their hex value and their corresponding emotions will be shown below in Figure 4-16.

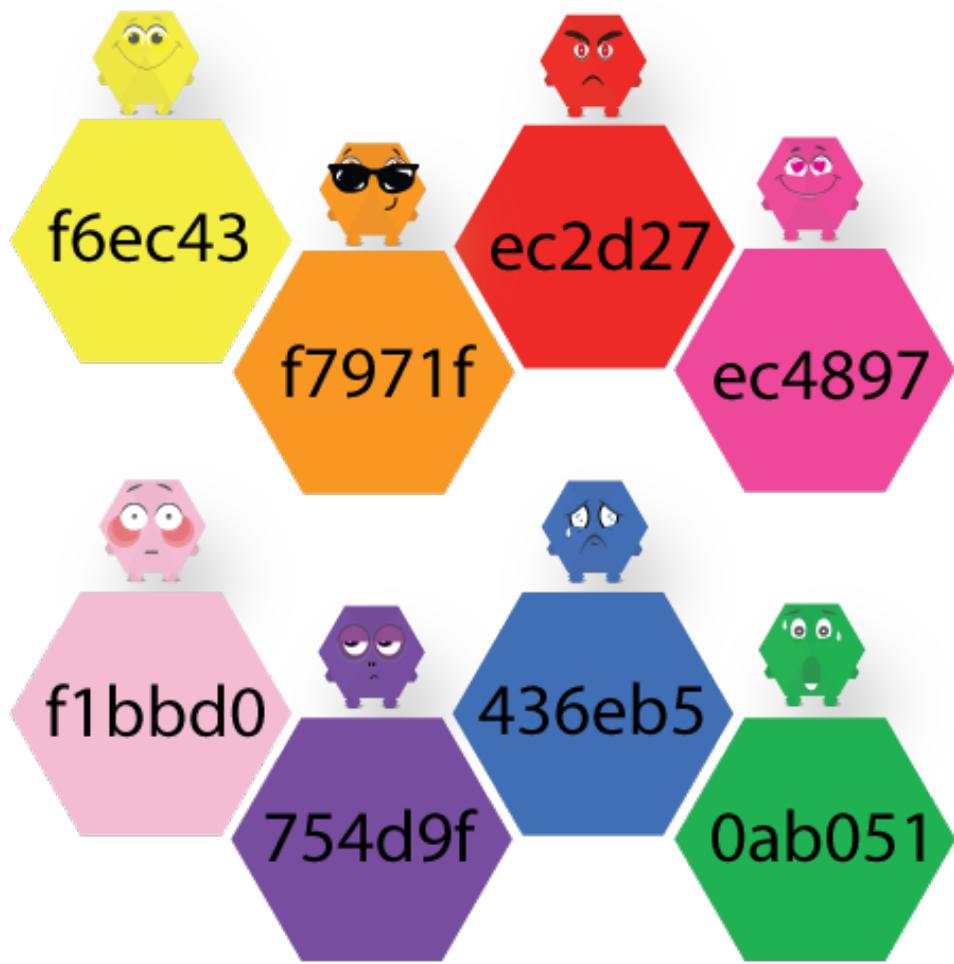


Figure 4-16 - Colours, hex values and corresponding emotions.

4.2.6 Content

Introduction

In this section the contents of the app will be discussed, these include the imagery, custom emojis (Vibes), descriptive emojis, vibes reference and the user guide.

Custom emojis

The custom emojis symbolise the 8 emotions in the app and are referred to as the Vibes. The design of the Vibes was created using an agile method of create, test, iterate and repeat. The Vibes originally began as

flat, stroke only shapes with little detail. Based on research outlined in the *emotion theory* section the decision was made to add more detail and colour to the Vibes.

The custom emojis in the app are shown in three areas: the search function, post function and in the vibes button in the menu. When a user taps on the icons representing both the post and search functions, a box containing the eight Vibes (custom emojis) appears. The user must then choose a Vibe that best represents their current mood. On this basis, the emotion that each emoji represents had to be as clear as possible to allow the user to make a quick, informed decision.

As previously stated the eight emotions used in the app are:

- Happy
- sad
- anger
- fear
- embarrassment
- boredom
- relaxed
- love.

The process of accurately drawing and defining an emotion was quite time consuming as no matter how much testing and research was carried out, the representations never made sense to every user.

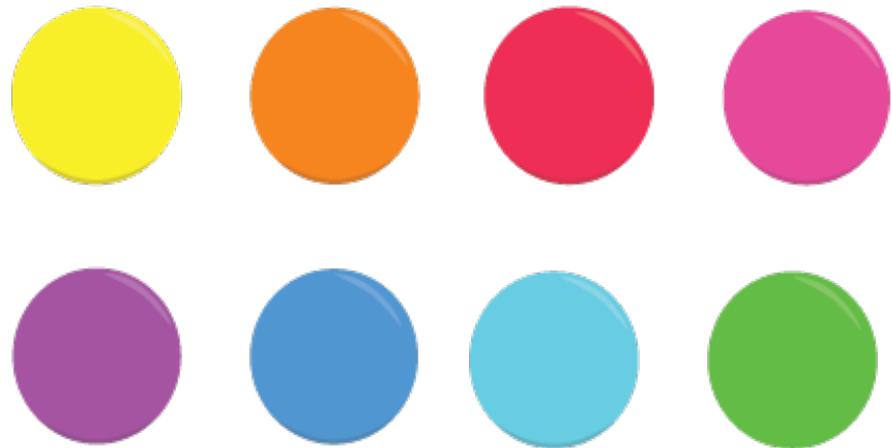
In this section the progression from flat, minimal custom emojis to a more detailed set will be described in full. Below is an example of the first batch of emojis.

Flat custom emojis



Figure 4-17 flat custom emoji

The emojis seen in Figure 4-17 were used in the development of Sensus.



Experimenting with added detail



Figure 4-18 more detailed design

The more detailed emojis seen in Figure 4-18 were created as a result of the research carried out in the *emotion theory* section that outlines Ekman's research into universal facial expressions. The Vibes seen here aim to accurately depict the chosen range of emotions by including details such as eyebrow positioning and the whiteness of the eyes.

While experimenting it was important to not stray too far from the iOS guidelines, which encourage a flat design void of drop shadows and

gradients. The detailed expressions as seen above are not completely “flat” yet manage to stay away from skeuomorphism by maintaining a fun, cartoon like expression and the inclusion of colour.

The Vibes were circular initially to make them recognizable as standard emojis, which are yellow and circular. The move to a hexagon shape fitted with the aesthetic of the final design as well as being a clear representation of how the users Vibe will look on the map. Below in Figure 4-19 is an example of the final Vibes designs in full. A breakdown of how each Vibe was created can be seen in Figure 4-20 and Figure 4-21 .

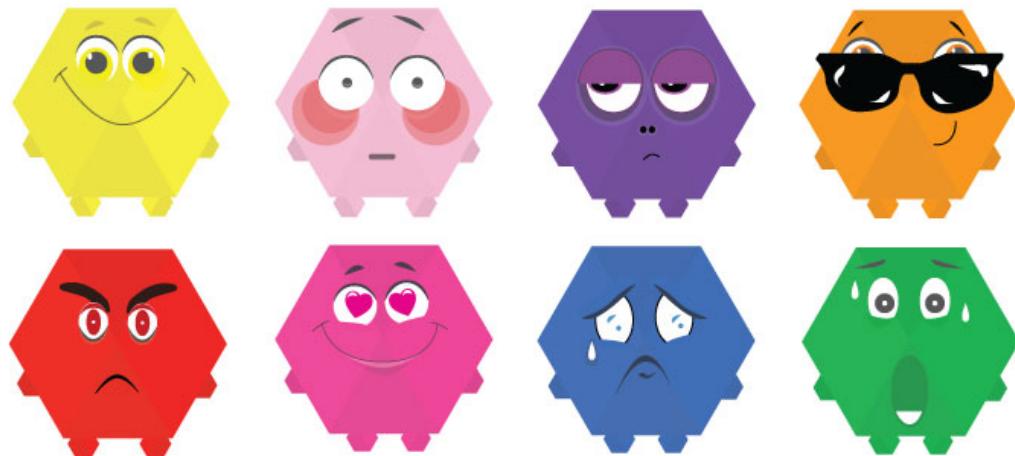


Figure 4-19 Emoji final design

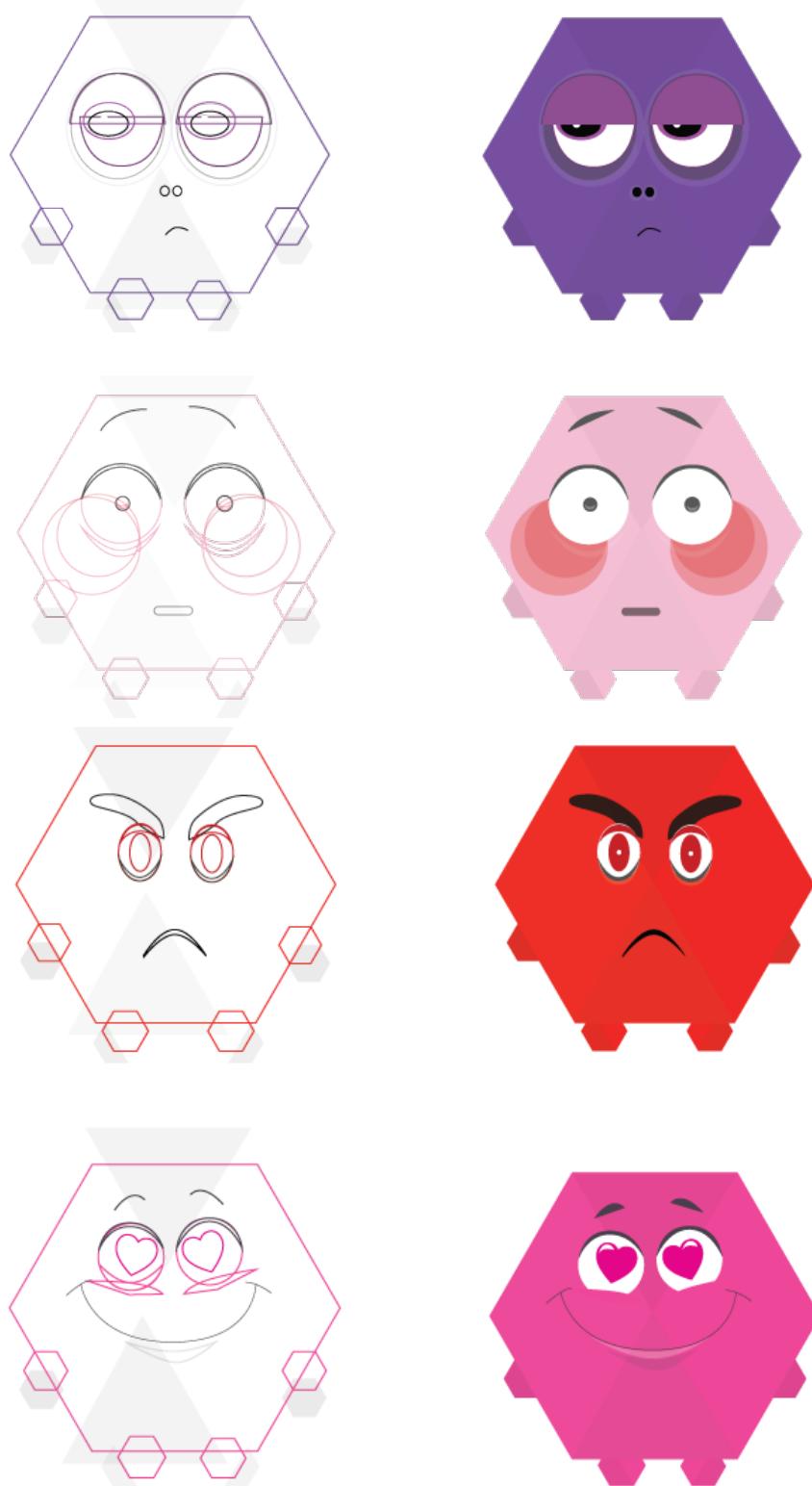


Figure 4-20 Emoji design breakdown

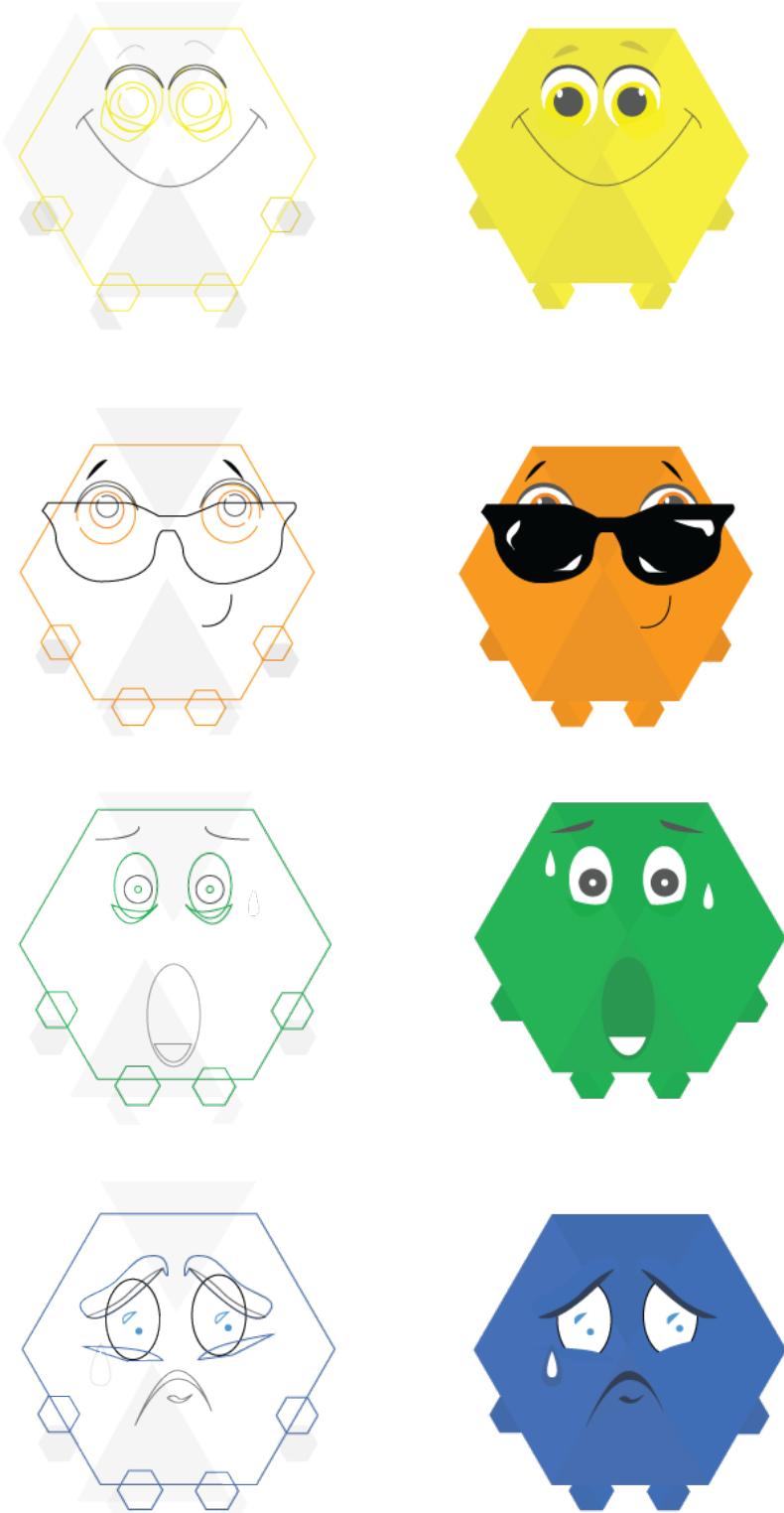


Figure 4-21 Custom emoji breakdown

The Vibes were created in Illustrator. Each Vibe started off as a simple hexagon shape filled with the appropriate colour. Block shading and highlights were then applied, this was achieved by creating shapes with a black fill (for shading) and white fill (for highlights) and using 10% opacity. These shapes were then overlaid on the hexagons to create a sense of depth.

The expressions are created using a series of circular shapes as shown in the diagrams above. Referencing Ekman's "Facial action coding system", eyebrows were added to each emoji in an appropriate fashion to enhance the expression, as well as taking inspiration from some popular emojis featured in the emoji keypad. This leads on to the next section, Descriptive emojis, which outlines the process of choosing a selection of standard emojis that the user can avail of to further describe their post.

Descriptive emojis

The descriptive emojis refer to the selection of standard emojis available to the user to further describe their post. This selection is optional and becomes available after a user has taken a photo. The reason why users cannot use text to describe their post is for a number of reasons including the core concept of Vibes are that it is a form of visual communication. Affording the user the option to only describe their post using images allows for open interpretation from a potentially wide community, as well as a personal touch from whoever posts. Using an image-based language to communicate also omits any potential language barriers that may arise.

An article published on Mashables website named "When words just don't cut it, emoji as art"^{vi} provided further proof that emojis are fast becoming the "Millennial chosen method of text". The article, written by

Christine Erickson, describes a visit to the Emoji Art and Design show in New York. Erickson muses that

"The text message used to be the quickest way to convey a message, but words are no longer enough...emojis often serve as the punctuation, if not the entire thought"^{vi}

While attending the show Erickson participated in an “Emoji recognition test” which involved describing a given scenario using only emojis. Erickson found that to best describe the scenario she needed to use upward of eight emojis, though in her own words she is by nature “emojinally over dramatic”.

The decision to produce a custom keyboard of emojis derived from the realization that some users may not have the emoji keyboard activated on their device, rendering the descriptive function useless. This problem was realised when analysing the emoji only social-network “Emojli”. Details of this analysis can be found in 3.2.3 Emojli.

To tackle this problem, research into the most popular emojis was undertaken, as well as surveys asking for users feedback on their most used emojis. The findings from this survey showed that 50% of users use emojis all the time when communicating via social media, a further 47% sometimes included emojis and just 7% stated that they never use emojis.

Those that use emojis some or all of the time provided feedback stating which ones they use most often, the results of which proved to be extremely close to a list of “The 100 Top Used Emojis”^{vii} found on a website called FiveThirtyEight.com. The contents of this list were found

from a project by Matthew Rothenberg, who created a code that counts the number of emojis used on Twitter in real time.

Experimental one on one testing was also carried out on a range of users in the same format as Erickson describes above with an “emoji recognition test”. The purpose of this testing was to provide answers to the question of how many descriptive emojis the user could make use of, or how many they felt they needed to accurately describe their post. The results varied from some users using up to nine emojis to describe their post, whereas others used two-three or none at all. Based on these results the decision was made to allow users to use as little or as many emojis as it takes to fill the white, rectangular space provided.

Further details of the testing methods used can be found in Chapter 5.1.1.

A list of the available descriptive emojis can be seen in Figure 4-22 in no particular order.



Figure 4-22 Descriptive emoji

Icons

The functional icons required less design iterations than the custom and descriptive emojis described in the previous sections. This was due to the fact that the icons used were standard iOS icons with colour changes or slight customizations. All of the icons were tested using an agile method and proved to be fully understood. The functional icons required were for the menu, post, profile, search, settings, logout and Vibes.

Each icon is displayed in the colour #9e9e9e. The logout and profile icons used were taken from a set of icons downloaded from webalys.com/mini-icons, the remaining icons were inspired by iOS icons but were customized slightly to fit with the brand aesthetic.

The icons as they were prior to any customization can be seen in Figure 4-23 the final customized versions can be seen in Figure 4-24.



Figure 4-23 Icon images



Figure 4-24 Custom icon images

Shown here in Figure 4-24 are the customized settings, logout, profile, post and search icons. The icons were altered to fit with the brand aesthetic throughout the app by adding hexagonal and angular shapes. They are grey (#9e9e9e) so as to not overload the interface with colour. The other two icons featured in the app are the vibes and map buttons. They are completely custom made and are shown below in Figure 4-25.

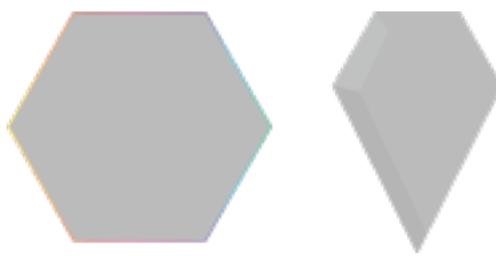


Figure 4-25 Menu icons

The icons shown here are all featured in the menu, which is represented by the well-known “Hamburger” icon. As with the other icons, this was changed to the colour #9e9e9e but was not customized in any way apart from that.

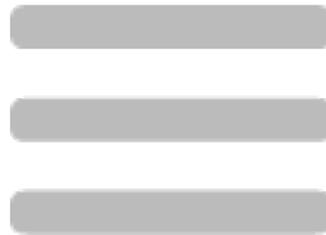


Figure 4-26 Menu Icon

The menu contains all of the functionality available in the app, apart from the post button, which is available both in the menu and in the nav bar. The menu icon is always visible when navigating through the app and therefore acts as a back button.

The finalized group of icons has proven to be effective through user testing, which will be outlined in full in Chapter 4.2.

Imagery

The Vibes aim to tell a story or communicate a message so it was extremely important that they were displayed in a clear and coherent manner. The intention was to keep the setting clean with the image being the main focus point, followed by the message and below, an

indication of when the Vibe was posted. Decorative details are kept to a minimum so as not to interfere with the message the image aims to communicate. Below is an example of how the imagery is displayed within the app. depending on the users choice of Vibe the area in which the descriptive emojis are placed changes dynamically to match the colour.



Figure 4-27 Image capture

Vibes reference

As stated in section 4.2.5, the meanings of some of the Vibes were not clear to every user. A solution to this problem was to provide users with a reference point that can be accessed at any time. The most user

friendly solution was to include a reference point in the menu as shown in Figure 4-28.



Figure 4-28 Vibes info in menu

As the diagram shows, by tapping on the vibes button in the menu the rest of the functionality disappears from view and the Vibes appear. By tapping on a vibe a small excerpt of information stating what the vibe represents as well as other feelings commonly associated with the colour appears. Tapping outside of the vibe will make the pop up disappear.

This small function was built using simple code taken from W3schools^{viii} and edited to fit the needs of the app, which involved styling and adding a pop-up to each Vibe.

The map

The map used in Vibes is taken from Mapbox.^{ix} Which is a platform allowing users to design and style their own maps. Mapbox was used so that a white map could be obtained which aimed to enhance the users content on the map.

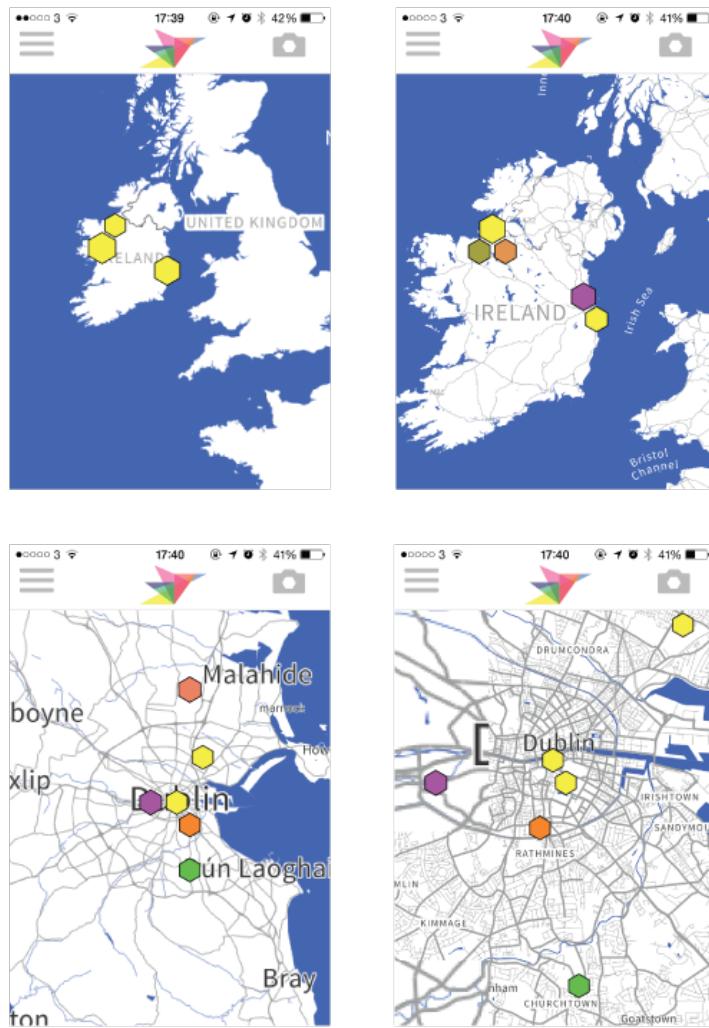


Figure 4-29 Map view

As the images in Figure 4-29 demonstrate, from a zoomed out level the Vibes on the map cluster together and show the dominant emotion. As the user pinches and zooms the Vibes disperse and become separate stories. If there are multiple Vibes in one area the colours merge and circular graph, as shown in Figure 4-30, appears on the bottom left of the map indicating which colours are in that particular area. Users can view the Vibes by tapping on separate hexagons, to exit the image and return to the map, the user can tap an X on the top left of the screen.



Figure 4-30 Vibe breakdown wheel

4.2.7 Functionality

The search function is found within the slide out menu, which is accessed by tapping on the “hamburger” menu icon on the top left of the nav bar. The search function allows the user to search for all the vibes, or to turn off the vibes they don’t want to see and only search for what

they want to view on the map. Examples of how the Vibes look when the function is called first can be seen below in Figure 4-31.

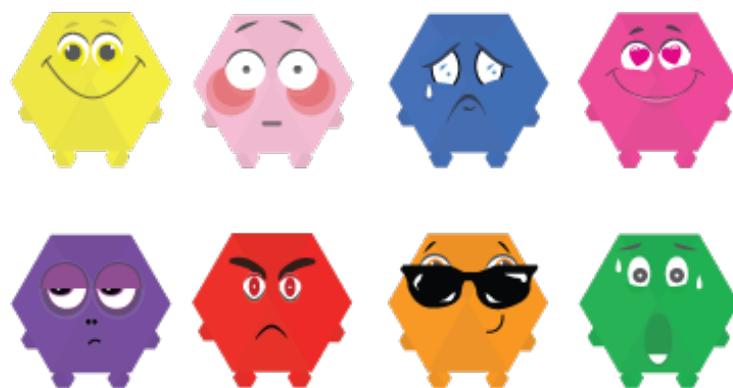


Figure 4-31 All Vibes selected

In the above image all of the icons are selected. By tapping on a Vibe the opacity lowers indicating that it is not active, as can be seen below in Figure 4-32.

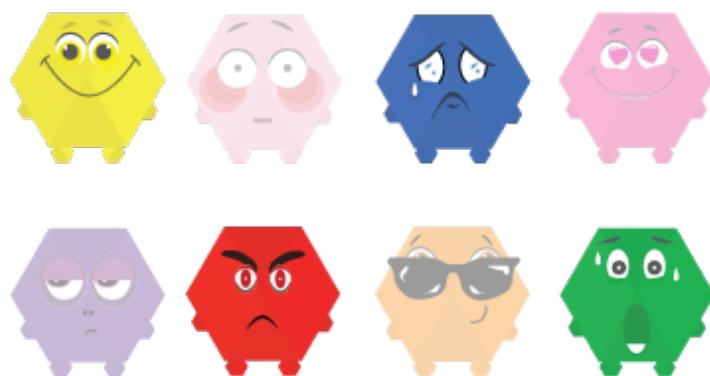


Figure 4-32 Four Vibes selected

Site map

This diagram Figure 4-33 gives a high level overview of the navigation and functions available in Vibes.

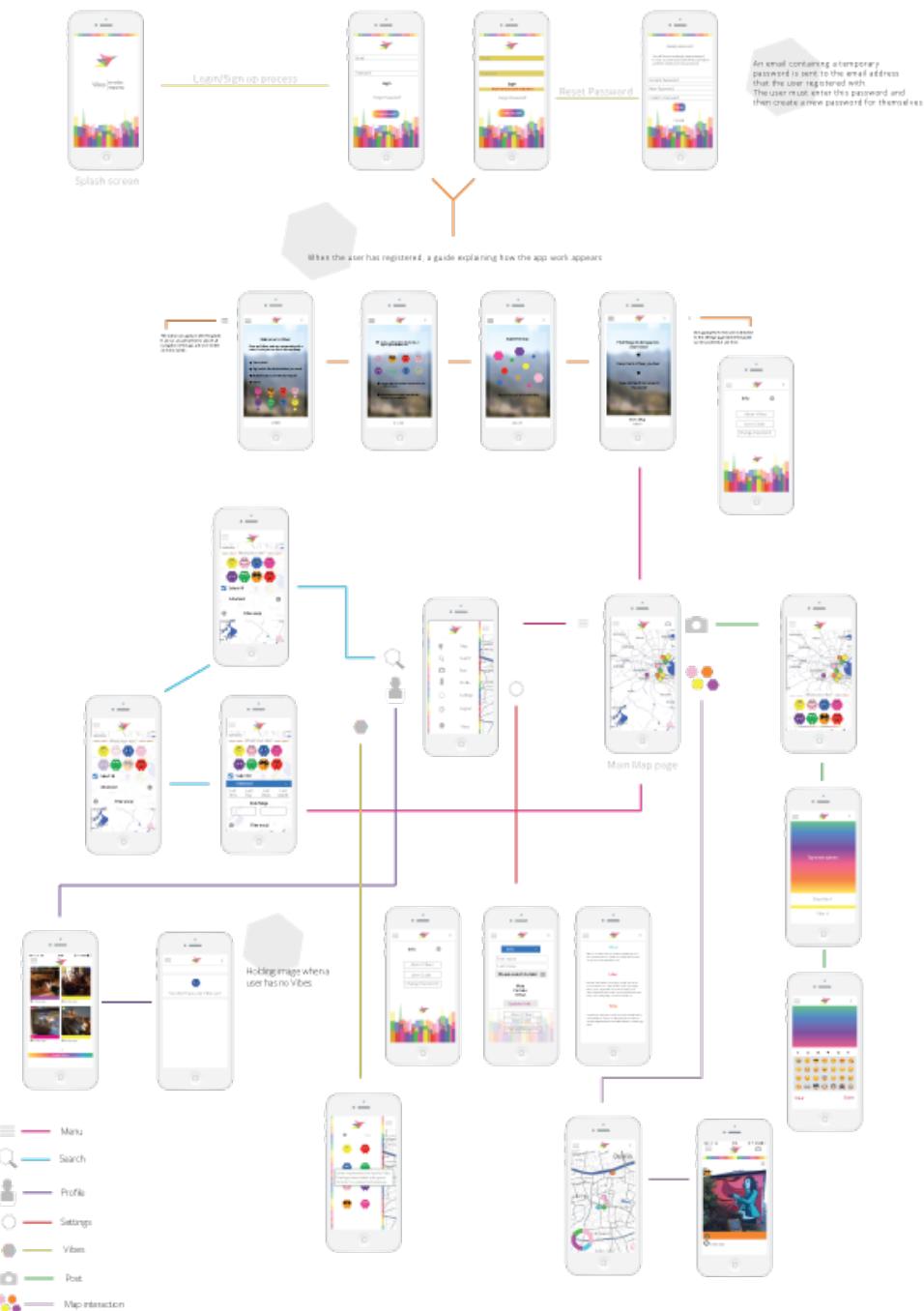


Figure 4-33 Vibes sitemap

4.2.8 Conclusion

This chapter provided a detailed overview of the steps taken in designing Vibes. It began by showing initial wireframes depicting the navigation and functionality as well as the coding requirements that influenced the design. From here the two design iterations prior to the final design were summarised briefly to give an idea of how the design progressed throughout the project.

The final design was outlined in detail with diagrams showing the thought process, from sketches and mood boards to a complete design aesthetic including the logo, colour palette and typeface.

The research carried out on the relationship between colour and emotion, expressions and emoji was shown in detail. The custom emojis (vibes) were created in response to the information gathered from this research and a detailed breakdown of how these assets were created was shown.

Finally a detailed site map showing the navigation and content of the app was provided.

The contents of this chapter aim to show that every design decision was based on either user feedback or extensive research. As stated at the beginning of this chapter, the code influenced the initial design aesthetic. The following chapter will outline the code and various builds leading up to the final iteration with evidence of the design influencing the code in the final builds.

4.3 Code Iterations

4.3.1 Build 1.0

The first phase of the app design was during the idea generation. During this process a small jQuery website was developed to test on a device to check the potential functions and services. With this in mind the first prototype was a range of testing on the mapping options. Google Maps API, Gmaps.js, leaflet.js and mapbox.js were all tested. The testing showed that using maps on a jQuery mobile app was a viable option. The first prototype also showed us that the lighter leaflet.js libraries were preferable to Google Maps API due to better handling of large density of map markers via plugins like Marker Cluster.

Mapbox.js

Mapbox.js is an API built from leaflet.js to work with the Mapbox.com tile library. Mapbox.com provides access to extensive tile libraries and with a regular plan, there is access to their Mapbox studio that allows the customisation of the map tiles including line strokes and choice of fonts. In our final build we have a custom map tile designed to suit the style of Vibes.

To set up the map an empty div, typically with the id 'map' is required. The map initialisation code is placed in a jQuery external file vibeMap.js and this is declared after the div in the html body. The code below is from the final build 7.0 but very little is different from initial builds, the changes occurred in the layer creation. In the code below the map object is created with the tile id 'sona.3ab9e710' the custom tile library created for Vibes App. Once the map object is declared the dot notation sets the view parameters. Here the latitude and longitude are passed to the map along with the initial zoom. The latitude and longitude in the first build

were hard coded, once the app was on the device the Phonegap API was used to get device location.

```
js/vibeMap.js
```

```
70:     map = L.mapbox.map('map', 'sona.3ab9e710', {zoomControl: false, detectRetina: true,  
    maxZoom: 20, attributionControl: false})  
72:     .setView([setViewLat, setViewLong], 14);
```

jQuery Plugins

The plugin radial Menus^x were tested on build 1.0 with a radial menu added as a potential image search selection. The plugin uses an ul and styles the links using JQuery. The code is triggered on the pageshow event for #welcomePage. The menu worked with sample pages created inside the index page. At this point in the build plugins were being tested regularly to gain familiarity with jQuery in a Phonegap project.

4.3.2 Build 2.0

Database Design

The database is a MySQL database hosted on a Windows server on Blacknight.com. There is a simple user table with email, Sha256 hashed password, first name, surname and gender.

The Vibe post table holds the latitude and longitude of the users Vibes, an image name for the image uploaded to the server. The server time is captured as an automatic timeDateStamp, the local time on the device and the users ID and auto incremental Vibe ID. The database also includes a signup table from the tester application form on the website, www.emapp.info.

Write to database

In Build 2.0 the database was connected. Using PHP and MySQL the app was able to connect to the database, the initial testing occurred on a local server with MAMP database. The jQuery mobile app was opened on the localhost in chrome and successfully connected to the database and displayed data in a div from the database in a list form.

The database was then exported as an SQL script and imported to a MySQL database hosted on a live server with Blacknight.com. The server side settings were configured to allow access hosts permission to the database. The access host is the IP address on the server, which the PHP files, making the calls are stored. The app and PHP files were uploaded to the server via FTP. The app was tested via the device browsers to confirm the database connection was ok.

Markers on map

The initial markers were mapped to the map using a PHP script on the server to fetch a geo JSON that was imported to the map using an AJAX call. The PHP file called was mysql_points_geojson_sensus.php, Sensus was a previous working title of the project. The PHP script was taken from a Github project by Brian McBride^{xi} and modified to suit the needs of Vibes. The database connection string included the server address, database name, password and a user name.

```
php/mysql_points_geojson_sensus.php  
17:      $conn = new PDO('mysql:host=mysql2275.cp.blacknight.com;  
                         dbname=db1029802_sensus','u1029802_sensus','>P<o,P2.qr');
```

The PHP script declared a geoJSON structure and inserted the coordinate values of each row into the coordinates array inside the

JSON. The remaining values selected by the MySQL string were added to the properties array.

```
php/mysql_points_geojson_sensus.php

81: $feature = array(
    'type' => 'Feature',
    'geometry' => array(
        'type' => 'Point',
        'coordinates' => array(
            $row['postLong'],
            $row['postLat']
        )
    ),
    'properties' => $properties
)
```

Once the values were added to the geoJSON structure it was encoded with json_encode and returned.

```
php/mysql_points_geojson_sensus.php

97: echo json_encode($geojson);
```

In the code in build 2.0 it was quite simple, \$.getJSON was passed the PHP URL to create the geoJSON object in the jQuery and this object was then added to the map.

```
$.getJSON('php/mysql_points_geojson_sensus.php', function(data) { .....
    geojson.addTo(map);
})
```

4.3.3 Build 3.0

Animated Splash Screen

In Build 3.0 the design work was incorporated into the device prototype.

At this stage in the project the working title was Sensus. The Sensus design had an animated splash screen that opened to reveal the login screen. The login screen was non functional in this build so therefore a skip button was in place to facilitate the transition to the map page.

The Splash screen used jQuery animations to spread open upper and lower div's to reveal the login form underneath. The technique developed used z-index values and opacities to create a smooth transition. While the feature did not remain later builds used the technique and method in other functions. In the final build the technique is used on the filter and post functions to move their respective panels into position above the map. The technique was also applied to the Vibes button in the menu that revealed a quick summary of the meaning of each Vibe.

```
js/vibeCode.js
```

```
243: $("#emojiPostSelectParent").velocity({left: "0", easing: "easein"}, 500);
```

The jQuery animate() instances were replaced with the velocity.js^{xii} jQuery plugin. There was a boost in the performance of the animations with the switch to velocity.

Animated Menu

In build 3.0 a new menu system was added based on an example from Tympanus.net^{xiii}. The example was modified to work on a jQuery Mobile page structure. The menu used css class injection to animate the menu into position. When the menu button was clicked the active page id was

used to add a class ‘open-menu’ to the page. Once this class was added to the page it triggered all the css declarations that were children to this class, this included css animations that transitioned the DOM manipulation.

There was much work associated with getting this method to run smoothly and in a later build it was removed, as the code was bloated and slowing the app. The resource was referenced again for a popup animation for the map markers.

[Login & Signup](#)

The core login and sign functionality designed in build 3.0 remained constant through to the final build. The layout would evolve with design iterations but the PHP server side and jQuery functions were unchanged. The main login page also doubles up as a create account page. If a user is logging in the users email is entered into the form, to keep the form simple placeholder attribute is used to label the input. The jQuery plugin floatlabels.js is used in conjunction with this so that when a value is input into the form the placeholder label will appear in small font above the input. Once a user has entered a password the jQuery validates the form for errors before making the AJAX call. If the email is not in format or the inputs are empty an error message is displayed. The form data the password is with sha256 encryption before the AJAX posts to the server.

```
js/vibeLoginSignUp.js
```

```
15: var inputPassword = $('#password').val();  
  
var hashPassword = $.sha256(inputPassword);
```

The PHP on server side takes the user email and retrieves the matching row from the table. The hashed password is compared to the stored

password, if the passwords match the server returns “ok”. When the passwords do not match the server fetches the row again to check if the email exists, if there is no email a message to sign up is returned, if there is an email a message that the password is wrong is returned. The sign up function works on the same principle as the login, but when validation is passed the PHP writes the user to the database and returns “ok” to login the user.

The login and sign status are stored in local storage. The local storage uses window.localStorage to store the user email and a logged in token called ‘logged’. When the user successfully logs into the app the tokens are stored, whenever the app loads and the splash screen is shown an IF statement checks for the local storage variable and decides which page to show the user. If the token logged has the value “yes” the user is redirected to the map, otherwise the login page is shown. In the settings page and final build menu there is a logout button that wipes local storage and calls a page change to the login page. This removes the tokens so when the app is next opened the ‘logged’ token will be Null and the login page will be shown.

Hexbins

Hexbins were added in build 3.0. The first working version of hexbin was achieved by reverse engineering a guide by www.delimited.io^{xiv}. The code sampled was used to display csv data from coffee establishments in NYC and represent them on a map of the city. The code was first recreated in a separate Netbeans project to verify the code worked as described. The working example was then imported to build 3.0 and then adapted. Incremental changes were made to gain a better understanding of how the code operated. The first major change was to

remove the csv file import and use a MySQL geoJSON file used in build 2.0.

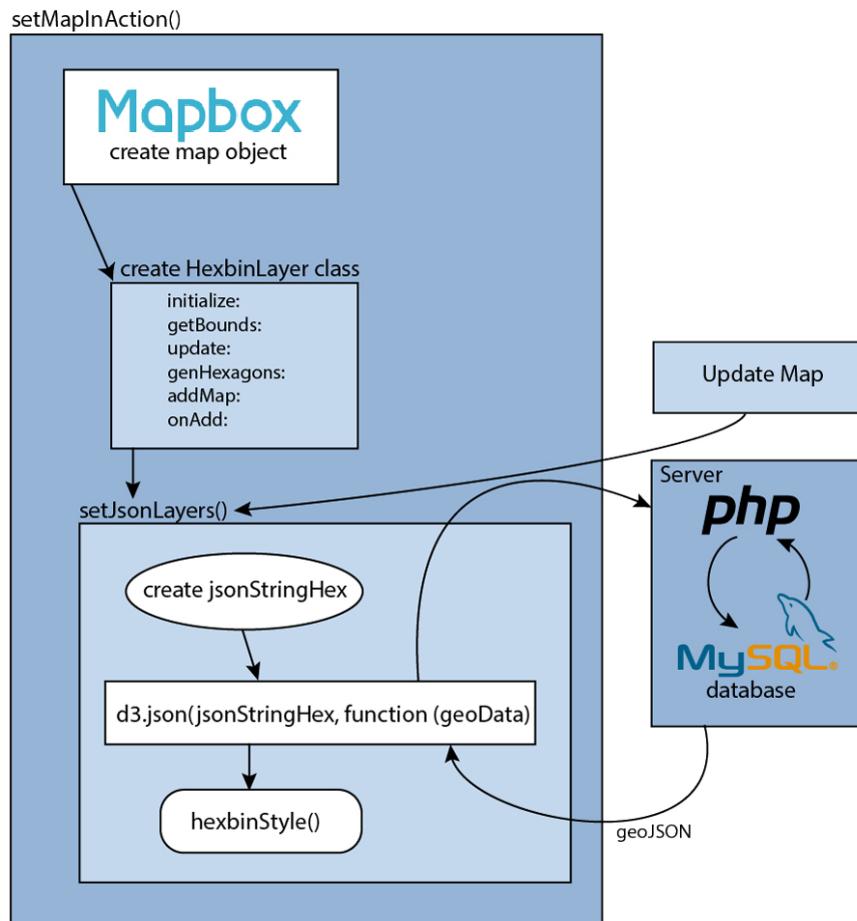


Figure 4-34 Hexbin function flow diagram

The final build of the hexbin layer, object and events are outlined in the tables below. In the diagram Figure 4-34 you can see the structure that creates the hexbin layer. When the map object has been created a custom class outlined in Table 4-1 is declared which stipulates the functions, events and options of a hexbin layer. When the class is ready the geoJSON can be passed into the class and the hexagons can be

created. Each hexagon that is rendered to screen is passed to the hexbinStyle function outlined in Table 4-3.

Table 4-1 Map and Hexbin class creation, js/vibeMap.js

Map and Hexbin class creation		
Line	Code	Description
66	<code>function setMapInAction()</code>	This function is called to first initialize the map and hexbin layer, when the app first loads.
70	<code>map = L.mapbox.map('map', 'sona.3ab9e710', {zoomControl: false, detectRetina: true, maxZoom: 20, attributionControl: false}).setView([setViewLat, setViewLong], 14);</code>	This is the mapbox.js map initialization code. The options for display, coordinates and the zoom level to begin with are passed to the map object.
104	<code>L.HexbinLayer = L.Class.extend({ includes: L.Mixin.Events, initialize: function (rawData, options) { this.levels = {}; this.layout = d3.hexbin().radius(15); this.rscale = d3.scale.sqrt().range([0, 15]).clamp(false); this.rwData = rawData; this.config = options;},</code>	This creates the HexbinLayer class. The options here include the hexbin radius. This value determines the size of the hexbin created. The levels declaration will create a SVG layer for each level of zoom on the map.

Map and Hexbin class creation

Line	Code	Description
121	<pre>update: function () { var pad = 50, xy = this.getBounds(this.rwData), zoom = 129 this.map.getZoom(); if (!(zoom in this.levels)) { this.levels[zoom] = this.container.append("g").attr("class", "zoom-" + zoom); } }</pre>	This function uses the levels declaration to switch between the map layers when the zoom level changes. The function inserts each SVG layer via a 'g' tag or toggles the visibility for the layer within the hexbin SVG if the layer has already been added.
141	<pre>genHexagons: function (container) { var data = this.rwData.features.map(function (d) { var coords = this.project(d.geometry.coordinates); return [coords[0], coords[1], d.properties]; }, this); }</pre>	This function generates the individual hexagons for each hexbin on each layer. Passing the coordinates and properties that can then be accessed by other functions.
153	<pre>hexagons.attr("d", function (d) { var lenVibes = d.length;</pre>	The size scale of the hexagon is SVG value 'd'. Here the hexagon size was changed to

Map and Hexbin class creation

Line	Code	Description
	<pre> var hexSize = 1 - (d.length * 0.05); if (lenVibes >= 20) { hexSize = 1; } else if (lenVibes > 200) { hexSize = 1.5; } else { hexSize = (lenVibes * 0.025) + 0.6; } return that.layout.hexagon(that.rscale(hexSize)); </pre>	<p>display the density of data points within each hexagon.</p> <p>The number of points within each hexbin could be determined from 'd.length'.</p> <p>Using this value the hexagon can be made larger if there was over 200 points. Full size if above 20 and incrementally scaled down when under 20 data points, to the minimum size of 0.6 of the full size hexbin.</p>
170	<pre>.attr("transform", function (d) { return "translate(" + d.x + "," + d.y + ")"; })</pre>	<p>The coordinates are passed to the SVG layer as transform x and y values. The SVG layer is placed above the map and the transform/translate attribute connect the maps coordinates based layout to the SVG layers xy axis.</p>

Map and Hexbin class creation

Line	Code	Description
173	.on('click', function (d) {	The click event on a hexagon.
202	<pre>var statsString = [0, 0, 0, 0, 0, 0, 0, 0, 0]; \$.each(d, function (key, val) { var vibeNumber = val[2].emoType - 1; statsString[vibeNumber]++; }); }</pre>	This function handles the zoom on touch and the displaying the vibe breakdown colour wheel. For each hexbin the 'd' object is looped to count the numbers of each Vibe within the hexbin. Each Vibe corresponds to an index in the statsString. The emoType int is used as the index value to increase that index value by 1.
212	<pre>\$('.statsBox').html('' + statsString.toString() + ''); \$(".pieChart").peity("pie", { fill: ['#F7ED43', '#EFB9CE', '#6CCCE1', '#E01888', '#A4579F', '#C3242D', '#F48530', '#66BA4D'], radius: 50, innerRadius: 30 }); }</pre>	The colour wheel displays the breakdown of Vibes inside any hexagon when touched. This is powered by peity.js that converts an element's content into a simple SVG pie chart. As each hexagon is clicked, the 'statsString' associated with that hexagon is injected into the span with the class 'pieChart'. The element is converted to a SVG pie chart

Map and Hexbin class creation

Line	Code	Description
		by calling peity.
227	onAdd: <code>function (map) {</code>	The SVG layer is added to the map with the id 'hex-svg'.
234	<code>if (!this.container overlayPane.empty) {</code> <code>this.container = d3.select(overlayPane)</code> <code>.append('svg') .attr("id", "hex-svg")</code>	This is used later to remove the layer before recalling function after the map has been filtered or updated.
241	<code>map.on({'moveend': this.update}, this);</code> <code>this.update();</code>	If the map is panned, ie moved, this makes the call to the update function above to recalculate the transformations.
243	<code>L.hexbinLayer = function (data,</code> <code>styleFunction) { return new</code> <code>L.HexbinLayer(data, styleFunction);</code> <code>};</code>	This is the structure by which the HexbinLayer is to be called. The data (geoJSON) and style options must be passed into the function.

Table 4-2 HexbinLayer called on map js/vibeMap.js

HexbinLayer called on map		
Line	Code	Description
249	<pre>window.setJsonLayers = function () { \$('#hex-svg').remove();</pre>	setJsonLayers is the global function that is called to add the SVG hexbin layer and later to update the layer when the map has changed. The SVG layer is removed via the ID #hex-svg before recalling function after the map has been filtered or updated.
289	<pre>d3.json(jsonStringHex, function (geoData) {</pre>	This is the D3 function to get geoJSON from database. The jsonStringHex is the PHP url that is dynamically created depending on the user filtering the map by time or Vibe emotion. This is explained in further detail in Build 6.0 Emoji Filter.
295	<pre>hexLayer = L.hexbinLayer(geoData, {style: hexbinStyle}).addTo(map);</pre>	The method declared in line 243 the hexbinLayer is called by passing in the geoData returned by the server side php. The hexbinStyle is a function that styles each hexagon individually. Explained in Table 4-3.

Table 4-3 HexbinStyle function js/vibeMap.js

HexbinStyle function		
Line	hexbinStyle function	Description
300	hexagons.attr("fill", function (d)	The hexagons are styled using the fill attribute. The data used to determine the fill is accessed through the 'd' object which is all the data points within the active hexbin been styled.
307	\$.each(d, function (key, value) { var vibeNumber = value[2].emoType - 1; countArray[vibeNumber]++; });	An array is created by looping the data points in the hexbin and incremental increasing the index corresponding to the Vibe. Passed to array from the emoType in the function.
311	var maxValue = Math.max.apply(null, countArray);	Get the maximum value in countArray. This gets the maximum value in the array. Used in the following section to determine the dominant Vibe in each hexagon.

HexbinStyle function

Line	hexbinStyle function	Description
314	<pre>\$.each(countArray, function (key, val) {</pre>	The countArray is then
316	<pre> if (val === maxValue) {</pre> <pre> hexColor = hexColor + key;</pre> <pre> }</pre>	looped through to build a string of all indexes in the array that match the maxValue.
347	<pre>var mix23 =</pre> <pre> \$.xcolor.average</pre> <pre> (vibeObject[hexColor[2]],</pre> <pre> vibeObject[hexColor[3]]);</pre> <pre>var mix0123 =</pre> <pre> \$.xcolor.average(mix01, mix23);</pre>	The length of hexColor is used to average the hexadecimal colours of the values of the hexColor string, 'vibeObject' is an array of the Vibes hexadecimal colours. Using xcolor.js average method that takes two colours and returns the average. An IF statement is used to handle more than two colours, the colours are averaged in pairs. In sample code shown the mix01 is averaged with mix23 to create a colour for a hexagon that has four Vibes of equal numeracy. The if/else statement handles mixing of

HexbinStyle function

Line	hexbinStyle function	Description
		all eight Vibe colours.
389	return hexOutput;	The function ends with the hexOutput been returned to the fill attribute for the hexagon SVG shape.
390	}).attr("stroke", 'black').attr("title", function (d) {	This line places the postID values from the 'd' object into the title attribute of the hexagon. This is used to fetch post data for the popups on the map.
403	posts = posts + value[2].postID + ' ';	
408	}).attr("name", function (d) { var latLng = " ";	The final attribute 'name' is used to hold the latlng string that the jQuery can access during click events.
	\$each(d, function (key, value) { latLng = value[2].postLat + ' ';	
	+ value[2].postLong;	

Camera

The camera plugin was added to the Phonegap project and the API was used on a button click in jQuery to open the camera. The initial test was to capture the image and place the image into a div in the mobile app

page. Once successful work began on the most suitable image size and aspect ratio.

4.3.4 Build 4.0

Popups

The vibe popup opens when the user clicks on a hexagon at maximum zoom or the user clicks on a hexagon that contains only one Vibe. When the hexagons are created as shown above in line 390 of vibeCode.js the postID values are added as comma separated string to the hexagons title attribute. The string is spilt into an array and the length is checked to decide if to open the popup or zoom in further on the map.

```
js/vibeMap.js  
447: var postIDStr = $(this).attr('title');  
  
var arrPosts = postIDStr.split(',');  
  
if (arrPosts.length === 1)
```

To open a popup the markerClicked() function is called takes two parameters the 'postIDStr' string and an int value. The int value either a 0 or 1 is to tell the PHP what type of MySQL statement to use.

```
js/vibeMap.js  
485: markerClicked(postIDStr, 0);  
  
493: markerClicked(postIDStr, 1);
```

The markerClicked() function contains an AJAX call. The AJAX passes the postIDStr to the PHP along with the searchType parameter that is the int value. If there is only one vibe in the hexagon the searchType is 1, else when there is multiple Vibes in the hexagon the searchType is 0. The

multiple vibe MySQL statement is shown below, using the WHERE IN search the statement is passed the postID string which is comma separated and returns all the Posts with corresponding ID's in the string.

```
php/getMarkerInfo.php  
68:      "SELECT imageName, timeLocal FROM `emotionPosts` WHERE postID IN (" . $postID . ")  
          ORDER BY timeServer DESC"
```

The AJAX complete function takes the JSON returned and builds an html string. The string created depends on the JSON length, if there is a single Vibe in the JSON the image and time offset string are added to the popup div. If there is multiple vibes in the JSON the html string generated will be structured to create a swipe div. First the wrapping html of the swipe div is set, line 561. The JSON result is then looped through and the contents of each Vibe are added the htmlStr. Each Vibe contains an image name and server times to generate time offset, line 568.

```
js/vibeMap.js  
561: htmlStr = htmlStr + '<div class="container"><div id="vibeSlides">';  
568: htmlStr = htmlStr + '<div class="slides">'  
    + '<img src=' + imgSrc + '" class="emoPostPopup" onerror=' + errorStr + '/>'  
    + '<div class="popUpInfo">'  
    + '<div class="timeInfo"><p><i class="fa fa-clock-o fa-2x"></i> ' + timeOffset + '</p></div>'
```

The html string is closed when the loop is exited. The html is inserted into the div 'popup-wrap' and slidejs is called. The technique used to create the slide menu previously is used to animate the popup to appear. The example corner morph from [tympanus.net](#)^{xv} is used to create the popup. This technique uses css animations and classes to change the

shape of the popup div to fill the screen and display the Vibes. Once the popup is ready the class ‘show-popup’ is added, due to the septicity of the css in vibePopups.css the animations and new size for the popup div are now triggered.

```
js/vibeMap.js  
590: $('#mapPage').addClass('show-popup');  
  
css/vibePopups.css  
341: show-popup .popup-wrap {  
    width: 320px;  
    height: 501px;  
    border: 1px;  
    -webkit-animation: anim-jelly 0.8s linear forwards;  
    animation: anim-jelly 0.8s linear forwards;
```

[Return to Panel Menu](#)

Build 3.0 test results required a change to the menu system, the previous custom menu had become bloated and slowed the app. To make the app faster the native jQuery panel was used, an external panel was created in the html outside of the pages. This meant that the panel buttons and links only had to be declared once, the previous system required html panel for each page.

[Emoji Keypad](#)

To create the emoji description a custom keypad was created. The purpose of the keypad was to have full control over the content created by the users. With pure emoji description there is no requirement to monitor the content. At the time of development there was no way to access the native keyboard and restrict it to emoji.

The emoji keypad is powered an object with key value pair associate array for each page of they keypad. The key is the string identifier and the value is the image name. The images are stored locally and sourced from deviantart.com^{xvi}. The object tabIcons is looped through and each emoji image is added with a class to handle the click event. The string identifier is passed into the title attribute.

```
js/vibeCode.js

389: var tabIcons = [ {
    ':joy': 'joy.png', -----
    ':baby': 'baby.png'

575: $(tabKey).append('xvii</sup> that replaces string identifiers with the corresponding emoji image stored in a local folder. The emoji() function is called on the div and the string is replaced with the emoji image. The ‘this’ selector is used to get the title of the emoji button clicked.

```
js/vibeCode.js

591: $('#emotionPostPage').on('click', '.addEmoji', function () { // Add emoji button
 var emojiName = $(this).attr('title');
 $(".emojiRender").append(emojiName);
 $(".emojiRender").emoji();
});
```

### *Photo Upload Php*

To save the image created by the canvas on the emotion post page a method posted to Stackoverflow.com<sup>xviii</sup> was referenced. The image upload function uses method<sup>xix</sup> of the canvas object which converts the canvas drawing into a 64 bit encoded png URL.

```
js/vibeCode.js
```

```
776: var imageData = document.getElementById('imageCanvas').toDataURL('image/png', 0.6);
```

The function sends the base 64 data URL to the server side PHP ‘php/saveDataImage.php’. The example code used on the PHP was sourced from an answer in Stackoverflow.com<sup>xx</sup>. The PHP takes the data URL and saves the image to server in a folder that the app can later reference to display the images in profile page or vibe popups.

### **4.3.5 Build 5.0**

By Build 5.0 on device testing was the major determining factor in what features remained and the methods used to provide the apps functionality.

### *Removal of Markers*

Removing the Marker layer due to testing meant the marker functionality had to be provided completely by the Hexbin layer. The markers when added to the map contained a title value that was the postID for each vibe. The marker click event passed this value to the server side PHP that returned a JSON containing the post info such as time and image name. To replace this functionality we added the title value to the hexagons inside the hexbinStyle function as seen in Hexbins code table line 390.

```
js/vibeMap.js
390: }).attr("stroke", 'black').attr("title", function (d) {
403: posts = posts + value[2].postID + ';
```

The title value added was a comma separated string that allowed the hexagons to add multiple posts if the hexagons had not dispersed by the time the map had reached maximum zoom. In build 5.0 when multiple postID's were added to a popup the image and the time since data were added sequentially making the popup a scrollable div.

#### ***Thumbnail Mod***

From the performance issues raised in testing of build 4.0 the slow display of images was addressed. The first step was to adjust the size of the image created to reduce file size. The image was reduced to the maximum pixel width needed to display on an iPhone 5s. The image quality was dropped to 60% to speed up upload and download speeds. The profile page uses smaller images so a thumbnail folder was added to the server and additional function was added to the PHP to create a PHP once the main image has been saved to server. The method used was found in a blog article on [www.mendoweb.be<sup>xxi</sup>](http://www.mendoweb.be). When the image is first created the location is passed to the resize function with the new image location and thumbnail dimension.

```
php/saveDataImage.php
16: $orgImg = '../uploads/' . $image_name . '.png';
 $newImg = '../uploads/thumbs/' . $image_name . '.png';
 resize($orgImg, $newImg, 300, 338);
```

### *Image creation, capture emoji array loop and paint to canvas*

The post to vibe process creates an image to display the users Vibe on the map. The image is a combination of an image captured by the user on the phone, the parent emoji and the emoji description should they choose to add one. When the page is navigated to the page before event creates an image canvas in the 'imageCanvas' div. The 'imageCanvas' div has a click event that enables the div to act as they image capture button, this is indicated by the holding image loaded to div. The image canvas is set to 640x720px so that images created by the canvas have these dimensions. The style.width property allows the ratio of the canvas to be set to suit the target device an iPhone 5s.

js/vibeCode.js

```
646: var canvas = document.getElementById('imageCanvas');

 canvas.width = 640; // Set Retina Image size

 canvas.height = 720;

 canvas.style.width = '320px'; // Set x2 Pixel ratio size

 canvas.style.height = '360px';
```

Once a user captures an image the canvas background is set to the parent emoji colour. The image is added after so that it is positioned above the background colour. The object imageObj has a listener attached which waits for the image to load to the canvas, once loaded the function triggers to position the image with the coordinate xy and width values.

```
js/vibeCode.js

52: var imageObj = new Image();

 imageObj.onload = function () {

 context.globalAlpha = 1;

 context.drawImage(imageObj, 0, 0, 640, 640); };

 imageObj.src = imageURI;
```

The renderImage() function is called when a user clicks 'Vibe It' button. The emoji description is display on the app inside the 'emojiRender' div. To render the emoji into the image an array is created by getting the children of the 'emojiRender' div.

The emojiImgArr array is passed to a \$.each function to loop through and add the corresponding emoji images to the canvas. The images are added using the same method as camera image but with a variable 'pad' which sets the x value. At the end of each loop 'pad' is increased to position the emoji to the right of the previous emoji added. The title attribute of each of the children elements added to the 'emojiImgArr' is accessed in the loop to set the source of the emoji image, seen below in line 861.

```
js/vibeCode.js

845: var imgEmoji = $(".emojiRender").children('.removeEmoji');

var emojiImgArr = jQuery.makeArray(imgEmoji);

854: $.each(emojiImgArr, function (index, value) { // Emoji Input to Canvas

861: imgEmo.src = 'images/emojis/' + value.title + '.png';
```

#### *User Guide*

The guide page gives a short explanation of how to use the app and some of the features. The guide is a swipe div created using the slidejs[ref] jQuery plugin. The guide isn't dynamic and the content is hard coded to the index.html page.

When a user first successfully creates an account they are directed to the guide page.

```
js/vibeLoginSignUp.js

120: $.mobile.changePage("#guidePage");
```

After the user has viewed the guide and used the app they can view the guide again anytime from the #settingsPage.

#### **4.3.6 Build 6.0**

##### *Popup Swipes*

As of build 5.0 the popups could now contain multiple posts. Adding the images and time since string to the div sequentially renders the popup. The popup at this iteration relied on the div scroll to allow the user to

navigate the Vibes. Feedback from testing on the guide page of build 5.0 also brought to attention an issue with the popup div scroll. This was scheduled for a redesigned with a pagination method for the div, but with the issue arising from testing this functionality was given priority.

Due to the success of the guide page tested in build 5.0, it was decided to reuse the plugin used in the guide page slidejs plugin. The popups are dynamic, adding the slidejs swipe functionality to the popup meant changes to the html added to the DOM on the AJAX success. When the user clicks on a hexagon that triggers a popup the AJAX call to the server returns a JSON to the success function.

```
js/vibeMap.js
```

```
515: $.ajax({url: 'http://emoapp.info/php/getMarkerInfo.php',
```

Before the loop commences a variable string htmlStr is created with the html to create the wrapping div and close button for the popup. The JSON is checked to see whether a single post is returned or multiple, if multiple we enter the \$.each function and as the JSON is looped through the slide pages are added to the string creating a full sliderjs div.

```
js/vibeMap.js
```

```
562: $.each(result.marker, function (key, val) {
 var imgSrc = 'http://emoapp.info/uploads/' + val.imageName + '.png';
 var timeOffset = timeDiff(val.timeThen, val.timeNow);
 htmlStr = htmlStr + '<div class="slides">',
```

Once the loop is complete the htmlStr is inserted to the DOM and the slidejs[ref] function is called to render the divs into a swipe popup.

#### ***Image Upload Function Order***

From Build 5.0 user testing feedback changes were required to the image upload to improve feedback and app responsiveness. The function order can be seen in the diagram below, the app now transitioned from the #emotionPostPage to the #mapPage on the 'Vibe It' button click, and once the transition was complete the image upload begins. Previously the app would wait on the #emotionPostPage for the upload to complete. While the image is uploading an animated svg is moved into view to give the user feedback that the app is working, at the same time the vibes layer on the map is updated with the new hexagon and colour. An animated gif is also added to the coordinates of the posted Vibe, which uses setTimeout() to only display for 10 seconds. Once the image is uploaded the uploading svg animation is removed from view and replaced by a div containing a message that the image was successfully uploaded and if clicked a popup with the Vibe is displayed.

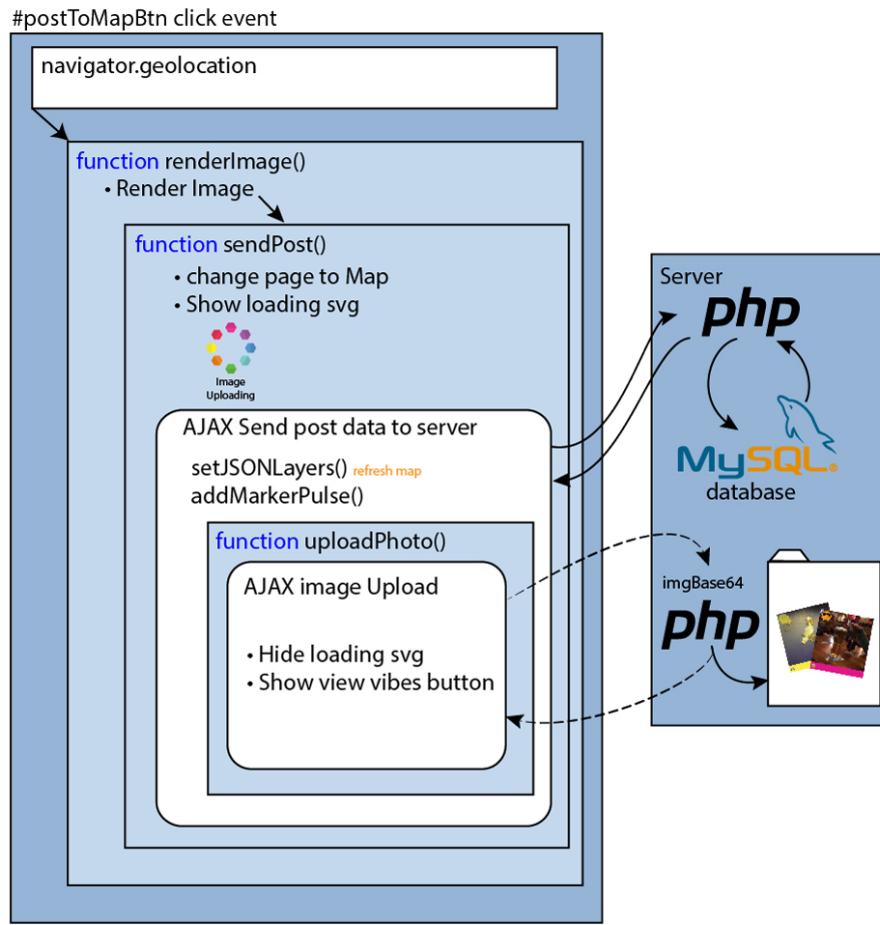


Figure 4-35 Image upload diagram

#### Swipe Keypad

To make the keypad more user friendly and familiar to the native keyboard in iOS the swipe functionality was added. This was the same as other swipe div's, the pages were given a common class 'slide' and when the emoji after the buttons were added the slidejs function is called on the id 'slideKey'.

Index.html

```
300: <div id="slideKey">
 <div id="tab0" class="tabEmoji slide"></div>
 <div id="tab1" class="tabEmoji slide"></div>
```

### *Emoji Filter*

The map Vibes can be filtered using the filter menu that is opened using the search option. The user can turn on and off Vibes by pressing the emoji in the filter, when a Vibe is filtered out the emoji in the menu dims with a lowering of the opacity using jQuery to insert a CSS class to the image. When any Vibe is switched the jQuery changes an array 'emoFilterArray'.

```
js/vibeMap.js
```

```
10: var emoFilterArray = ['1', '2', '3', '4', '5', '6', '7', '8'];
```

The 'emoFilterArray' generates the PHP URL for the Vibes layer rendering. On line 575 when the click event on the emoji image is triggered the function checks whether the image has the CSS class 'filterOff'. The css class 'filterOff' lowers the opacity of the vibe icon and indicates the Vibe is in the filter out position.

```
js/vibeMap.js
```

```
675: if ($(this).hasClass('filterOff'))
```

Based on this IF statement the jQuery either pushes the emoji value into the Array or uses '.grep' to remove the matching value of the Vibe emoji that has been clicked.

```
js/vibeMap.js
```

```
677: emoFilterArray.push(emoType); // Add vibe
```

```
684: emoFilterArray = jQuery.grep(emoFilterArray, function (value) { // Remove vibe
 return value !== emoType; });
```

When the function to add or update the Vibe layer is called the 'emoFilterArray' is referenced to create a REGEX string<sup>xxii</sup>. The REGEX is passed as a URL parameter in the AJAX call to the PHP that filters the Vibes from the JSON returned. The REGEX format is column values separated by '|' character. To add the parameter to the URL correctly the apostrophe is encoded either side of the REGEX using the character string %27. Below is an example of AJAX URL to filter JSON for emoTypes 2,3 & 6.

[http://www.emoapp.info/php/mysql\\_points\\_gejson\\_sensus.php?emoTypes=%272|3%27](http://www.emoapp.info/php/mysql_points_gejson_sensus.php?emoTypes=%272|3%27)

#### ***Time Filter***

The emoji filter option includes a collapsible div which is label advanced, this contains options to change the time range of the Vibes shown on the map. The default option is loaded when the map is first opened, for the purposes of showing more vibes on the map for this project the default time is the previous months vibes. The advanced tab has a selection of fast buttons. These quickly change the parameters for the URL that the AJAX calls the display the Vibes layer on the map. The PHP URL has parameters for the emoji filter as explained in above using the regex system. The PHP gets the parameters passed using the GET function. The time is filtered with fast buttons by passing the timeType variable 'fastButtons' and the interval variable; hours, day, week or month. On the server side the PHP checks the timeType passed and decides which MySQL string to generate to filter the JSON returned to the AJAX call.

The data picker option uses the bootstrap-datepicker.js<sup>xxiii</sup> to pass the start and end date for more specific filtering of the map. When this option is used the timeType is changed to 'dateRange' and the server

side PHP now changes the MySQL statement to select rows between the dates passed in the URL.

#### 4.3.7 Build 7.0

Testing on Build 6.0 raised issues with menu layout and access to functions. In Build 6.0 the settings page that also contained the logout function was placed inside the profile page. To improve the access to these functions for the user function the settings page link and a button with the logout click event were added to the panel menu. The settings page was removed from the profile page. The testing feedback also highlighted user frustration with the profile page as of Build 6.0. To improve on this the profile page was changed from a scrollable div to the swipe div via slidejs plugin, previously used in the emoji description keypad, multiple vibe popups and guide.

The profile page has displays Vibes based on a local storage value 'imageCount'. Image count is set to 7 on the page create event for the profile page.

js/vibeCode.js

```
677: $("#profilePage").on("pagecreate", function (event) { // Before show, get posts
 window.localStorage.setItem('imageCount', 7);
```

When the DOM is first created the Boolean value profileShown is set to false. When the profile page is first shown the jQuery checks this Boolean if this Boolean is false before calling the function fetchVibes(). When the Boolean is false the function is called and profileShown is set to true, to prevent the page calling the function each time the page shown. The fetchVibes() function makes the call to PHP server to populate an object 'vibeArray' with the contents of the JSON returned by

the AJAX. On line 170 the ‘vibeArray’ object is passed into the insertImageArray() function along with ‘vibesToAdd’ variable, this is the local storage value ‘imageCount’. If the JSON returned is empty the DOM is updated with a message, on line 175, returned by the server that creates a notice to the user that they haven’t posted any Vibes yet.

```
js/vibeCode.js
```

```
170: insertImageArray(vibeArray, vibesToAdd); // Insert Images into Page
175: $('#profilePageSlider').html('<div id="noVibes">
<hr><h3>' + result.message
+ '</h3><hr></div>');

 window.localStorage.setItem('imageCount', 7);
```

The ‘insertImageArray()’ function takes ‘vibeArray’ and imageCount to dynamically input the vibes to the #profilePage. The function loops through the JSON object and if the index is less than or equal to the imageCount value passed into the function html code is generated and added to an html Array ‘slideHtmlArr’.

The PHP on server side gets the server time as shown on line 88 and the server time when a Vibe was originally posted, using the jQuery plugin moment.js<sup>xxiv</sup> the function subtracts these times to get a value timeOffset which depending on the offset will generate a string, for example ‘a few seconds ago’ or ‘2 hours ago’. The timeOffset string is placed into a div with a clock icon from the fontawesome<sup>xxv</sup> CSS library. The timeOffset string is appended to each element in the ‘slideHtmlArr’.

```
php/getUserPosts.php
88: $post['timeNow'] = gmdate('Y-m-d H:i:s');

js/vibeCode.js
79: var a = moment(value[3]); // Time since Tag

var b = moment(value[4]);

var timeOffset = a.from(b); // Get time differ and insert posts to page
```

The next phase of the function is to place the Vibes into pages of four for the swipe interaction with slidesjs jQuery plugin. The variable slideHtml is declared with the wrapping html as shown in line 86.

```
js/vibeCode.js
86: var slideHtml = '<div class="container"><div id="profileSlides"><div class="slide">';
```

The ‘slideHtmlArr’ array is passed into a \$each loop which appends the html contained in the values to the slideHtml variable. When the index of the value been looped is divisible by 4 the html is added to slideHtml closes the div creating a page of four vibes.

When the loop is complete the html is closed and ‘slideHtml’ is inserted into existing div in the index.html ‘#profilePageSlider’. Finally the slidejs init jQuery is called on the div id ‘#profileSlides’ which was declared in the html at the start of the loop.

```
js/vibeCode.js

101: slideHtml = slideHtml + '</div></div></div>'; // Close last div page and add button

103: $('#profilePageSlider').html(slideHtml); // Add to page

$('#profileSlides').slidesjs({// Set Slideshow

 width: 320,

 height: 400,

 navigation: false

});
```

When a user clicks the #addProfilePosts button this calls the fetchVibes() function. At the end of each fetchVibes call the imageCount is increased by 7, meaning that next time the function is called an extra 7 vibes will be inserted into the swipe div. This is a minor error as to add two full pages to the swipe div the imageCount should increase by 8.

```
js/vibeCode.js

110: imageCount = parseInt(imageCount) + 7;

907: $(document).on('click', '#addProfilePost', function () { // Add More Posts to Page

 fetchVibes();

});
```

#### 4.4 Conclusion

In this section documented the Code iterations. The main functions and features were discussed in detail. Specifically a indepth breakdown of the Hexbin feature. The hexbin function is the core feature of the data visualisation. The iterative process is outlined with the direction coming from design or testing. The code section conforms to the methodology of

the development process; design, build, test. Each iteration illustrates the results of testing or design. The development followed the aims and objectives of the project.

# Chapter 5

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## 5 Testing

### 5.1 Introduction

This chapter will give an overview of the various testing methods used throughout the production of Vibes. Every major design and coding decision was based on feedback from the users, this will be explained over the next few pages.

#### 5.1.1 Methods

There were four main methods of testing the project:

- Flinto
- Social media
- Unit testing
- Developer Device Testing
- User Testing – Over the shoulder
- TestFlight Builds

#### *Flinto*

The initial testing consisted of Flinto prototyping, which was a quick and effective way of showing the proposed design, functionality and layout without having to spend too much time constructing the “app”.

Flinto was used to test the UI and layout of the functionality in the initial stages of the project. After creating wireframes, the assets needed were mocked up in Illustrator and deployed to Flinto. Links were then sent out to users who were obtained through Facebook, Twitter and by word of mouth.

The final Flinto testing took place in September, this consisted of three separate Flintos each with a different navigational system. This testing was carried out both formally and informally, by asking DIT students to use each Flinto and fill out a survey on an iPad, and also by sending links to external users to test. After testing each prototype, users were asked to fill out a survey. Some of the questions asked included:

- Which menu layout did you find most intuitive?
- Is it clear what the icons represent?
- Which search option did you find most intuitive?
- Do the colour and emotion pairs make sense to you?

Each question was accompanied by an image depicting the asset or layout in question. The feedback garnered from this testing provided a huge amount of information relating to layout, graphics, colour intensity and the general design. The menu system was decided as the survey showed that a slide out menu system and hamburger icon were the most intuitive and least likely to interfere with the content of the map.

Users were also given the choice of three colour palettes, each consisting of the 8 colours used to represent the vibes but with varying opacity levels. The overwhelming response was to go with the full opacity colours.

At the time of testing, the 8 Vibes had not been finalized so the question was asked whether 6 Vibes were enough, or if users would like more of a choice. It was through this survey that embarrassment was chosen as one of the Vibes due to a high positive response.

The survey itself can be seen in the appendix.

### *Unit Testing*

This was the immediate testing of the smallest functions to ensure that code meets its design and behaves as intended. This helped to catch function errors before the code was integrated with the main project. The functions are tested locally on chrome either from the Netbeans connection or the build was uploaded to server to test on a device via the web browser. Browser testing on the device was used if the unit testing required PHP or touch interaction. To test an incomplete feature or isolated function substitutes such as:

- Sample JSON
- Sample objects
- Console.log
- Alerts

Chromes element inspect and Phonegap console pluginxxvi allowed the developer to view the console logs and assess weather functions were performing as expected. The benefit of Unit testing was problems were identified faster and when the code was integrated the individual units were known to be working thus reducing the code to be assessed when problems were encountered

### *Developer - Device testing*

The second phase was to test the app on the device; this was typically carried out on the app by the development team. Functionality and suitability of JQuery plugins and Phonegap API were tested in this manner. The aim was to get the project onto the device as soon as possible and identify the suitable of the features and their performance on the affordance. When the device was uploaded to the device via XCode direct via cable the developer had access to the console logs in XCode.

If there was any issues with features breakpoints could be identified using console.log to register variable values and functions, as they were entered. This would allow the progress to be tracked and quickly find the source of broken code or errors.

### ***User Testing***

The third phase was general user over the shoulder testing carried out using a device with the app and paper questionnaire. The user was given written instructions to carry out on the device and then asked to fill in a questionnaire after.

#### **Build 5.0**

##### **1 Tasks:**

2 Open the app

3 Create account

- View Guide

4 Explore the Map:

- Pan

- Pinch and Zoom

5 View Map:

- Interact with hexagons

- Open Emotions by clicking Hexagons

6 Post an Emotion:

- Take a photo

- Add an emoji description

- Post Emotion

The questionnaire used the Likert Scale to gauge the user response to statements about the app. For example 1-6, 1 been 'strongly disagree' and 6 strongly agree'. With the results entered into an excel sheet the scale was used to get the average reply. This allowed problem areas in the app to be identified.

**Table 5-1 User testing results**

| User | Question 5                                                     |      | Question 6                                    |
|------|----------------------------------------------------------------|------|-----------------------------------------------|
|      | The colour breakdown of hexagon content was clear and concise. |      | The Emotion search filter was well organized. |
| 1    |                                                                | 4    | 4                                             |
| 16   |                                                                | 5    | 4                                             |
| 17   |                                                                | 5    | 3                                             |
| Avg  |                                                                | 4.82 | 3.29                                          |
|      | Agree                                                          |      | Slight Disagree                               |

The questionnaires and results are in the appendix.

#### ***TestFlight Team Testing***

Fourth and final phase was formal testing by Vibes test team. There were 35 people recruited to test via TestFlight. The Vibes team consisted of 24 of the most reliable testers who filled out surveys after each Build was pushed. With TestFlight Builds a Survey was sent to testers after they had time to use the app. The Survey was a Google Form and responses were exported to Excel for analysis.

### 5.1.2 Testing Results

#### *Build 1.0*

The first map prototype was a Google Maps API. The map could be customized using the Google Maps API wizard to create styles JSON. The style JSON provides the option to remove any layer and CSS style individual layers attributes. Limitations in the design ascetics of the markers, which Google Maps provided, switched focus switched to leaflet.js. Leaflet leverages map tiles from 3<sup>rd</sup> party databases. Various tiles were tested and the tiles from maps.stamen.com were used in Build 1.0, specifically toner-lite that has light colours that will suit the minimalist style the app design hoped to achieve.

The maps were tested with sample geoJSON data. The data was generated using random coordinates around the Dublin City area. These were placed into an Excel sheet and exported to .CSV file which when opened in a test editor allowed the structure to be manipulated into a geoJSON format. The large density of markers created a stress test of potential solutions to map marker and bivariate data. At this point we integrated the Marker Cluster plugin<sup>xxvii</sup> for leaflet.js. The Marker Cluster was visually superior to the Google Maps alternative. When the research identified Hexbin as the most suitable data visualisation method the best example of this was prototyped and tested. This example changed the project onto Mapbox.js, an extension of the leaflet.js API. Mapbox.js provided access to the Mapbox Studio<sup>xxviii</sup> and full design control over the map tiles used. As an extension of leaflet.js all existing code was compatible with the new Map API.

#### *Build 2.0*

Build 2.0 focused on the database, server PHP and feeding the map JSON data from the server. In the previous build the JSON was stored locally

beside the external jQuery files. To test the PHP and database the app was uploaded to a local MAMP server initially to verify database and code were communicating. The database was then exported to a live MySQL database, hosted in a myPhpAdmin application on a windows server with Blacknight.com. Once the server was configured the app was tested on the device using the web browser. The html, jQuery, CSS and PHP files were all uploaded to server with FTP program Filezilla.

#### ***Build 3.0***

Testing on build 3.0 highlighted performance issues with the custom slide menu. The bloated CSS was causing lag with the opening animation. To confirm the menu was the source of the problem, the project was branched on Github to create a build with native jQuery Panels. When the native panel menu was tested the performance was significantly improved on the device and the branch replaced the Master branch on Github.

#### ***Build 4.0***

##### **Marker Clustering**

In build 4.0 the Vibes were represented on the map using markers, hexagonal themed pins that matched the Vibes colour. Depending on the density of markers the markers would cluster together using a Mapbox plugin. The testing proved that this method was confusing for the user as the clustering failed to provide clarity to the map when the density of markers increased. When a cluster was clicked at full zoom the markers would burst out in a spidering layout. This wasn't an efficient way to display the data to the user. The second issue arising from the testing was the switch from the colourful hexagons on the hexbin layer to the marker pin layer at higher zoom levels was breaking the flow of the

design and adding to the users confusion. The clustered markers were inconsistent with the overall design.

### ***Build 5.0***

#### **Full Hexbin map layer**

The testing on the hexbin popups was successful; testers were able to navigate the map the map with much more ease. Feedback concluded that the hexagon click was easy to follow.

The main issues arising from this testing phase was feedback from the app as to what each hexagon contained and when there were more than one Vibe in the popup the popup didn't indicate this other than the top on the next image been visible in the popup.

#### **User Guide**

The user guide was implemented in the final build to address certain issues arising from on-going user testing. These issues included the search function, which affords the user the option to search the map for all 8 Vibes or to turn off some Vibes and only search for two or three.

This is achieved by tapping the Vibe you would like to turn off, the user is assured that something has happened, as the Vibe will visibly lower in opacity. The on-going results of the testing showed that some users were confused about the search function, as they assumed tapping the emoji would turn it on. For this reason, a guide was created using code taken from Slide.js and modified to suit the needs of the app.

The build iteration with the guide also included a correction to the app to remove a small bug that allowed the map to scroll when the menu panel was open. This turned out to break the popup div that in this build was relying on the overflow: scroll css property to provide a scrollable div to display all the content in the popup.

### **Image Upload Testing**

During testing of the build 5.0 images upload function of the app at various network speeds including 3G, 4G and Wi-Fi, it was discovered the app was taking longer than a user would reasonably expect the process to take. This caused the app to hang and testers would close the app and restart believing the app had crashed.

Analysis of the upload function found that the build 5.0 function order would lead the user to believe the app had frozen. The function order in this build waited for the image upload to complete before calling the page change function to return to the map. On slower networks the lack of feedback, other than standard AJAX loading message, or functionality provided to the user led them to believe the app had frozen. The function order was changed in build 6.0 to improve the user experience.

### **Vibe Button in Menu**

Poor animation was highlighted on the Vibes button in the menu. The technique used applied CSS animations to menu buttons simultaneously. This was excessive drag on processing and the source of the jumpy animations. The method was changed to a div wrapping the menu and scrolling the buttons out of view and the Vibe information into view.

### **Fetching User Data**

User Testing revealed a bug with newly created accounts. When accessing the profile page the ‘Fetching user data’ loading message would remain on screen and hang the profile page. On exiting the profile page the loading message would still remain. The source, when a new user created an account the new userID needed to load the imageArray was not been passed back from the php. The issue raised by testers also highlighted the lack on feedback to users with no Vibes in their profile. This feature was marked for development in next build.

### **Build 6.0**

The testing on Build 6.0 raised issue with the profile page. The profile page in this build had developed a bug where the native scroll would not function. In Question 9 of the testing feedback the statement “In relation to the Profile page, I found it to be:” was on average 3 - Slightly Difficult.

**Table 5-2 Test results Build 6.0**

| User               | Question 10<br>In relation to the Profile<br>page, I found it to be: | Comments                                             |
|--------------------|----------------------------------------------------------------------|------------------------------------------------------|
| 1                  | 3                                                                    | Profile page doesn't scroll                          |
| 2                  | 4                                                                    | Profile page doesn't scroll                          |
| 3                  | 3                                                                    | Time filter is tricky, settings are tricky to get to |
| 9                  | 3                                                                    | Can't exit guide, Profile page doesn't scroll        |
| 17                 | 1                                                                    | Added emoji twice to image                           |
| Avg                | 2.90                                                                 |                                                      |
| Slightly Difficult |                                                                      |                                                      |

The profile page was scheduled for attention in the final build after the changes to the menu also raised in build 6.0 testing. Feedback comments included “Menu layout is spread out” in reference to the settings page and logout function been difficult to access in a sub-page of the profile page.

### **Multi input on Keypad**

When the user clicked the keypad buttons to add an emoji, a bug causing the emoji to appear multiple times occurred. When reported by a tester

the Team set about recreating the issue. The issue was recreated by exiting the #emotionPostPage and returning again. This identified the error; the click event bind was on page show event so each time page was loaded the click event would bind again. Moving the click event to page create event solved this bug.

#### Button Responsiveness

Testing showed slow response to user input. Users had to double click to get a response from button clicks. The effect was very evident in the over shoulder testing. A jQuery plugin FastClick.js was used to remove the 300ms delay on the device that waits for DoubleClick. This improved the button response on almost all button clicks. The delay was still present in emoji description keypad.

#### *Final Build 7.0*

The testing on build 7.0 raised issues with the time filter. There is a bug in the filter that will break the map. If the filter button is clicked without selecting dates this creates an error in the geoJSON call and thus breaks the svg layer from the map layer. The svg hexbin later will no longer translate in tandem with the map coordinates.

When the map has been filtered and the advanced tab has been opened to select a fast button for time or select dates, on closing of the filter menu the div does not fully transition off the page and the filter button can still be pressed accidentally? In conjunction with the error above this can break the map.

The popup background is not appearing in the last build. An issue with the image background for the popup header and the CSS means that the popup has a transparent background in the final build.

### **5.1.3 Tutorials Used**

In the early builds plugins were being tested regularly to gain familiarity with jQuery in a Phonegap project.

#### ***HTML5 Canvas***

Vibes emotion posts use HTML5 Canvas element to create the core media of the Vibes app. The tutorials on [html5canvastutorials.com](http://www.html5canvastutorials.com/) were studied to learn the advanced techniques to export the canvas to png image. This enables the app to embed the emoji description into the image.

HTML5 Canvas tutorial. Retrieved from

<http://www.html5canvastutorials.com/>

#### ***SVG animations***

Numerous tutorials and reference sites were used when constructing the elements that required animating. These tutorials provided background information on SVG animations as well as supplying detailed accounts of an SVG animation being brought from concept to completion. SVG animations were first used in Build 5, Emo, to illustrate the function set in the users profile and to animate “emotion-mapping” on the splash screen, some of which can be seen on Vibe’s Instagram account. The amount of animations used in this build were slowing down the app and so they were used sparingly in the final build.

For the final build, the animations used include a custom-loading spinner and small details in the User Guide, both of which required basic SVG animation.

All of the tutorials used will be referenced below:

SVG animation element overview. Retrieved from

<http://www.w3.org/TR/SVG/animate.html>

SVG animations guide. Retrieved from <http://css-tricks.com/guide-svg-animations-smil/>

SVG animations guide. Retrieved from

<http://product.voxmedia.com/2013/11/25/5426880/polygon-feature-design-svg-animations-for-fun-and-profit>

SVG animation guide. Retrieved from

<http://tutorials.jenkov.com/svg/svg-animation.html>

SVG animations with CSS. Retrieved from

<http://webdesign.tutsplus.com/tutorials/how-to-animate-festive-svg-icons-with-css--webdesign-17658>

#### *Vibe Popups in menu*

Tutorials from W3schools were also used to create the Vibes information pop up in the menu. The tutorial used was:

Tutorial jQuery mobile Popup. Retrieved from

[http://www.w3schools.com/jquerymobile/tryit.asp?filename=tryjqmob\\_popup\\_basic](http://www.w3schools.com/jquerymobile/tryit.asp?filename=tryjqmob_popup_basic)

#### *W3schools Tutorials*

W3schools was used as a reference throughout the production of the app.

CSS tutorials and references. Retrieved from

<http://www.w3schools.com/css/>

jQuery tutorials and references. Retrieved from

<http://www.w3schools.com/jquery/default.asp>

# Chapter 6

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## 6 Evaluation

### 6.1 Introduction

In this chapter the final version of the app will be evaluated. The apps original Critical Success Factors and MVP will be critically analysed against the final artefact. Any design or code changes that could have been made had there been more time will be discussed. Finally, a section outlining potential future possibilities for Vibes will be outlined.

### 6.2 Critical Success Factors

The critical success factors for the project were defined in chapter 2 (UNA). They will be discussed here in comparison to the final artefact. The CSF's are listed below and each individual factor is discussed underneath.

#### 1. Interaction with the map

The map as a feature works perfectly. The interaction with the Hexbin layer has a number of small issues, outlined below in Code Critique. But from testing feedback, users showed no major issues with the map. They all were able to use the map intuitively.

#### 2. Easy navigation

This CSF has been achieved. User testing showed which menu layout provided the best user experience, this was implemented in build 4. Further testing showed a need for quick access to the post function, this was implemented in build 7. Final tests proved that the users could navigate easily through the app with ease.

### **3. Upload an image**

The app uploads an image successfully, the image is stored on the apps server and a thumbnail copy is rendered for the profile page.

### **4. Clear colour and emotion relationship**

This CSF has been achieved. The decision to base the majority of the emotions and colour on academic research meant that there was a clear reasoning behind each Vibe. Final testing showed that the Vibes were easy to understand, however, to tackle any confusion that may arise the vibes button in the menu was added as a reference.

### **5. Smart design**

This CSF was achieved. Final testing shows that the minimal aesthetic and white map successfully enhance the users content. The use of SVGs instead of PNGs ensured that the graphics and assets were at the highest standard possible.

### **6. Search/filter by emotion**

This CSF was achieved. Users can easily select all the Vibes, or alternatively, tap to deselect and compare and contrast different emotions in different areas.

An advanced option was also included allowing users to search for the vibe of an area on a specific date. This surpassed the original CSF and has proved to be a success with users.

## **6.3 Minimum Viable Product**

The MVP was established in chapter 2. It will be discussed here in comparison with the final artefact. The MVP's are listed below and each individual factor is discussed underneath.

### **1. A map that can be navigated easily**

The map in the final artefact loads quickly and can be navigated through with all the usual interactions such as pinch and zoom and drag. The use of Mapbox meant that a white map could be obtained which ensures the content on the map is clear.

### **2. 8 Vibes with corresponding emotions that accurately describe an emotion**

The 8 vibes and their corresponding colours are based on academic research, which is discussed in chapter 4. They have proven to be understood by users. The Vibes represent the stories on the map by colour. The Vibes themselves can be seen in the search, post and vibes functions.

### **3. Post and search functions that are clear, quick and easy to use**

These functions were a high priority and have been working successfully since the 6<sup>th</sup> build was tested.

### **4. An effective UI so as not to interfere with the content**

This has been achieved through the use of Mapbox, which was styled according to this MVP factor. The remainder of the UI has proven to be a success.

### **5. A custom emoji keyboard to allow users to describe their Vibe**

The realisation that a custom emoji keyboard was needed came about when analysing competitor apps for Vibes. Emojli is an application specifically for visual, emoji-only messaging; yet if the user does not have the emoji keyboard enabled on their device the app is useless. The emoji keyboard available in Vibes is custom created and contains the top 100 most popular emojis, based on research.

## **6. Quick and easy upload for on the go users**

The upload function passed all reasonable expectations in the developer testing. The app upload was tested on 4G, 3G and Wi-Fi. Uploading a Vibe while in a Wi-Fi zone works at the optimum speed, 4G speeds are also noticeably fast.

Testing showed that uploading a Vibe while on 3G is slower and can take between 10-20 seconds. The “uploading” animation was added to reassure the user that something was happening, a bouncing arrow appears on the map when the upload is complete indicating to the user where their Vibe is and a “View Vibe” button replaces the upload animation when the upload is complete.

The post function on the map page was added in build 7.

### **6.4 Code Critique**

This section will discuss the changes that could have been made to the existing code in the final build had there been more time.

#### **6.4.1 Map Zooming and Popups**

The zooming and popup interaction on the map is unfinished. When the user clicks on a hexagon two listeners capture the click event, the click event in the Hexbin class object and a click event on the hexagon class name. One function handles the zooming and the other handles the opening of the Vibe popups. In the removal of the map marker layer the popup opening event was on the markers, in the conversion the function was directed to the hexagon class. When the two functions were merged to a single listener there were a number of bugs occurred and failing to find a solution to these the code was returned to the dual listeners. Unfortunately this issues was never rectified before the Project was delivered.

#### **6.4.2 Filtering Vibes and Time**

This is another area that did not receive enough attention in the final build. An issue with the date range on the time filter. When the inputs are left blank and the filter button is clicked the app breaks. The URL string to retrieve the geoJSON is generated with invalid characters and does not return a geoJSON. The bug was caught too late, the function passed testing as most users used the Fast Buttons and there was no formal testing routine to encourage the testers to break the app. Testers were directed to use the app properly. The error is compounded by a animation error which those not move the Filter panel fully from view and leaves the bottom of the button in the map view. This can be clicked accidentally and if the date ranges are blank the app will break. The errors have been fixed in the latest build been prepared for AppStore.

#### **6.4.3 App Responsiveness**

This is an area that received at lot of attention. The issue arose initially from bloated CSS. Then animations embedded in SVG vector files were then found to be a huge drain on CPU in developer testing, the animations were removed.

The overall responsive was improved by the introduction of the fastclick.js plugin. This removed a 300ms delay on the app, this wait of the second touch of a DoubleClick. While the responsive was improved build on build, the final build has some slow features. They emoji keypad will nearly always require a double tap before an emoji can be added, following this all other emoji add with a single tap.

#### **6.4.4 App State**

There a number of positions in the app where the app state is not returned to normal after the user exists a page. For example if the keypad is open and the user cancels the Vibe Posting, when the user next

returns to Post a Vibe the keypad will still be open. This also occurs on the map where, when a user closes a popup they are not returned to the previous map position when the Vibe was opened. This inhibits the users ability to scan through the map as they must zoom out to trace their steps.

## 6.5 Design Critique

This section discusses the changes that could have been made to the design had their been more time.

### 6.5.1 Button animation

Some buttons in Vibes provide feedback when pressed and some don't. This suggests a lack of continuity and is aspect that would have been addressed if there had been more time. The buttons that provide feedback have obtained through Theme roller and are used in the search function and settings page where a form is needed. Users had no difficulty pressing buttons or knowing which elements were buttons, the quick turn around from button press to functionality assures the user that their interaction worked, however, for continuity sake and the over all design aesthetic the buttons would have been revisited if time allowed it.

### 6.5.2 Interaction and animation

There were a series of SVG animations created for the 4<sup>th</sup> build of the artefact, these ultimately broke the app and had to be discarded, however, a lot of research was undertaken into the process of animation and ideally it would have been nice to put what was learnt into practice. If there were more time, further research into the correct form of animation to use in mobile design would take place. Small details such as the Vibes wiggling when selected could potentially be included.

An aspect of future work, which was discussed in the coding critique, was the inclusion of a “like” button. If this feature were added some interactivity such as double to like would be included.

## 6.6 Team Dynamic

This section will discuss how the team behind Vibes worked together through the process of creating the artefact.

### 6.6.1 Working environment

Both team members made an effort to work together as much as possible throughout the production process. It was decided before the summer that the production of Vibes should be treated as a job and so both team members made use of the Postgrad room as soon as it became available. This environment allowed for easy communication between both team members and other teams.

### 6.6.2 Decision making

By working in close proximity for the duration of the project, it ensured that any problems that arose could be discussed as a team and a viable solution could be realised quickly. Every phase of the app was a team effort in that both team members were kept informed of the others actions, be it design or code. This worked well as it meant a second opinion was always available.

### 6.6.3 Division of work

The division of work can be broken down simply into designer and coder. Keith was in charge of the code and Sona had control over the design and creative aspects. Detailed accounts of each team member’s responsibilities can be seen in the Contribution Reports, which were submitted along with the document.

#### **6.6.4 Communication**

When both team members could not work together in college, WhatsApp was used to communicate and make sure both team members were informed at all times. When it came to implementing the design and code, a GitHub repository was established which proved to be invaluable in terms of the speed of development. This platform allowed both coder and designer to work in tandem, quickly catching problems that arose and allowing for increased iterations.

Trello was also used as a form of project management. This proved to be extremely effective as both team members could visualise what was being done, what needed to be done and what was a priority. Team members took it upon themselves to make note of elements that needed to be changed and to tag the appropriate team member.

#### **6.7 Marketing**

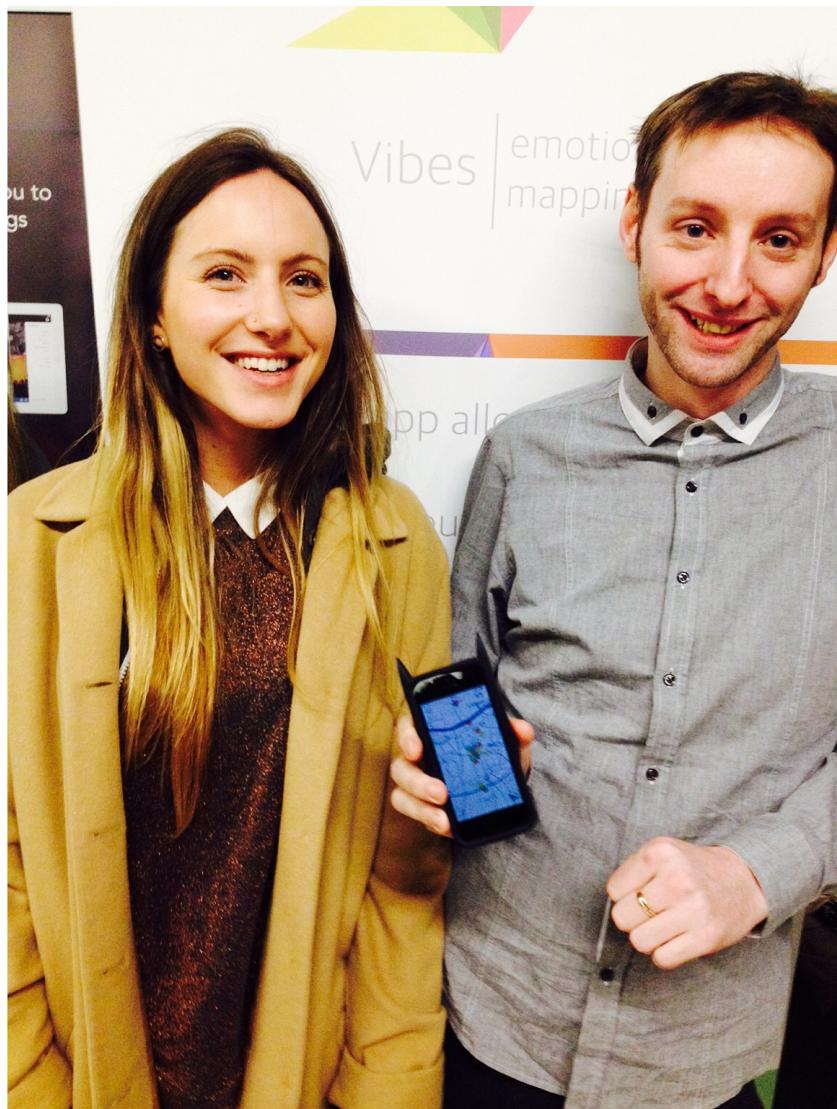
The marketing for this project consisted of the use of various social media platforms, namely Facebook, Instagram, Twitter and Behance. Regular updates were posted on each platform to keep followers interested and engaged, to promote the app and to gain feedback on the progress of both functionality and design. The use of Instagram as a casual testing method is outlined in chapter 5.

A pull up banner was created for the “Meet the Masters” event hosted in DIT where Vibes was showcased along with the other apps and games. This was a way to meet people from the industry who provided suggestions and valuable feedback on the future possibilities of Vibes.

Links to the various social media sites used can be found below, as well as a link to Vibes promotional video.

- Facebook - [Facebook.com/VibesEmotionMapping-](https://Facebook.com/VibesEmotionMapping)

- Twitter - [Twitter.com/vibes\\_ios](http://Twitter.com/vibes_ios)
- Instagram - [Instagram.com/emotion\\_mapping](http://Instagram.com/emotion_mapping)
- Behance - [Behance.net/gallery/18423363/Sensus-Emotion-mapping-app](http://Behance.net/gallery/18423363/Sensus-Emotion-mapping-app)
- Trello - [Trello.com/b/5R1Nouir/final-project-emotion-mapping-app](http://Trello.com/b/5R1Nouir/final-project-emotion-mapping-app)
- Github - [Github.com/calimcginley/emo\\_app](http://Github.com/calimcginley/emo_app)
- Promo video - [Vimeo.com/116072459](http://Vimeo.com/116072459)



**Figure 6-1 The Vibes team at Meet the Masters**

## 6.8 Future Work

This section will discuss any possible future development for Vibes, new features and industry integration.

### 6.8.1 Statistical Analysis

A feature that would set Vibes apart from other apps would be the inclusion of statistical analysis of the users data. This could potentially include:

- Daily or weekly charts showing the changes in individual users general mood.
- Trending Vibes, which would show the city or area with the highest individual vibe count every day.

The stats would be presented in a new section of the app. Tweeting stats each day would also become part of a social media marketing campaign where the Vibes Twitter account could report a daily analysis of the latest data.

### 6.8.2 Maps

When a user has filtered the map and found an interesting view they should be able to export the view to a shareable image via social media or downloaded to their phone. Another aspect that would make for a good user experience would be the inclusion of a Personal Map whereby users have the option to only view their own Vibes on a map.

### 6.8.3 Like Button

The inclusion of a “Like” button was a function that the team expected to add, however, as it was not part of the project requirements or MVP there was not enough time to implement one.

In the early prototypes this feature was visible but not functioning. However, in future work if a user wanted to like a post they could

double tap the image or click a heart icon. The benefits of having a “like” option include:

- User reward. Every post in Vibes is anonymous so the user wouldn’t know who liked their post, but they would see the heart count increasing as more likes were gained.
- If a “Like” button was included the data could be used in connection with the statistical research outlined above in that the most liked image relating to each Vibe could be represented on the map by a pulsing hexagon.

#### **6.8.4 Share Button**

The share function was postponed when the feature was not successfully implemented. An extended deadline was passed and without being able to get the plugin operating correctly the feature had to be left to future work. Having a share option would increase the possibility of social integration and widen the scope of the app.

#### **6.8.5 Report Button**

In the event a user were to use the camera to upload explicit or offensive images a report function would be required. This function would notify the app developer team when images are flagged. Further research into best practices in this area would be required, but the development team believe that if an image is flagged once it should be reclassified in the database. Whenever the Vibe is requested for a popup again the user will be shown a warning that this image is explicit before been able to view the image. Once the team can check the image via the notification a decision can be made to remove the image from the server or remove the warning.

#### **6.8.6 Map Navigation**

The map navigation has some minor issues. When a user clicks and opens a Popup the map is zoomed behind the Popup, when the user close the popup they will be in a unfamiliar position on the map. There is also a need to show the user something graphical to show the Hexagons are breaking apart into smaller Hexagons on the map. The code behind the map switches the CSS display property on the SVG layers so the pinch and zoom on the map changes the layers instantly. It may be possible to blend the outgoing and incoming layers with a CSS animation on the opacity value.

#### **6.8.7 Expansion**

Through communicating with users and industry professionals various paths that Vibes could take in the future have become apparent.

Suggestions included:

- The use of Vibes across all DIT campuses to show the mood of each one.
- The use of Vibes in conjunction with social workers and mental health professionals to track young peoples moods. For example Aware.ie
- The use of Vibes in conjunction with restaurants, pubs, events and festivals to provide quick, visual feedback straight from the customer.

### **6.9 Conclusion**

This section has given an overall assessment and critique of the final artefact. The project requirements and MVP were discussed in relation to the final app. The team's dynamic and potential future work was also discussed.

# Chapter 7

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## 7 Conclusion

This report detailed the creation and development of the Vibes App. The document was divided into six main sections. The user needs analysis, background research, design, development, testing and the evaluation. Also included in the document are the introduction, conclusion, appendix and bibliography.

The user needs analysis covered the aims and objectives of the project. In this chapter a comprehensive overview of the requirements, validation of the need, critical success factors, use case and personas were provided. This section was detailed and accurate within the scope of the project.

The background research gave an in depth analysis of the competitors and current state of the art relative to the project. Based on the results of this analysis the design requirements could be defined. These were also provided in this chapter.

The design and coding chapters provided a concise and comprehensive overview of the production of Vibes. In these chapters evidence was provided to show that an agile method was used throughout the process each major development decision was based on user feedback.

The testing chapter outlined the methods used to garner feedback throughout every major iteration of the app. It showed a clear understanding of the problems that arose and the approaches to finding appropriate solutions.

The evaluation chapter provided a full and critical analysis of the final artefact relative to the initial project requirements and MVP. Design and coding were analysed separately, outlining the aspects that could have been improved on. The possibilities for future work and the addition of further functionality was also outlined.

This project has been rewarding, stressful, satisfying and eye opening to work on. Both team members are extremely proud of Vibes.

## 8 Appendix

### Code

#### js/vibeCode.js

```
/* EMO Emotion Mapping App | Main Code for App */
/* Code by Keith McGinley @calimcginley */
// Init Code

// Functions
var endOfSplash = function () //End of splashPage Function
{
 console.log('Decide which page to show:'); // In the redirect we
check the local storage for the logged in status
 if (window.localStorage.getItem('logged') === 'Yes') // If the
value is returned 'Yes' the app redirects direct to #mapPage
 {
 console.log('localStorage logged value = Yes');
 $(":mobile-pagecontainer").pagecontainer("change",
"#mapPage", {transition: "fade"});
 }
 else
 {
 console.log('No localStorage logged value');
 $(":mobile-pagecontainer").pagecontainer("change",
"#loginPage", {transition: "slide"});
 }
};

function camera() // Camera Function to Handle the image creation
{
 // Place camera phonegap function here
 navigator.camera.getPicture(onSuccess, onFail, {
 quality: 80,
 destinationType: Camera.DestinationType.FILE_URI,
 targetWidth: 640,
 targetHeight: 640,
 saveToPhotoAlbum: true,
 correctOrientation: false,
 allowEdit: true
 });
 console.log('Camera opened on phone');
 function onSuccess(imageURI)
 {
 var emojiColours = ['#F7ED43', '#EFB9CE', '#6CCCE1',
'#E01888', '#A4579F', '#C3242D', '#F48530', '#66BA4D'];
 var parentEmoji =
window.localStorage.getItem('parentPostEmoji') - 1;
 console.log('Camera opened and image was captured');
 // Canvas Mood on image
 var canvas = document.getElementById('imageCanvas');
 var context = canvas.getContext('2d');
 context.clearRect(0, 0, canvas.width, canvas.height);
 // Add white bg
 context.rect(0, 0, 640, 720);
 context.fillStyle = '#ffffff';
 context.fill();
 // Add the emoji Colour
```

```

 context.rect(0, 0, 640, 650);
 context.fillStyle = emojiColours[parentEmoji];
 context.fill();
 // Camera Image Loaded
 var imageObj = new Image();
 imageObj.onload = function () {
 context.globalAlpha = 1;
 context.drawImage(imageObj, 0, 0, 640, 640);
 };
 imageObj.src = imageURI;
 }

 function onFailure(message)
 {
 console.log('Camera Failed to load' + message);
 }
}

function insertImageArray(profileImageArray, imageCount) // Insert
into Profile Page function
{
 var addMoreHtml = '<div id="addMoreDiv"><p><a href="#"'
 id="addProfilePost" >Load More</p></div>';
 $('#noVibes').remove(); // Remove the Button and Add it after
 //var profileImageArray =
 window.localStorage.getItem('profileArray');
 if (profileImageArray !== null) { // User has posts
 var slideHtmlArr = [];
 var errorStr = "if (this.src != 'images/error.png') this.src
= 'images/error.png';";
 $.each(profileImageArray, function (index, value) { //
Loop through the array to the imageCount numb
 //if (index <= imageCount && index >= imageCount - 7)
 if (index <= imageCount)
 {
 $('#addMoreDiv').remove();
 var a = moment(value[3]); // Time since Tag
 var b = moment(value[4]);
 var timeOffset = a.from(b); // Get time differ and
insert posts to page
 slideHtmlArr.push('<div class="profilePostDiv">
 + '<p><i class="fa fa-clock-o"></i> ' +
timeOffset + '</p></div>');
 }
 });
 var slideHtml = '<div class="container"><div
id="profileSlides"><div class="slide">';
 var arrLenSlide = slideHtmlArr.length;
 $.each(slideHtmlArr, function (index, value) {
 var countArr = index + 1;
 console.log('Count Arr si: ' + countArr);
 if (countArr % 4 === 0 && arrLenSlide !== index + 1) // //
Remainder 4, if zero create new page.
 {
 console.log('Was divisible by 4');
 slideHtml = slideHtml + value + '</div><div
class="slide">';
 }
 else

```

```

 {
 slideHtml = slideHtml + value;
 }
 });
 slideHtml = slideHtml + '</div></div></div>'; // Close last
div page and add button
 console.log(slideHtml);
 $('#profilePageSlider').html(slideHtml); // Add to page
 $('#profileSlides').slidesjs({// Set Slideshow
 width: 320,
 height: 400,
 navigation: false
 });

 imageCount = parseInt(imageCount) + 7;
 window.localStorage.setItem('imageCount', imageCount);
 console.log('AfterInsert: imageCount is now ' + imageCount);
}
else { // User has no posts
 $('#addMoreDiv').hide();
 $('#profileSlideDiv').html("<div id='noVibes'><p>You don't have any Vibes
yet</p></div>");
}

$('#profilePageSlider').append(addMoreHtml);

$('.postDivImg').click(function () { // Expand Image on Click
 console.log('Image Clicked');
 var imgSrc = $(this).attr('id');
 var offSet = $(this).attr('alt');
 var errorStr = "if (this.src != 'images/error.png') this.src
= 'images/error.png';";
 $('#profilePageSlider').append('<div class="giantImg"><p><i
class="fa fa-clock-o fa-2x"></i> ' + offSet + '</p></div>');
 // Remove Click Event
 $(".giantImg").click(function () {
 $(".giantImg").remove();
 });
});
}

function fetchVibes()
{
 var vibeArray = [];
 var userID = window.localStorage.getItem('userID');
 var vibesToAdd = window.localStorage.getItem('imageCount');
 console.log('Getting posts for Users: ' + userID);
 $.ajax({url: 'http://emoapp.info/php/getUserPosts.php', // Get
Users Posts
 data: {userID: userID},
 type: 'post',
 async: 'true',
 dataType: 'json',
 beforeSend: function () { // This callback function will
trigger before data is sent
 $.mobile.loading("show", {
 text: 'Fetching Vibes',
 textVisible: true
 });

```

```

 },
 complete: function () { // This callback function will
trigger on data sent/received complete
 $.mobile.loading("hide");
 },
 success: function (result) { // Get user posts and place
them into assoc Array

 //console.log('User Posts Fetch successfull: ' +
JSON.stringify(result));
 // Remove no Posts Msg
 if (result.success === 1)
 {
 console.log('Fetch Vibes Result: ' +
result.success);
 $.each(result.posts, function (index, value) {
 //console.log(index + ' : ' + value.postID);
 array_push = [index, value.postID,
value.imageName, value.timeServer, value.timeNow];
 //console.log(array_push);
 vibeArray.push(array_push);
 //window.localStorage.setItem('profileArray',
JSON.stringify(profileImageArray));
 });
 console.log('vibeArray');
 console.log(vibeArray);
 insertImageArray(vibeArray, vibesToAdd); // Insert
Images into Page
 }
 else
 {
 $('#noVibes').remove(); // Remove the Button and Add
it after
 $('#profilePageSlider').html('<div
id="noVibes">
<hr><h3>' + result.message + '</h3><hr></div>');
 $('#addMoreDiv').hide();
 }
 },
 error: function (error) { // This callback function will
trigger on unsuccessful action
 $('#profilePageSlider').html('
<hr><h3>There was an
error = ' + error + '</h3><hr>');
 console.log('error = ' + error);
 console.log(error.success);
 $.mobile.loading('hide');
 }
 });
}

$(document).ready(function () { // A click event for each emoji
which creates a token in local storage to aid emoji post
 parentOpen = false;
 sliderCreated = false;
 profileShown = false;

 $("#map").click(function () { // Close Menu
 if (parentOpen) // Close Posting
 {
 $("#emojiPostSelectParent").velocity({left: "-100%",
easing: "easein"}, 500);
 parentOpen = false;
 }
 })
}

```

```

});

$(function () { // Panels Code
 $('[data-role=panel]").panel().enhanceWithin();
});

$(function () { // Fast Click
 FastClick.attach(document.body);
});

$('.floatlabel_1').floatlabel(); // float label code

$('#cancelPass').click(function (e) {
 if (window.localStorage.getItem('logged') === 'Yes')
 {
 $(".:mobile-pagecontainer").pagecontainer("change",
 "#settingsPage", {transition: "slide"});
 }
 else
 {
 $(".:mobile-pagecontainer").pagecontainer("change",
 "#loginPage", {transition: "slide"});
 }
});

$('.emoPostBtn').click(function (e) { // Open the parent EMoji
select button
 console.log('Post Btn Clicked');
 var pageID = $.mobile.activePage.attr('id');
 console.log('pageID: ' + pageID);
 if (pageID === 'mapPage')
 {
 $("#menuPanel").panel("close");
 console.log('close menu');
 closeMenus();
 openParentEmojiBar();
 }
 else // Move page to mapPage and open parent select
 {
 console.log('Change to map page and open filter');
 $(".:mobile-pagecontainer").pagecontainer("change",
 "#mapPage", {transition: "slide"});
 openParentEmojiBar();
 }
}

function openParentEmojiBar()
{
 console.log('Open Filter bar');
 $("#emojiPostSelectParent").velocity({left: "0", easing:
 "easein"}, 500);
 $("#emojiSearchBar").velocity({top: "-120%", easing:
 "easein"}, 500); // Close Other bar
 parentOpen = true; // switch boolean
}
});

$('.emojiParent').on('click', function () { // Parent Emoji
Clicked
 var pEmoji = $(this).attr('data-name');
 console.log(pEmoji);
 window.localStorage.setItem('parentPostEmoji', pEmoji);
 // Change Page to emotionPostPage
}
);

```

```

 $(":mobile-pagecontainer").pagecontainer("change",
 "#emotionPostPage", {transition: "slidedown"});
});

$('.menu-button').click(function () { // Check weather the
Panel was open
// It not it's about to so remove overlay menus
if (!$('#menuPanel').hasClass('ui-panel-open'))
{
 $(document).delegate('.ui-content', 'touchmove', false);
 $(".infoMenu").hide();
 $('#panelBtns').velocity({top: '90px', easing:
'easein'}, 600);
 //$(".panel-btn").velocity({width: '150px', easing:
"easein"}, 1);
 //$(".infoMenuImg").velocity({marginBottom: 100, easing:
"easein"}, 1);
 $('#mapPage').removeClass('show-popup');
 $("#emojiSearchBar").velocity({top: "-100%", easing:
"easein"}, 300);
 $("#emojiPostSelectParent").velocity({left: "-100%", easing:
"easein"}, 300);
}
else
{
 $(document).delegate('.ui-content', 'touchmove', true);
}
});

$("#imageCanvas").click(function (e) { // Camera Button Clicked
 console.log('Camera CLicked');
 camera();
});

$("#guidePage").on("pageshow", function (event) { // Show the
Splash Page
 $('#slides').slidesjs({
 width: 320,
 height: 480,
 navigation: false
 });
});

$("#loginPage").on("pageshow", function (event) {
 function makeNewPass()
 {
 var text = "";
 var possible =
"ABCDEFGHIJKLMNOPQRSTUVWXYZabcdefghijklmnopqrstuvwxyz0123456789";
 for (var i = 0; i < 6; i++)
 text += possible.charAt(Math.floor(Math.random() *
possible.length));
 return text;
 }

 $('#forgotPass').click(function () { // Forgot Password
Event
 function movetoPass() {
 $(":mobile-pagecontainer").pagecontainer("change",
 "#passPage", {transition: "slide"});
 }
 var inputEmail = $('#email').val();
 });
});

```

```

 window.localStorage.setItem('mailSent', 'no');
 if (inputEmail.length > 0)
 {
 var newPass = makeNewPass(); // Generate New
Password
 var hashPassword = $.sha256(newPass); // Hash it
 console.log('New Pass: ' + newPass + 'EMail: ' +
inputEmail + ' Hash:' + hashPassword);
 $.ajax({url:
'http://emoapp.info/php/forgotPass.php', // Send Pass
 data: {userEmail: inputEmail, newPass: newPass,
newPassHash: hashPassword},
 type: 'post', async: 'true',
 beforeSend: function () { // This callback
function will trigger before data is sent
 $.mobile.loading("show", {text: 'Forgot
Password', textVisible: true});
 },
 complete: function () { // This callback
function will trigger on data sent/received complete
 },
 success: function (result) { // Open New Pass
Dialog
 $.mobile.loading("hide");
 $('#passMsg').html('<p>You will have
recieved new password to account email.
Enter pass below and
create your new password.</p>');
 window.localStorage.setItem('tempEMail',
inputEmail);
 movetoPass();
 },
 error: function (error) { // This callback
function will trigger on unsuccessful action
 $('#updateBtn').html('There was an error = ' +
error);
 console.log('error = ' + error);
 console.log(error.status);
 }
 });
 }
 }
else // Tell them enter email q
{
 $('#formErrorMsg').html('Please enter your account
email address');
}
});
});

$("#passPage").on("pagecreate", function (event) {
 $('#changePass').click(function () { // Update Password
clicked
 var newPass = $('#newPass').val();
 var newPassHash = $.sha256(newPass);
 var curPass = $.sha256($('#curPass').val());
 var copyPass = $('#conPass').val();
 console.log('?' + newPass + ' = ' + copyPass);
 $('#formErrorMsg').html('');
 if (newPass === copyPass) { // Passwords match, update
 $.ajax({url:
'http://emoapp.info/php/passChange.php', // Send Pass

```

```

 data: {userEmail:
window.localStorage.getItem('tempEMail'), newPass: newPassHash,
curPass: curPass},
 type: 'post', async: 'true', dataType: 'json',
 beforeSend: function () { // This callback
function will trigger before data is sent
 $.mobile.loading("show", {text: 'Forgot
Password', textVisible: true});
 },
 complete: function () { // This callback
function will trigger on data sent/received complete
 console.log('Ajax Complete');
 $.mobile.loading("hide");
 },
 success: function (result) { // Open New Pass
Dialog
 console.log(result.status);
 if (result.status === 'ok')
 {
 $('#passMsg').html(' ');
 $(":mobile-
pagecontainer").pagecontainer("change", "#mapPage", {transition:
"slide"});
 }
 else
 {

console.log($("#formErrorMsg").html('result.status'));
$("#formErrorMsg").html('result.status');
}
 },
 error: function (error) { // This callback
function will trigger on unsuccessful action
 $('#updateBtn').html('There was an error = ' +
error);
 console.log('error = ' + error);
 console.log(error.success);
}
 }); // Add the logged in on success
 }
 else { // Passwords don't match
 $('#formErrorMsg').html("Passwords didn't match");
 }
});
});

$("#emotionPostPage").on("pagecreate", function (event) {

Keypad
 console.log('set tab selection of emoji'); // Set up emoji
 var tabIcons = [
 {
 ':joy:': 'joy.png',
 ':angry:': 'angry.png',
 ':sunglasses:': 'sunglasses.png',
 ':relaxed:': 'relaxed.png',
 ':smirk:': 'smirk.png',
 ':heart_eyes:': 'heart_eyes.png',
 ':kissing_heart:': 'kissing_heart.png',
 ':confused:': 'confused.png',
 }
]
});

```

```

 ':flushed:' : 'flushed.png',
 ':stuck_out_tongue_winking_eye:' :
'stuck_out_tongue_winking_eye.png',
 ':grinning:' : 'grinning.png',
 ':wink:' : 'wink.png',
 ':expressionless:' : 'expressionless.png',
 ':unamused:' : 'unamused.png',
 ':pensive:' : 'pensive.png',
 ':anguished:' : 'anguished.png',
 ':disappointed:' : 'disappointed.png',
 ':fearful:' : 'fearful.png',
 ':grimacing:' : 'grimacing.png',
 ':weary:' : 'weary.png',
 ':cry:' : 'cry.png',
 ':yum:' : 'yum.png',
 ':eyes:' : 'eyes.png',
 ':cop:' : 'cop.png',
 ':older_man:' : 'older_man.png',
 ':older_woman:' : 'older_woman.png',
 ':bride_with_veil:' : 'bride_with_veil.png',
 ':baby:' : 'baby.png'
 }, // Tab 1 Similes
 {
 ':bear:' : 'bear.png',
 ':cat:' : 'cat.png',
 ':dog:' : 'dog.png',
 ':chicken:' : 'chicken.png',
 ':cow:' : 'cow.png',
 ':frog:' : 'frog.png',
 ':ghost:' : 'ghost.png',
 ':hatched_chick:' : 'hatched_chick.png',
 ':hear_no_evil:' : 'hear_no_evil.png',
 ':see_no_evil:' : 'see_no_evil.png',
 ':speak_no_evil:' : 'speak_no_evil.png',
 ':horse:' : 'horse.png',
 ':monkey:' : 'monkey.png',
 ':mouse:' : 'mouse.png',
 ':panda_face:' : 'panda_face.png',
 ':penguin:' : 'penguin.png',
 ':pig:' : 'pig.png',
 ':monkey_face:' : 'monkey_face.png',
 ':poop:' : 'poop.png',
 ':skull:' : 'skull.png',
 ':snail:' : 'snail.png',
 ':snake:' : 'snake.png',
 ':turtle:' : 'turtle.png',
 ':whale:' : 'whale.png',
 ':wolf:' : 'wolf.png'
 }, // Tab 2 Animals
 {
 ':apple:' : 'apple.png',
 ':banana:' : 'banana.png',
 ':cake:' : 'cake.png',
 ':cookie:' : 'cookie.png',
 ':doughnut:' : 'doughnut.png',
 ':egg:' : 'egg.png',
 ':pizza:' : 'pizza.png',
 ':fries:' : 'fries.png',
 ':hamburger:' : 'hamburger.png',
 ':icecream:' : 'icecream.png',
 ':lemon:' : 'lemon.png',
 ':mushroom:' : 'mushroom.png',

```

```

':strawberry:' : 'strawberry.png',
':airplane:' : 'airplane.png',
':ambulance:' : 'ambulance.png',
':articulated_lorry:' : 'articulated_lorry.png',
':bike:' : 'bike.png',
':car:' : 'car.png',
':bullettrain_side:' : 'bullettrain_side.png',
':bus:' : 'bus.png',
':fire_engine:' : 'fire_engine.png',
':oncoming_automobile:' : 'oncoming_automobile.png',
':oncoming_police_car:' : 'oncoming_police_car.png',
':oncoming_taxi:' : 'oncoming_taxi.png',
':police_car:' : 'police_car.png',
':rowboat:' : 'rowboat.png',
':tractor:' : 'tractor.png',
':rocket:' : 'rocket.png'
}, // Tab Food, & Cars
{
 ':beer:' : 'beer.png',
 ':beers:' : 'beers.png',
 ':cocktail:' : 'cocktail.png',
 ':coffee:' : 'coffee.png',
 ':tropical_drink:' : 'tropical_drink.png',
 ':wine_glass:' : 'wine_glass.png',
 ':jack_o_lantern:' : 'jack_o_lantern.png',
 ':fireworks:' : 'fireworks.png',
 ':four_leaf_clover:' : 'four_leaf_clover.png',
 ':christmas_tree:' : 'christmas_tree.png',
 ':santa:' : 'santa.png',
 ':snowflake:' : 'snowflake.png',
 ':snowman:' : 'snowman.png',
 ':ring:' : 'ring.png',
 ':wedding:' : 'wedding.png',
 ':angel:' : 'angel.png',
 ':kiss:' : 'kiss.png',
 ':pray:' : 'pray.png',
 ':clap:' : 'clap.png',
 ':couple_with_heart:' : 'couple_with_heart.png',
 ':two_men_holding_hands:' :
'two_men_holding_hands.png',
 ':two_women_holding_hands:' :
'two_women_holding_hands.png',
 ':lips:' : 'lips.png',
 ':dancer:' : 'dancer.png',
 ':cupid:' : 'cupid.png',
 ':gift_heart:' : 'gift_heart.png',
 ':gift:' : 'gift.png',
 ':dress:' : 'dress.png'
}, // Drink, Holidays & People
{
 ':baseball:' : 'baseball.png',
 ':basketball:' : 'basketball.png',
 ':football:' : 'football.png',
 ':soccer:' : 'soccer.png',
 ':golf:' : 'golf.png',
 ':tennis:' : 'tennis.png',
 ':swimmer:' : 'swimmer.png',
 ':surfer:' : 'surfer.png',
 ':snowboarder:' : 'snowboarder.png',
 ':checkered_flag:' : 'checkered_flag.png',
 ':eyeglasses:' : 'eyeglasses.png',
 ':man:' : 'man.png',

```

```

 ':muscle:' : 'muscle.png',
 ':nail_care:' : 'nail_care.png',
 ':ok_hand:' : 'ok_hand.png',
 ':point_up:' : 'point_up.png',
 ':punch:' : 'punch.png',
 ':raised_hands:' : 'raised_hands.png',
 ':runner:' : 'runner.png',
 ':thumbDown:' : 'thumbDown.png',
 ':thumbUp:' : 'thumbUp.png',
 ':tongue:' : 'tongue.png',
 ':walking:' : 'walking.png',
 ':v:' : 'v.png',
 ':bikini:' : 'bikini.png',
 ':crown:' : 'crown.png',
 ':trophy:' : 'trophy.png',
 ':game_die:' : 'game_die.png'
 }, // Sports and People
 {
 ':8ball:' : '8ball.png',
 ':alarm_clock:' : 'alarm_clock.png',
 ':alien:' : 'alien.png',
 ':bomb:' : 'bomb.png',
 ':bouquet:' : 'bouquet.png',
 ':broken_heart:' : 'broken_heart.png',
 ':dollar:' : 'dollar.png',
 ':exclamation:' : 'exclamation.png',
 ':question:' : 'question.png',
 ':fire:' : 'fire.png',
 ':flashlight:' : 'flashlight.png',
 ':gem:' : 'gem.png',
 ':guitar:' : 'guitar.png',
 ':gun:' : 'gun.png',
 ':heart:' : 'heart.png',
 ':lipstick:' : 'lipstick.png',
 ':mortar_board:' : 'mortar_board.png',
 ':musical_note:' : 'musical_note.png',
 ':pill:' : 'pill.png',
 ':rose:' : 'rose.png',
 ':shower:' : 'shower.png',
 ':eggplant:' : 'eggplant.png',
 ':star:' : 'star.png',
 ':sunny:' : 'sunny.png',
 ':sweat_drops:' : 'sweat_drops.png',
 ':umbrella:' : 'umbrella.png',
 ':zzz:' : 'zzz.png'
 } // Other Tab6
];
for (var i = 0; i < 6; i++)
{
 console.log('Adding Tab');
 $.each(tabIcons[i], function (title, png)
 {
 var tabKey = '#tab' + i; // needs click to prevent
double input
 $(tabKey).append('');
 });
}
$('#slideKey').slidesjs({// Activate the keypad swipe
width: 320, height: 200,
callback: {

```

```

 loaded: function () { // hide navigation and
pagination
 $('.slidesjs-pagination, .slidesjs-
navigation').hide(0);
 }
 });
});

$(".custom-item").click(function (e) { // Nav for swipe
keypad
 e.preventDefault();
 console.log('keypad, check repeat'); // use data-item
value when triggering default pagination link
 $('a[data-slidesjs-item="' + $(this).attr("data-item") +
'"]').trigger('click');
});

$('#emotionPostPage').on('click', '.addEmoji', function () {
// Add emoji button
 var emojiName = $(this).attr('title');
 console.log('emoji clicked- Title is = ' + emojiName);
 console.log('emoji img added - now refresh p');
 $(".emojiRender").append(emojiName);
 $('.emojiRender').emoji();
});

$("#toggle").click(function () { // Set local storage value
for keypad
 $("#panel").slideToggle("fast");
 var keypadOnOff =
window.localStorage.getItem('emojiKeypad'); // Get keypad on/off
value
 if (keypadOnOff === 'off') // Checks which position
keypad is in
 {
 console.log('emoji keypad opened');
 $("#tabs").tabs();
 $('#toggle').html('close');
 $("#insertButtons").velocity({top: "-=200", easing:
"easein"}, 400).delay(800);
 window.localStorage.setItem('emojiKeypad', 'on');
 }
 else
 {
 console.log('emoji keypad closed');
 $('#toggle').html('Describe');
 $("#insertButtons").velocity({top: "+=200", easing:
"easein"}, 400).delay(800);
 window.localStorage.setItem('emojiKeypad', 'off');
 }
});
}

$(document).on('click', '.removeEmoji', function () { // click removes emojis
 console.log('emoji img removed');
 $(this).remove();
});
$(document).on('click', '.clearEmoji', function () { // click removes all emojis
 console.log('clear emoji');
 $(".emojiRender").html('');
 // Get last child of div and delete
});

```

```

 //$(this).remove();
 });
 $(document).on('click', '#openKeyPad', function () { // open
keyPad
 console.log('Open Keypad');
 $("#keyPadDiv").velocity({bottom: "20px", easing:
"easein"}, 500); // Close Other bar
 $("#emojiSentDiv").removeClass('placeEmojiDiv');
 });
 $(document).on('click', '.closeKeyPad', function () { // close
keyPad
 console.log('Close KeyPad');
 $("#keyPadDiv").velocity({bottom: "-100%", easing:
"easein"}, 500); // Close Other bar
 $("#emojiSentDiv").addClass('placeEmojiDiv'); // Close
Other bar
 });
});

$("#emotionPostPage").on("pagebeforeshow", function (event) {
 $('#emojiSentDiv').show(); // Show the Render DIV
 // Add Canvas Background
 $(".emojiRender").html(' '); // Wipe the emoji render
 var canvas = document.getElementById('imageCanvas'); // Set
the image in place for camera
 canvas.width = 640; // Set Retina Image size
 canvas.height = 720;
 canvas.style.width = '320px'; // Set x2 Pixel ratio size
 canvas.style.height = '360px';
 var context = canvas.getContext('2d');
 context.clearRect(0, 0, canvas.width, canvas.height);
 function gradientImg() { // Add the image button code
 var canvasBtnObj = new Image();
 canvasBtnObj.onload = function () {
 context.globalAlpha = 1;
 context.drawImage(canvasBtnObj, 0, 0, 640, 720);
 }; // The url to the image
 canvasBtnObj.src = 'images/menu/canvasBtn.svg';
 }
 // Add the image button background
 var canvasBgObj = new Image();
 canvasBgObj.onload = function () {
 context.globalAlpha = 1;
 context.drawImage(canvasBgObj, 0, 0, 640, 720);
 }; // The url to the image
 canvasBgObj.src = 'images/menu/canvasBg.jpg';
 canvasBgObj.addEventListener('load', gradientImg);

// $('.emojiRender').each(function (i, d) { // Renders emoji
on keyPad click
// console.log('emoji img code set');
// $(d).emoji();
// });
});

$("#profilePage").on("pagecreate", function (event) { // Before
show, get posts
 window.localStorage.setItem('imageCount', 7);
});

```

```

 $("#" + profilePage).on("pagebeforeshow", function (event) {
 if (!profileShown)
 {
 profileShown = true;
 fetchVibes(); // Get the Vibes
 }
 });

 $("#" + settingsPage).on("pagecreate", function (event) {

 $("#updateBtn").click(function () { // When the update
button on settingPage is clicked
 console.log('Update Button Clicked');
 var firstName = $('#firstName').val();
 var lastName = $('#lastName').val();
 var genderType = $('#selectGender').val();
 var lsEmail = window.localStorage.getItem('email');
 console.log('Fetch LS email' + lsEmail);
 $.ajax({url: 'http://emoapp.info/php/updateInfo.php', // Update the user info
 data: {action: 'update', userEmail: lsEmail,
userFirstName: firstName, userLastName: lastName, userGender:
genderType},
 type: 'post', async: 'true', dataType: 'json',
 beforeSend: function () { // This callback
function will trigger before data is sent
 $.mobile.loading("show", {text: '', textVisible:
true});
 },
 complete: function () { // This callback function
will trigger on data sent/received complete
 $.mobile.loading("hide");
 },
 success: function () {
 console.log('Update Succesfull');
 $('#updateBtn').html('Info Updated');
 },
 error: function (error) { // This callback
function will trigger on unsuccessful action
 $('#updateBtn').html('There was an error = ' +
error);
 console.log('error = ' + error);
 }
 });
 });

 $("#" + aboutButton).click(function () { // ABout Btn clicked
 $('#settingsPage').addClass('show-about');
 });

 $('#btnCloseAbout').click(function () { // ABout Btn closed
 $('#settingsPage').removeClass('show-about');
 });
 });

 $("#" + settingsPage).on("pagebeforeshow", function (event) {
 {
 $('#updateBtn').html('Update Info');
 var lsEmail = window.localStorage.getItem('email');
 console.log('Fetch LS email ' + lsEmail);
 $.ajax({url: 'http://emoapp.info/php/updateInfo2.php',
//Fetch the form info

```

```

 data: {action: 'info', userEmail: lsEmail},
 type: 'post',
 async: 'true',
 dataType: 'json',
 beforeSend: function () { // This callback
function will trigger before data is sent
 $.mobile.loading("show", {text: '', textVisible:
true});
 },
 complete: function () { // This callback function
will trigger on data sent/received complete
 $.mobile.loading("hide");
 },
 success: function (result) {
 console.log('Info Fetch Succesfull');
 $('#firstName').val(result['firstName']);
 $('#lastName').val(result['lastName']);

 $('#selectGender').val(result['userGender']).selectmenu('refresh');
 },
 error: function (request, error) { // This callback
function will trigger on unsuccessful action
 $('#updateBtn').html('There was an error');
 console.log('error = ' + error);
 console.log("XMLHttpRequest", XMLHttpRequest);
 }
 });
});
});

// Post to map Functions
$(document).on('click', '#postToMapBtn', function () {
 console.log('Post to map clicked:');
 $.mobile.loading("show", {text: 'Preparing Upload', textVisible:
true});
 var postLat;
 var postLong;
 $('#emojiSentDiv').hide(); // Hide the Render DIV

 function renderImage() { // Create the image in canvas
 function sendPost() { // Sent the post to server and save
info to Database
 $("#imageUploading").velocity({top: "70px", easing:
"easein"}, 500);
 $(".:mobile-pagecontainer").pagecontainer("change",
"#mapPage", {transition: "slide"});
 function uploadPhoto(fileNameStr, cenLng, cenLat) { // //
Upload Image Function
 // Show the Loading Msg Div
 var imgSrc = 'http://www.emoapp.info/uploads/' +
fileNameStr + '.png';
 $('#viewUpload').attr('title', imgSrc);

 var imageData =
document.getElementById('imageCanvas').toDataURL('image/png', 0.6);
 //console.log('Image DATA: ');
 //console.log(imageData);
 $.ajax({//
http://stackoverflow.com/questions/13198131/how-to-save-a-html5-
canvas-as-image-on-a-server
 type: "POST",

```

```

 url: "http://emoapp.info/php/saveDataImage.php",
 data: {
 imgBase64: imageData, name: fileNameStr
 }
 }).done(function (o) {
 console.log('Image Uploaded: saved');
 $("#imageUploading").velocity({top: "-100%",
easing: "easein"}, 500);
 // Show #uploadNotifaction
 $("#uploadNotifaction").velocity({top: "70px",
easing: "easein"}, 500);
 // Add the image to Profile Page
 profileShown = false;
 $('#noVibes').remove();
 });
}
// Get the information to send to server
var postId;
var userID = window.localStorage.getItem('userID');
var userEmail = window.localStorage.getItem('email');
var parentEmoji =
window.localStorage.getItem('parentPostEmoji');
var timeStamp = $.now();
var imageNameStr = timeStamp + '_' + userID;
var postPublic = 1;
var now = new Date();
var month = now.getMonth() + 1;
var timeDevice = now.getFullYear() + '-' + month + '-' +
now.getDate() + ' ' + now.getHours() + ':' + now.getMinutes() + ':'
+ now.getSeconds();
console.log('User ID: ' + userID + ' User Email: ' +
userEmail + ' Parent Emoji: ' + parentEmoji + ' Image Name: ' +
imageNameStr + ' Public Post: ' + postPublic + ' Time on Device: ' +
timeDevice);

console.log('Upload Info to Database: ');
$.ajax({url: 'http://emoapp.info/php/postToMap.php',
 data: {
 action: 'post', userEmail: userEmail,
 parentEmoji: parentEmoji,
 imageLocation: imageNameStr,
 postPublic: postPublic, postLat: postLat,
 postLong: postLong, timeDevice: timeDevice
 },
 type: 'post',
 datatype: 'text',
 async: 'true',
 beforeSend: function () {
 console.log('Before send ');
 },
 complete: function () {
 console.log('Complete ');
 },
 success: function (result) {
 $.mobile.loading("hide");
 postId = result;
 setJsonLayers(); // Refresh Map
 addMarkerPulse(postLat, postLong);
 console.log('Database call was : ' + result);
 console.log('Post was inserted to database ' +
result);
 }
 });
}

```

```

 console.log('Variables are - Post ID: ' + result
+ ' ' + postLat + ' ' + postLong + ' - Parent: ' + parentEmoji);
 uploadPhoto(imageNameStr, postLong, postLat); // Start the file upload process
 //addMarkerToMap(parentEmoji, result, postLat,
postLong); // Add Marker
 console.log('Map Markers Call Not Failing.');
},
error: function (results, error) {
 // This callback function will trigger on unsuccessful action
 $('#postToMapBtn').html('Post Failed' + error +
' ' + results.postID + ' ' + results.status);
 console.log('Post Failed ' + error + ' ' +
results.postID + ' ' + results.status);
}
});
}
;

var imgEmoji = $(".emojiRender").children('.removeEmoji');
var emojiImgArr = jQuery.makeArray(imgEmoji); // Make the emoji description array
console.log('emojiArra: ' + emojiImgArr);
var padLeft = 10;
var canvas = document.getElementById('imageCanvas');
var context = canvas.getContext('2d');

$.each(emojiImgArr, function (index, value) { // Emoji Input to Canvas
 console.log('index: ' + index + ' Title: ' +
value.title);
 var imgEmo = new Image();
 (function (pad) {
 imgEmo.onload = function () {
 context.drawImage(imgEmo, pad, 655, 60, 60);
 };
 imgEmo.src = 'images/emojis/' + value.title +
'.png';
 })(padLeft);
 padLeft = padLeft + 70;
 console.log(padLeft);
});
var emojiIconObj = new Image(); // Add the emoji Icon Canvas
emojiIconObj.onload = function () {
 context.globalAlpha = 1;
 context.drawImage(emojiIconObj, 14, 14, 80, 80);
};
emojiIconObj.src = 'images/emojiSelect/emoji-' +
window.localStorage.getItem('parentPostEmoji') + '.svg';

emojiIconObj.addEventListener('load', sendPost);
}

var onSuccess = function (position)
{
 postLat = position.coords.latitude;
 postLong = position.coords.longitude;
 console.log('postLat is ' + postLat + ' and postLong is ' +
postLong);
 renderImage();
};

```

```

 function onError(error)
 {
 postLat = window.localStorage.getItem('setViewLat');
 postLong = window.localStorage.setItem('setViewLong');
 console.log('Geo local fail postLat is ' + postLat + ' and
postLong is ' + postLong);
 renderImage();
 }

 navigator.geolocation.getCurrentPosition(onSuccess, onError);
 });

$(document).on('click', '#viewUpload', function () { // click to
view image
 $("#uploadNotifaction").velocity({top: "-100%", easing:
"easein"}, 500);
 var imgSrc = $('#viewUpload').attr('title'); // Get Image src
from button
 var errorStr = "if (this.src != 'images/error.png') this.src =
'images/error.png';";
 $('.popup-wrap').html('<div id="btnClose"><i class="fa fa-
times"></i></div><nav class="popup"><div id="imgs">' +
 + '<div class="vibesDiv">' +
 + '' +
 + '<div class="popUpInfo">' +
 + '<div class="timeInfo"><p><i class="fa fa-clock-o fa-
2x"></i> Just Now</p></div>' +
 + '</div></nav>');
 $('#mapPage').addClass('show-popup');
});

$(document).on('click', '#addProfilePost', function () { // Add More
Posts to Page
 fetchVibes();
});

```

## js/vibeMap.js

```
/* EMO Emotion Mapping App | Hexbin and Map Markers | Mapbox.js */

// Declare map variables here
var map;
var hexLayer;
var markers;
var setViewLat;
var setViewLong;
window.localStorage.setItem('hex-are', 'on');
var emoFilterArray = ['1', '2', '3', '4', '5', '6', '7', '8'];
window.localStorage.setItem('timeType', 'fastButtons');
window.localStorage.setItem('interval', 'WEEK');
var filterOpen = false;
var firstMarkers = true;

var vibeObject = {
 '0': '#F7ED43', '1': '#EFB9CE',
 '2': '#6CCCE1', '3': '#E01888',
 '4': '#A4579F', '5': '#C3242D',
 '6': '#F48530', '7': '#66BA4D'};

var onSuccess = function (position)
{
 setViewLat = position.coords.latitude;
 window.localStorage.setItem('postLat', setViewLat);
 setViewLong = position.coords.longitude;
 window.localStorage.setItem('postLong', setViewLong);
 console.log('geo local success lat is ' + setViewLat + ' and long is ' +
 setViewLong);
 if (firstMarkers)
 {
 setMapInAction();
 }
 endOfSplash();
};

function onError(error)
{
 setViewLat = '53.34410399999990000';
 window.localStorage.setItem('postLat', setViewLat);
 setViewLong = '-6.26749369999932000';
 window.localStorage.setItem('postLong', setViewLong);
 console.log('Geo local fail lat is ' + setViewLat + ' and long is ' +
 setViewLong);
 if (firstMarkers)
 {
 setMapInAction();
 }
 endOfSplash();
}

$(document).on('pagecontainershow', function (e, ui) { // emotionPostPage
shown functions
 var pageId = $('body').pagecontainer('getActivePage').prop('id');
 console.log(pageId);
 if (pageId === "splashPage") // Show the Splash Page
 {
 setTimeout(function () {
 navigator.geolocation.getCurrentPosition(onSuccess, onError);
 }, 3000);
 }
});

function setLocale()
{
 navigator.geolocation.getCurrentPosition(onSuccess, onError);
}
```

```

function setMapInAction()
{
 //***** Create Leaflet/Mapbox Map *****
 console.log('At mapbox stage the lat is ' + setViewLat + ' and long is '
+ setViewLong);
 map = L.mapbox.map('map', 'sona.3ab9e710', {zoomControl: false,
detectRetina: true, maxZoom: 20, attributionControl: false})
 //map = L.mapbox.map('map', 'calimcginley.d78c7e7b',
{zoomControl: false, detectRetina: true, maxZoom: 20, attributionControl:
false})
 .setView([setViewLat, setViewLong], 14);
 var MyControl = L.Control.extend({// Add the locate Button
 options: {
 position: 'bottomright'
 },
 onAdd: function (map) {
 // create the control container with a particular class name
 var container = L.DomUtil.create('div', 'centerButton');
 console.log('Lets Create the New Button');
 // ... initialize other DOM elements, add listeners, etc.
 var link = L.DomUtil.create('a', 'leaflet-bar-part leaflet-bar-
part-single', container);
 link.href = '#';
 L.DomEvent
 .on(link, 'click', L.DomEvent.stopPropagation)
 .on(link, 'click', L.DomEvent.preventDefault)
 .on(link, 'click', function () {
 console.log('Center Button Clicked!!!');
 console.log('SVG CODE');
 console.log('SVG CODE END');
 setLocale();
 var cenLat = window.localStorage.getItem('postLat');
 var cenLng =
window.localStorage.getItem('postLong');
 console.log('Lat: ' + cenLat + 'Long: ' + cenLng);
 map.setView({lat: cenLat, lon: cenLng});
 });
 return container;
 }
 });
 console.log('Lets Add the New Button');
 map.addControl(new MyControl());
 //***** Leaflet Hexbin Layer Class *****
}

//*****
L.HexbinLayer = L.Class.extend({
 includes: L.Mixin.Events,
 initialize: function (rawData, options) {
 this.levels = {};
 this.layout = d3.hexbin().radius(15);
 this.rscale = d3.scale.sqrt().range([0, 15]).clamp(false);
 this.rwData = rawData;
 this.config = options;
 },
 project: function (x) {
 var point = this.map.latLngToLayerPoint([x[1], x[0]]);
 return [point.x, point.y];
 },
 getBounds: function (d) {
 var b = d3.geo.bounds(d);
 return L.bounds(this.project([b[0][0], b[1][1]]),
this.project([b[1][0], b[0][1]]));
 },
 update: function () {
 var pad = 50, xy = this.getBounds(this.rwData), zoom =
this.map.getZoom();
 this.container

```

```

 // Container Widths not Hex sizes
 .attr("width", xy.getSize().x + (2 * pad))
 .attr("height", xy.getSize().y + (2 * pad))
 .style("margin-left", (xy.min.x - pad) + "px")
 .style("margin-top", (xy.min.y - pad) + "px");
 if (!(zoom in this.levels)) {
 //this.container.append("defs").append("pattern").attr("id",
 "#grad01");
 this.levels[zoom] = this.container.append("g").attr("class",
 "zoom-" + zoom);
 this.genHexagons(this.levels[zoom]);
 this.levels[zoom].attr("transform", "translate(" + -
 (xy.min.x - pad) + "," + -(xy.min.y - pad) + ")");
 }
 if (this.curLevel) {
 this.curLevel.style("display", "none");
 }
 this.curLevel = this.levels[zoom];
 this.curLevel.style("display", "inline");
},
genHexagons: function (container) {
 var data = this.rwData.features.map(function (d) {
 var coords = this.project(d.geometry.coordinates);
 return [coords[0], coords[1], d.properties];
 }, this);
 var bins = this.layout(data);
 var hexagons = container.selectAll(".hexagon").data(bins);
 var path = hexagons.enter().append("path").attr("class",
 "hexagon hex01");
 this.config.style.call(this, path);
 that = this;
 //var showStats;

 hexagons.attr("d", function (d) {
 var lenVibes = d.length;
 var hexSize = 1 - (d.length * 0.05);
 if (lenVibes >= 20)
 {
 hexSize = 1;
 }
 else if (lenVibes > 200)
 {
 hexSize = 1.5;
 }
 else
 {
 hexSize = (lenVibes * 0.025) + 0.6;
 }
 return that.layout.hexagon(that.rscale(hexSize));
 })
 .attr("transform", function (d) {
 return "translate(" + d.x + "," + d.y + ")";
 })
 .on('click', function (d) {
 // Move the map to hexbin click
 console.log('Hexbin clicked, show stats and zoom
in!');

 function moveMapClick()
 {
 var zoom = map.getZoom();
 map.on('click', function (e) {
 if (zoom <= 17) // Keep zooming
 {
 console.log('moving');
 map.setView({lat: e.latlng.lat, lon:
e.latlng.lng}, zoom + 2);
 }
 });
 }
 // Remove timeout
 });
}

```

```

 function wipeStats()
 {
 $('.statsBox').removeClass('rollIn');
 $('.statsBox').addClass('rollOut');
 var delayWipe = window.setTimeout(function () {
 $('.statsBox').removeClass('statsUp
rollOut');
 $('.statsBox').html(' ');
 }, 700);
 }

 //console.log('statsArray: ' + statsString);
 if (d.length > 1)
 {
 var statsString = [0, 0, 0, 0, 0, 0, 0, 0, 0]; // count vibe array and function
 $.each(d, function (key, val) {
 var vibeNumber = val[2].emoType - 1;
 statsString[vibeNumber]++;
 });
 if (!$('.statsBox').hasClass('statsUp'))
 {
 var wipeStatsDelay =
window.setTimeout(wipeStats, 4000);
 }
 $('.statsBox').addClass('statsUp rollIn'); // Add the stats class to div and add numbers span
 $('.statsBox').html('' +
statsString.toString() + '');
 $(".pieChart").peity("pie", { // trigger the pieChart code and colours
 fill: ['#F7ED43', '#EFB9CE', '#6CCCE1',
'#E01888', '#A4579F', '#C3242D', '#F48530', '#66BA4D'],
 radius: 50,
 innerRadius: 30
 });
 //moveMapClick(); // Delay MoveMap
 }
 else
 {
 $('.statsBox').removeClass('statsUp');
 //moveMapClick();
 }
 });

 addTo: function (map) {
 map.addLayer(this);
 return this;
 },
 onAdd: function (map) {
 this.map = map;
 var overlayPane = this.map.getPanels().overlayPane;
 if (!this.container || overlayPane.empty) {
 this.container = d3.select(overlayPane)
 .append('svg')
 .attr("id", "hex-svg")
 .attr('class', 'leaflet-layer leaflet-zoom-hide
emotionHexbin');
 }
 map.on({'moveend': this.update}, this);
 this.update();
 }
});
L.hexbinLayer = function (data, styleFunction) {
 return new L.HexbinLayer(data, styleFunction);
};
/************* Get JSON data from php
url*****

```

```

//*****
window.setJsonLayers = function () {

 $('#hex-svg').remove();
 console.log('getJSONMarkerData() is running ...');
 var timeType = window.localStorage.getItem('timeType');
 var interval = window.localStorage.getItem('interval');
 var startDate = $('#dateStart').val() + '+00:00:01';
 var endDate = $('#dateEnd').val() + '+23:59:59';
 console.log('timeType: ' + timeType);
 console.log('startDate: ' + startDate);
 console.log('endDate: ' + endDate);
 var emoTypes = '';
 $.each(emoFilterArray, function (index, value)
 {
 if (index === (emoFilterArray.length - 1))
 {
 emoTypes = emoTypes + value;
 }
 else
 {
 emoTypes = emoTypes + value + '|';
 }
 });
 // Database Time Format 2014-11-16 01:33:56
 // 2014-11-16 01:33:56
 // YYYY-MM-DD hh:mm:ss

 console.log('The REGEXP string is now:');
 console.log(emoTypes);
 var jsonStringHex = " ";
 if (timeType === 'dateRange')
 {
 jsonStringHex =
 'http://www.emoapp.info/php/mysql_points_geojson_sensus.php?emoTypes=%27' +
 emoTypes + '%27&timeType=' + timeType + '&interval=' + interval +
 '&startDate=%27' + startDate + '%27&endDate=%27' + endDate + '%27';
 }
 else
 {
 jsonStringHex =
 'http://www.emoapp.info/php/mysql_points_geojson_sensus.php?emoTypes=%27' +
 emoTypes + '%27&timeType=' + timeType + '&interval=' + interval +
 '&startDate=null&endDate=null';
 }
 console.log('The PHP url is now:');
 console.log(jsonStringHex);
 d3.json(jsonStringHex, function (geoData) {

 //***** Hexbin Layer to Map and Style Function

 //*****
 console.log('geoData');
 //console.log(geoData);
 hexLayer = L.hexbinLayer(geoData, {style:
hexbinStyle}).addTo(map);
 function hexbinStyle(hexagons)
 {
 console.log('hexbin style');
 //hexagons.attr("fill", function (d)
 hexagons.attr("fill", function (d) // changed tp style
 {
 //***** Set Hexbin colour using count array

 // http://www.xarg.org/project/jquery-color-plugin-
xcolor/
 var countArray = [0, 0, 0, 0, 0, 0, 0, 0];
 var dLen = d.length;
 });
 }
 });
}

```

```

 var hexCode;
 $.each(d, function (key, value) {
 var vibeNumber = value[2].emoType - 1;
 countArray[vibeNumber]++;
 });
 var maxValue = Math.max.apply(null, countArray);
 var hexColor = '';
 // Get the max value from the array
 $.each(countArray, function (key, val) {
 //console.log(countArray + 'array has ' + val + ' ' +
val:maxValue ' + maxValue);
 if (val === maxValue)
 {
 hexColor = hexColor + key;
 }
 });
 hexColor.split("");
 //console.log(hexColor);
 var hexOutput;
 var hexLen = hexColor.length;
 //var hexColorLast = hexColor.length - 1;
 if (hexLen === 1)
 {
 hexOutput = vibeObject[hexColor[0]];
 }
 else
 {
 // Mix Two Colors
 var mix01 =
$.xcolor.average(vibeObject[hexColor[0]], vibeObject[hexColor[1]]);
 if (hexLen === 2)
 {
 hexOutput = mix01;
 }
 else
 {
 if (hexLen === 3)
 {
 // Fix Three Colours
 hexOutput = $.xcolor.average(mix01,
vibeObject[hexColor[2]]);
 }
 else
 {
 var mix23 =
$.xcolor.average(vibeObject[hexColor[2]], vibeObject[hexColor[3]]);
 var mix0123 = $.xcolor.average(mix01,
mix23);
 if (hexLen === 4)
 {
 // Mix Four Colours
 hexOutput = mix0123;
 }
 else
 {
 if (hexLen === 5)
 {
 // Mixing 5 Colors
 hexOutput =
$.xcolor.average(mix0123, vibeObject[hexColor[4]]);
 }
 else
 {
 var mix45 =
$.xcolor.average(vibeObject[hexColor[4]], vibeObject[hexColor[5]]);
 var mix012345 =
$.xcolor.average(mix0123, mix45);
 if (hexLen === 6)
 {
 //Mixing 6 Colors

```

```

 hexOutput = mix012345;
 }
 else
 {
 if (hexLen === 7)
 {
 // Mixing 7 Colors
 hexOutput =
$.xcolor.average(mix012345, vibeObject[hexColor[6]]);
 }
 else
 {
 // Mixing 8 Colors
 var mix0123456 =
$.xcolor.average(mix012345, vibeObject[hexColor[6]]);
 hexOutput =
$.xcolor.average(mix0123456, vibeObject[hexColor[7]]);
 }
 }
 }
}
return hexOutput;
}).attr("stroke", 'black').attr("title", function (d) {
// Add the postID's to the hexagons
var posts = '';
var len = d.length - 1;
$.each(d, function (key, value)
{
 // Create a string for attr
 if (len === key)
 {
 posts = posts + value[2].postID;
 }
 else
 {
 posts = posts + value[2].postID + ',';
 }
});
// return the string as attr
return posts;
}).attr("name", function (d) {
var latLng = '';
$.each(d, function (key, value)
{
 // d.geometry.coordinates
 latLng = value[2].postLat + ',' + value[2].postLong;
});
return latLng;
});
});
});
//***** Call the initial Function *****
//*****
setJsonLayers();
$(".emotionHexbin").show();
// - - - When the mapPage is shown This code will trigger - - -
// -
$(document).on("pageshow", "#mapPage", function () {
 // - - Leaflet / MapBox Map - -
 console.log('Invalidate the map size');
 map.invalidateSize(); // fixes the issue with map size
});
}
// End of setMapInAction()

function addMarkerPulse(latMark, lngMark)

```

```

{
 var myLayer = L.mapbox.featureLayer().addTo(map);
 console.log('Marker Added');
 var newVibeGeo = [
 {
 "type": "Feature",
 "geometry": {
 "type": "Point",
 "coordinates": [lngMark, latMark]
 },
 "properties": {
 "icon": {
 "iconUrl": "images/mapIcon/marker.gif",
 //"/images/mapIcon/marker.svg",
 "iconSize": [50, 50], // size of the icon
 "iconAnchor": [25, 25], // point of the icon which will
correspond to marker's location
 "className": "dot"
 }
 }
 }];
 // Set a custom icon on each marker based on feature properties.
 myLayer.on('layeradd', function (e) {
 var marker = e.layer,
 feature = marker.feature;

 marker.setIcon(L.icon(feature.properties.icon));
 });

 // Add features to the map.
 myLayer.setGeoJSON(newVibeGeo);
 //myLayer.clearLayers();
 setTimeout(function() {myLayer.clearLayers(); }, 10000);

 map.setView({lat: latMark, lon: lngMark});
}

// Clicked on Hexagon Event
$('#mapPage').on('click', '.hexagon', function (e) {
 console.log('Hex Clicked: check if repeats');
 var zoom = map.getZoom();
 var latLng = $(this).attr('name');
 var latLngArr = latLng.split(',');
 var postIDStr = $(this).attr('title');
 var arrPosts = postIDStr.split(',');
 if (arrPosts.length === 1)
 {
 // Single Post
 // Pass Arr Value to Post function
 console.log('Its posting time: ' + postIDStr);
 map.setView({lat: latLngArr[0], lon: latLngArr[1]}, 20);
 markerClicked(postIDStr, 0);
 }
 else
 {
 if (zoom >= 18)
 {
 map.setView({lat: latLngArr[0], lon: latLngArr[1]}, 20);
 console.log('Its posting time: ' + postIDStr);
 markerClicked(postIDStr, 1);
 }
 else
 {
 map.setView({lat: latLngArr[0], lon: latLngArr[1]}, zoom + 2);
 }
 }
});
function setPopupView(setLat, setLng, emojiType)
{

```

```

 map.setView({lat: setLat, lon: setLng}, 19);
 setJsonLayers();
 addMarkerToMap(emojiType, setLat, setLng);
 }

//***** Marker Click Event Code *****
function markerClicked(postID, typeSearch)
{
 console.log('Marker Clicked: | ' + postID + '|');
 console.log(typeSearch);
 // typeSearch = 1 single
 // typeSearch = 0 multi
 $.ajax({url: 'http://emoapp.info/php/getMarkerInfo.php',
 data: {action: typeSearch, postID: postID},
 type: 'post', dataType: "json", async: 'true',
 beforeSend: function () {
 console.log('Sending to Server postIDs: ' + postID);
 // This callback function will trigger before data is sent
 $.mobile.loading("show", {
 text: 'Fetching Emotion Data',
 textVisible: true
 });
 },
 complete: function () {
 // This callback function will trigger on data sent/received
 complete
 $.mobile.loading("hide");
 },
 success: function (result) {
 $('.popup-wrap').empty();
 function timeDiff(then, now) // Get DIfference in Time
 {
 var a = moment(then);
 //console.log(a);
 var b = moment(now);
 //console.log(b);
 var timeOffset = a.from(b);
 return timeOffset;
 }
 console.log('Vibes Fetch Succesfull');
 var len = result.marker.length - 1;
 var errorStr = "if (this.src != 'images/error.png') this.src = 'images/error.png';";
 console.log('result.marker length: ' + result.marker.length + ' - result.marker object: ' + result.marker);
 // Open Nav and Close Div
 var htmlStr = '<div id="btnClose"><i class="fa fa-times"></i></div><nav class="popup">';
 if (len === 0) // Only one post to display
 {
 var imgSrc = 'http://emoapp.info/uploads/' +
result.marker[0].imageName + '.png';
 var timeOffset = timeDiff(result.marker[0].timeThen,
result.marker[0].timeNow);
 htmlStr = htmlStr + ''
 + '<div class="popUpInfo">'
 + '<div class="timeInfo"><p><i class="fa fa-clock-o fa-2x"></i> ' + timeOffset + '</p></div>'
 //+ '<div class="btnLove"><p><i class="fa fa-heart-o fa-2x"></i></p></div>'
 //+ '<div class="btnShare"><p><i class="fa fa-twitter fa-2x"></i></p></div>'
 + '</div></nav>';
 $('.popup-wrap').html(htmlStr); // Place html into popup
 }
 else
 {
 htmlStr = htmlStr + '<div class="container"><div id="vibeSlides">'; // SLides

```

```

 $.each(result.marker, function (key, val) {
 var imgSrc = 'http://emoapp.info/uploads/' +
val.imageName + '.png';
 console.log('The image src is : ' + imgSrc);
 // Time Difference
 var timeOffset = timeDiff(val.timeThen, val.timeNow);
 console.log('Time Offset: ' + timeOffset);
 htmlStr = htmlStr + '<div class="slides">' +
 '' +
 '<div class="popUpInfo">' +
 '<div class="timeInfo"><p><i class="fa fa-
clock-o fa-2x"></i> ' + timeOffset + '</p></div>' +
 //+ '<div class="btnLove"><p><i class="fa fa-
heart-o fa-2x"></i></p></div>' +
 //+ '<div class="btnShare"><p><i class="fa fa-
twitter fa-2x"></i></p></div>' +
 + '</div></div>';
 if (len === key)
 {
 htmlStr = htmlStr + '</div></div></nav>; // Slides
 }
 });
 // Close Nav
 $('.popup-wrap').html(htmlStr);
 $("img").unveil(); // Set Image Unveil into action
 $('#vibeSlides').slidesjs({
 width: 320,
 height: 400,
 navigation: false
 });
 // Open the Map Marker
 $('#mapPage').addClass('show-popup');
 $("#emojiSearchBar").velocity({top: "-100%", easing: "easein"}, 500);
 $("#emojiPostSelectParent").velocity({left: "-100%", easing: "easein"}, 500);
 },
 error: function (request, error) {
 // This callback function will trigger on unsuccessful action
 console.log('error = ' + error);
 console.log("XMLHttpRequest", XMLHttpRequest);
 }
 });
}

//***** Add Marker *****
function addMarkerToMap(emoType, pinLat, pinLong)
{
 //console.log('The values passed to addMarkerToMap: EmoType-' + emoType +
+ ' PostID-' + postID + ' LatLong-' + pinLat + pinLong);
 var myIcon = L.icon({
 iconUrl: 'images/svgPins/animated/pin' + emoType + '.svg',
 iconRetinaUrl: 'images/svgPins/animated/pin' + emoType + '.svg',
 iconSize: [76, 80], iconAnchor: [36, 80], popupAnchor: [-3, -31],
 shadowUrl: 'images/svgPins/animated/Pin_shadow.svg',
 shadowRetinaUrl: 'images/svgPins/animated/Pin_shadow.svg',
 shadowSize: [73, 46], shadowAnchor: [41, 46]
 });
 var addMarker = L.marker([pinLat, pinLong], {icon: myIcon});
 //addMarker.addTo(map);
 map.addLayer(addMarker);
 map.removeLayer(addMarker).delay(30000);
}

//***** Center Map on marker click *****
function centerMap()
{
 setLocale();
}

```

```

}

$(document).on("pageshow", "#mapPage", function () {

 // Advanced Filter
 $("#advancedFilter").on("collapsibleexpand", function (event, ui) {
 // The Advanced Tab is opened
 $("#filterButton").val('Filter by Date').button("refresh");
 });
 $("#advancedFilter").on("collapsiblecollapse", function (event, ui) {
 // The Advanced Tab is closed
 $("#filterButton").val('Filter emoji').button("refresh");
 });
});

function openFilterBar() { // Open the filet menu bar
 console.log('Open Filter bar');
 $("#emojiSearchBar").velocity({top: "0px", easing: "easein"}, 500);
 //$("#emojiSearchBar").velocity({left: "0", easing: "easein"}, 500);
 $("#emojiPostSelectParent").velocity({left: "-100%", easing: "easein"}, 500);
 filterOpen = !filterOpen;
}

// Map Emoji Filter $(document).on("pageshow", "#mapPage", function () {
$("#mapPage").on("pagecreate", function (event) {// Profile Page Created Add Images
 // Filter Menu Button
 $(".centerButton a").html('');

 $(".emoFilterBtn").click(function () { // Filter Menu Button
 // Check if mapPage is active, If not naviagte to mapPage and then
 open the filter bar
 console.log('Filter Clicked');
 var pageID = $.mobile.activePage.attr('id');
 console.log('pageID: ' + pageID);
 if (pageID === 'mapPage')
 {
 $("#menuPanel").panel("close");
 console.log('close menu');
 openFilterBar();
 }
 else
 {
 console.log('Change to map page and open filter');
 $(":mobile-pagecontainer").pagecontainer("change", "#mapPage",
 {transition: "slide"});
 openFilterBar();
 }
 });
 $('.emojiFilter').on('click', function () { // Filter Buttons click
 event
 console.log('Filter clicked'); // Parent Emoji Clicked
 var emoType = $(this).attr('data-name');
 if ($(this).hasClass('filterOff')) // add/remove opacity class and
 append/remove emoType from array
 {
 emoFilterArray.push(emoType);
 $(this).removeClass('filterOff');
 }
 else
 {
 $(this).addClass('filterOff');
 $('#checkboxSelectAll').prop("checked",
false).checkboxradio("refresh");
 emoFilterArray = jQuery.grep(emoFilterArray, function (value) {
 return value !== emoType;
 });
 }
 });
}
});
```

```

 });
 }
 console.log('The emojiType Array is now:');
 console.log(emojiFilterArray);
});
// Checkbox Select All/None function on filter

$('#checkboxSelectAll').on('click', function () {
 if ($('#checkboxSelectAll').prop('checked'))
 {
 // Remove all classes for opacity and fill array
 $('.emojiFilter').removeClass('filterOff');
 emojiFilterArray = ['1', '2', '3', '4', '5', '6', '7', '8'];
 }
 else
 {
 // Opacity drop all buttons and clear array
 $('.emojiFilter').addClass('filterOff');
 emojiFilterArray = [];
 }
});

// Filter Button closes the filter bar and initiates new hex-svg
elements.
$("#filterButton").bind("click", function (event, ui) {
 // Check the button type and decide which timeType to declare
 var btnType = $("#filterButton").val();
 if (btnType === 'Filter by Date')
 {
 window.localStorage.setItem('timeType', 'dateRange');
 }
 else
 {
 window.localStorage.setItem('timeType', 'default');
 }

 console.log('Filter Button Clicked');
 $("#emojiearchBar").velocity({top: "-100%", easing: "easein"}, 500);
 filterOpen = !filterOpen;
 setJsonLayers();
});

// Filter Button closes the filter bar and initiates new hex-svg
elements.
$(".quickSearch").bind("click", function (event, ui) {
 console.log('Quick Search Clicked');
 // Set the variables
 var timeInterval = $(this).attr('data-name');
 window.localStorage.setItem('timeType', 'fastButtons');
 window.localStorage.setItem('interval', timeInterval);
 console.log('Time Interval set as: ' + timeInterval);
 $("#emojiearchBar").velocity({top: "-100%", easing: "easein"}, 500);
 filterOpen = !filterOpen;
 setJsonLayers();
});

$('.input-daterange').datepicker({// Filter form inputs
 autoclose: true,
 todayHighlight: true,
 format: 'yyyy-mm-dd',
 disableTouchKeyboard: true
});
});

```

## Surveys

### Emotion Image Survey – April 22 2014

What age demographic do you fit into?\*Required

- 18 - 24
- 24 - 32
- 32 - 42
- 42 - 50
- 50 +

Do you use any of the following apps?:\*Required

- Instagram
- Snapchat
- WhatsApp
- Twitter
- Facebook

Do you use these apps mainly for?:\*Required

- Photo sharing
- Viewing
- Communication with friends/family
- Distraction
- Other:

Do you use any form of emoji/emoticons when communicating via social media?\*Required

- Yes all the time.
- Sometimes.
- Never



Of the standard emoticons (yellow faces with different emotions), which ones do you find yourself using most? \*Required please state using numbers (From the top left 1-16)

Why do you use emoji/emoticons?\*Required

- It helps me communicate more effectively.
- They're funny.
- As a different form of communication.
- I don't use them.

- Other:

**What piece media do you feel is best suited to describe emotion or feelings?\*** Required

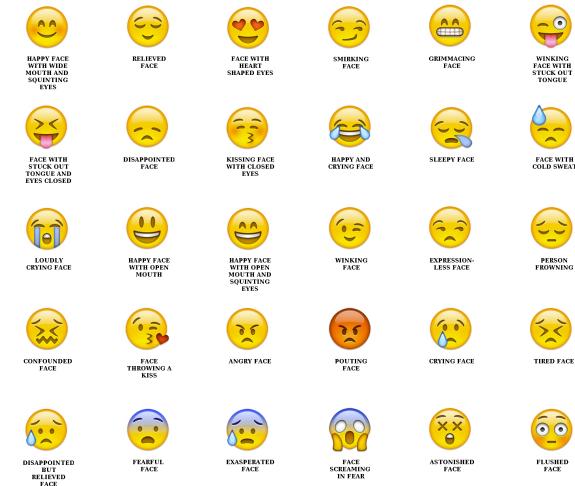
- Short Video
- Photo
- Clip of a favourite song
- Line of text
- Image with emotion attached using emoji

**What emotions do you consider to be most important/relevant in describing everyday events?\*** Required Please choose 8 (max) from the list below, or add another emotional state in the "other" section.

- Happy
- Sadness
- Angry
- Angst
- Nervous
- Proud
- Annoyance
- Regret
- Embarrassment
- Guilt
- Envy
- Desire
- Pride
- Love
- Remorse
- Curiosity
- Surprise
- Worry
- Satisfaction
- Shock
- Other:

## Emoji Survey

Emoji choice (numbered 1-30 starting from top left)



## Emoji Recognition Chart

BASED ON THE WORK OF PAUL EKMAN AS INTERPRETED BY SIRI

**Emoji choice\*** From the emoji shown above please choose the top 6 emotional states that you would use to aid the description of a txt.

**Based on your emoji choices, please choose a corresponding colour for each emotion.\*** Colour choice is up to you. Please structure your answer as follows: 1 - blue, 2 - yellow, 3 - green....etc

**Would you like the option to add a clip of a song to your photo as well as colour and emojis?\***

- Yes
- No
- Just a song clip
- Other:

## Emotion Mapping testing 29/09/2014

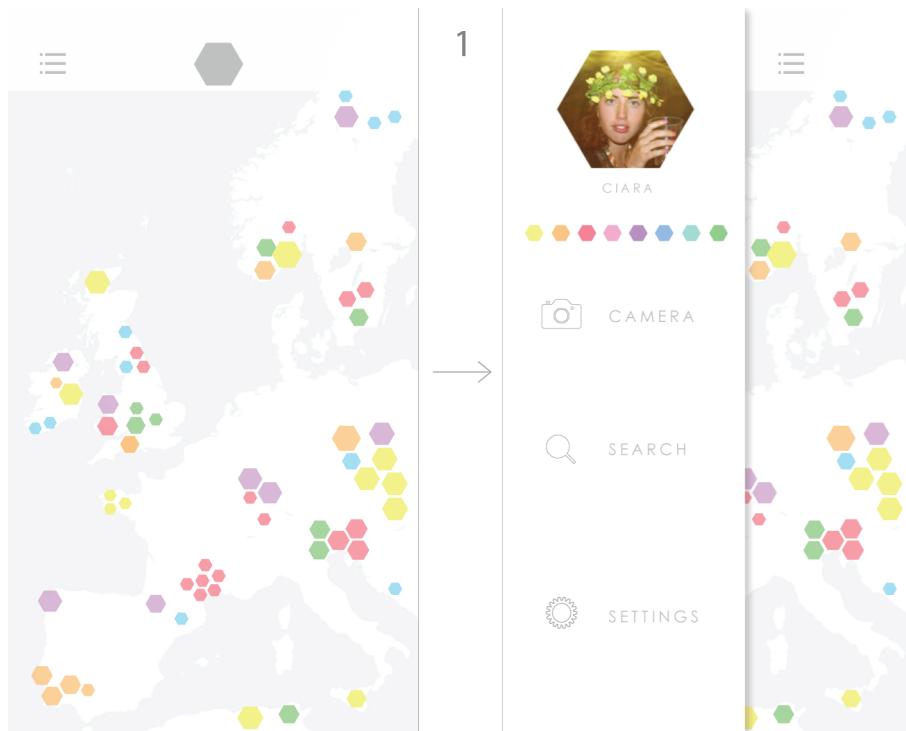
What age are you?\*

- 18 - 24
- 24 - 36
- 36 - 48
- 48 - 60
- 60 +

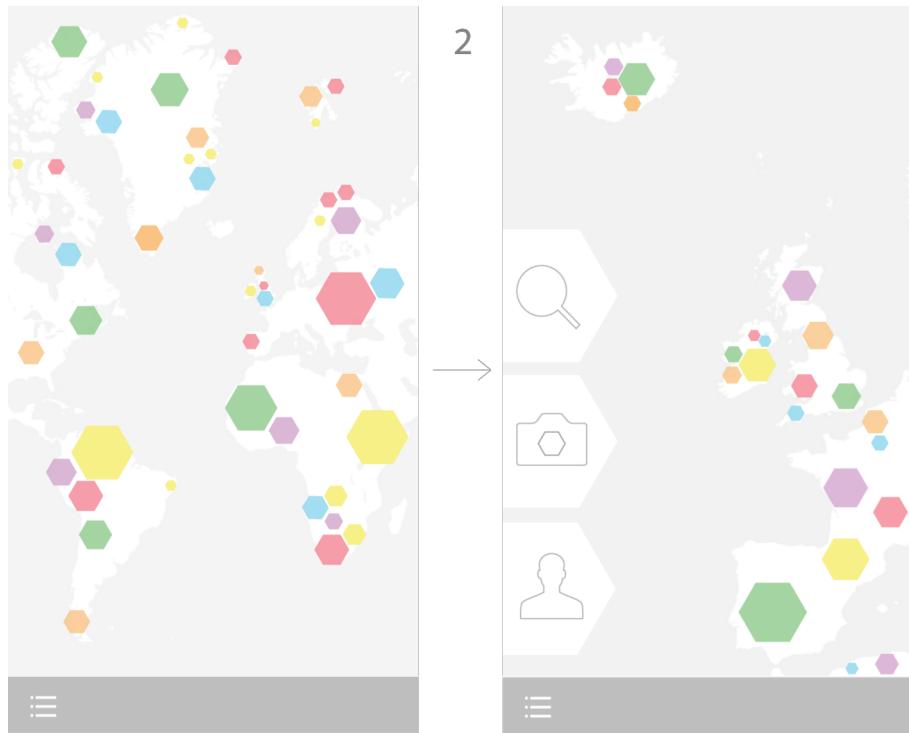
Both prototypes have a different menu layout. Which one did you find most intuitive?\* Please choose from the images below.

- Menu option 1
- Menu option 2
- I didn't find either intuitive.
- Other:

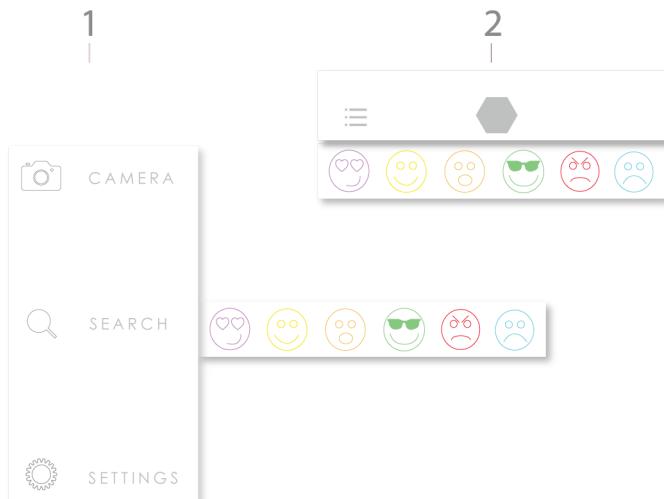
**Menu option 1**



## Menu option 2



**In the first prototype, which search option did you prefer? Please provide feedback as to why you chose this option.\*** In the first prototype there are two search options. This is to test which layout works best for the user. One is located within the pop-out menu and the other is represented by an icon in the tab bar. Please choose from the images below.



**The icons used throughout each prototype are standard iOS icons. Is it clear what each icon represents?\*** Please provide further feedback in the "other" option if you would like to.

- Yes, they are all clear.
- I couldn't understand any of them.
- I dont know what the first one represents
- I dont know what the second one represents
- I dont know what the third one represents
- I dont know what the fourth one represents
- I dont know what the fifth one represents
- I dont know what the sixth one represents
- Other:



#### Current colours used to represent emotions.



**The image above shows the \*parent emotions and their corresponding colours. Are these clear and intuitive?\*** Parent emotions are what you tag your image with. Depending on your choice, that colour will be used to represent your story on the map.

- No not at all.
- Yes they are clear.
- Im not sure what the orange emotion is.
- Im not sure what the purple emotion is.
- Im not sure what the red emotion is.
- Im not sure what the green emotion is.
- Im not sure what the yellow emotion is.
- Im not sure what the blue emotion is.
- Other:
- We have used 6 basic parent emotions. Happy, sad, love, angry, relaxed and shocked. Please state whether you think there should be more and then choose from a list of options, or alternatively please state if you think the current ones provide enough choice.\***

- The current 6 provide enough choice.
- I think there should be more choice.
- Excitement.
- Fear.
- Disgust.
- Anxiety.
- Guilt.
- Embarrassment.
- Hope.
- Other:

**When describing your image would you like to have the choice of using all emojis, or a censored selection depending on your parent emoji choice?\*** Eg. If you chose a happy (yellow) parent emoji, would you like to be able to use the entire emoji keyboard to further describe your image or only have a choice of descriptive emojis that relate to your chosen parent emoji?

**Would you like to be able to add a short music clip to your image in order to describe it further?\***

- Yes
- No
- Other:

**Would you like to have the option to "Like" other users posts?\***

- Yes.
- No.
- Yes, anonymously.
- Other:



**In order of preference (1=favourite, 3=least favourite) please choose from the above colour sets.\* Eg. 1=2, 2=1, 3=2**

1.

EMO.



2.

MOOCH



3.



4.



5.



**We also need some help both naming our app and finalising the brand aesthetic. As you hopefully have gathered through testing, we are working on an emotion-mapping app. It can be used in a variety of ways, eg. as a personal journal or for finding out news in your area (and beyond!)\* It is also a fun, colourful app so we are taking that into account. If you like one of the logos but not the name (1&2), or vice versa please state why in your answer. Any name suggestions would be greatly appreciated too!**

**If you have any other feedback please provide it below. Thank you for your time!**

## Vibe Feedback Form

First of all thank you for testing Vibes and taking the time to fill out this survey, its very much appreciated!

Vibes is a location-based, emotion-mapping app allowing users to search for the vibe of their city (or wherever they happen to be), find things to do based on their mood and location, and keep a visual diary of how they are feeling.

\*\*\* Please note that if you tested on an iPhone 4 some features and functionality may not work as smoothly as they would on a 5.

**Did you have any problems creating an account?\*** If yes please describe in "other"

- Yes
- No
- Other:

**A short user guide explaining how to use Vibes appears after you create an account. Was this helpful?\***

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---

**After viewing the user guide, was it clear how to interact with the map?\***

---

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---

**Did you have any problems navigating around the map?\***

---

**When there are multiple different Vibes in one area the hexagon is larger. When you tap on it a coloured circle appears on the bottom left of the screen. Was it clear what the circle represented?\***

---

---

**Did you have any problems exiting out of an image on the map?\***

---

---

**Did you have any problems exiting out of an image in your profile?\***

---

---

**Did you have any problems navigating through the app as a whole?\*** If yes, please describe.

**Was there any sections of the app that you felt looked unfinished?\***

---

---

**When describing your Vibe, was there any emojis that weren't featured that you think should be included?\*** If yes, please describe them in as much detail as possible below.

---

---

**Did you have any problems uploading a Vibe?\*** Note on an iPhone 4 the upload process is slow. We are working on this.

---

---

**What did you think of the overall aesthetic of Vibes?\***

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**Was it clear what all the icons represented?\***

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**After using Vibes, how would you rate your overall experience on a scale of 1-5? \***

1      2      3      4      5

---

Very bad      Excellent

**Are there any features that aren't in Vibes currently that you would like to see? \*** eg. 'Like' photos, make photos personal or private

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**Anything else you would like to add?\***

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**Thank you for your time!**

**Table 8-1 Emotion Image Survey**

| Emotion Image Survey (Responses) : Form Responses |                                                              |                                                                                                                                           |                                                                          |                                                                                                               |                                                           |                                                                              |                                                                           |  |
|---------------------------------------------------|--------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------|------------------------------------------------------------------------------|---------------------------------------------------------------------------|--|
| Timestamp                                         | Do you use any of the following apps:                        | Do you use these apps mainly for:                                                                                                         | Do you use any form of emoji/emojis when communicating via social media? | Of the standard emoticons (yellow faces with different emotions), which ones do you find yourself using most? | Why do you use emoji/emoticons?                           | What piece media do you feel is best suited to describe emotion or feelings? | Would you use an emoticon map, showing various emotions around the globe? |  |
| 22/04/14 03:21                                    | Snapchat,<br>Whatsapp,<br>Twitter,<br>Facebook               | Viewing,<br>Distraction                                                                                                                   | Yes all the time.                                                        | 1 2 4 5 6 7<br>8 9 10 11<br>12 13 14 15                                                                       | It helps me communicate more effectively., They're funny. | Line of text                                                                 | Yes                                                                       |  |
| 22/04/14 03:28                                    | Twitter,<br>Facebook                                         | Photo sharing,<br>Viewing,<br>Communication with friends/family,<br>Distraction                                                           | Never                                                                    | None                                                                                                          | I don't use them.                                         | Image with emotion attached using emoji                                      | No                                                                        |  |
| 22/04/14 11:45                                    | Instagram,<br>Snapchat,<br>Whatsapp,<br>Twitter,<br>Facebook | Photo sharing,<br>Viewing,<br>Communication with friends/family,<br>Distraction                                                           | Yes all the time.                                                        | all of the above                                                                                              | They're funny.. As a different form of communication.     | Photo                                                                        | Maybe                                                                     |  |
| 22/04/14 11:45                                    | Facebook                                                     | Photo sharing,<br>Communication with friends/family                                                                                       | Sometimes                                                                | happy, love, sad                                                                                              | They're funny.                                            | Photo                                                                        | Yes                                                                       |  |
| 22/04/14 11:49                                    | Instagram,<br>Snapchat,<br>Whatsapp,<br>Twitter,<br>Facebook | Photo sharing,<br>Viewing,<br>Communication with friends/family,<br>Distraction,<br>Running music<br>website, Like page, Event pages, etc | Sometimes                                                                | Tongue out & smile                                                                                            | They take the edge off                                    | Image with emotion attached using emoji                                      | Yes                                                                       |  |

| Emotion Image Survey (Responses) :<br>Form Responses |                                                                              |                                                                                            |                                    |                                        |                                                                                  |                                                                |           |
|------------------------------------------------------|------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------|------------------------------------|----------------------------------------|----------------------------------------------------------------------------------|----------------------------------------------------------------|-----------|
| 22/04/14<br>11:54                                    | Instagra<br>m,<br>Snapcha<br>t,<br>Whatsap<br>p,<br>Twitter,<br>Faceboo<br>k | Viewing,<br>Distraction                                                                    | Sometimes                          | 13,14                                  | As a<br>different<br>form of<br>communicat<br>ion.                               | Image<br>with<br>emoti<br>on<br>attach<br>ed<br>using<br>emoji | Mayb<br>e |
| 22/04/14<br>11:59                                    | Instagra<br>m,<br>Snapcha<br>t,<br>Whatsap<br>p,<br>Twitter,<br>Faceboo<br>k | Communicati<br>on with<br>friends/famil<br>y                                               | Sometimes                          | 3 4 6 11 13                            | They're<br>funny.                                                                | Line<br>of text                                                | Mayb<br>e |
| 22/04/14<br>12:04                                    | Instagra<br>m,<br>Whatsap<br>p,<br>Twitter,<br>Faceboo<br>k                  | Photo<br>sharing,<br>Viewing,<br>Communicati<br>on with<br>friends/famil<br>y              | Yes all the<br>time.               | 2, 3, 11                               | They're<br>funny.                                                                | Line<br>of text                                                | No        |
| 22/04/14<br>12:05                                    | Instagra<br>m,<br>Snapcha<br>t,<br>Whatsap<br>p,<br>Twitter,<br>Faceboo<br>k | Photo<br>sharing,<br>Communicati<br>on with<br>friends/famil<br>y                          | Sometimes                          | 1, 10                                  | As a<br>different<br>form of<br>communicat<br>ion.                               | Image<br>with<br>emoti<br>on<br>attach<br>ed<br>using<br>emoji | Yes       |
| 22/04/14<br>12:09                                    | Instagra<br>m,<br>Whatsap<br>p,<br>Twitter,<br>Faceboo<br>k                  | Communicati<br>on with<br>friends/famil<br>y, Distraction                                  | Sometimes                          | 2, 4, 5, 6, 7,<br>8, 12, 13,<br>14, 16 | It helps me<br>communicat<br>e more<br>effectively.                              | Image<br>with<br>emoti<br>on<br>attach<br>ed<br>using<br>emoji | No        |
| 22/04/14<br>12:10                                    | Instagra<br>m,<br>Whatsap<br>p,<br>Faceboo<br>k                              | Photo<br>sharing,<br>Viewing,<br>Communicati<br>on with<br>friends/famil<br>y, Distraction | Yes all the<br>time.,<br>Sometimes | 7, 8, 10, 13,<br>14                    | They're<br>funny., As a<br>different<br>form of<br>communicat<br>ion.            | Line<br>of text                                                | No        |
| 22/04/14<br>12:18                                    | Instagra<br>m,<br>Snapcha<br>t,<br>Whatsap<br>p,<br>Twitter,<br>Faceboo<br>k | Viewing,<br>Communicati<br>on with<br>friends/famil<br>y, Distraction                      | Yes all the<br>time.               | 1 4 6 8 10<br>13 15                    | It helps me<br>communicat<br>e more<br>effectively.,<br>They're<br>funny.        | Line<br>of text                                                | Yes       |
| 22/04/14<br>12:31                                    | Snapcha<br>t,<br>Faceboo<br>k                                                | Photo<br>sharing,<br>Communicati<br>on with<br>friends/famil<br>y                          | Yes all the<br>time.               | 11                                     | It helps me<br>communicat<br>e more<br>effectively.,<br>To imply<br>that I'm not | Photo                                                          | Mayb<br>e |

**Emotion Image Survey (Responses) :**  
**Form Responses**

| being serious     |                                                              |                                                                                                   |                      |                         |                                                                                                                       |                                                      |           |  |
|-------------------|--------------------------------------------------------------|---------------------------------------------------------------------------------------------------|----------------------|-------------------------|-----------------------------------------------------------------------------------------------------------------------|------------------------------------------------------|-----------|--|
| 22/04/14<br>12:41 | Snapchat,<br>Whatsapp,<br>Twitter,<br>Facebook               | Viewing,<br>Communication with<br>friends/family,<br>Distraction                                  | Yes all the<br>time. | 2 4 5 10 11<br>12 13 14 | It helps me<br>communicate more<br>effectively.,<br>They're<br>funny.                                                 | Photo                                                | Mayb<br>e |  |
| 22/04/14<br>12:57 | Whatsapp,<br>Facebook                                        | Viewing,<br>Communication with<br>friends/family                                                  | Sometimes            | 1, 3, 6, 9,<br>10, 13   | It helps me<br>communicate more<br>effectively.,<br>They're<br>funny.                                                 | Image with<br>emoticon<br>attached<br>using<br>emoji | No        |  |
| 22/04/14<br>13:05 | Snapchat,<br>Whatsapp,<br>Facebook                           | Viewing,<br>Communication with<br>friends/family                                                  | Sometimes            | 1 and 7                 | They're<br>funny., As a<br>different<br>form of<br>communication.                                                     | Image with<br>emoticon<br>attached<br>using<br>emoji | Yes       |  |
| 22/04/14<br>13:06 | Snapchat,<br>Whatsapp,<br>Twitter,<br>Facebook               | Photo<br>sharing,<br>Viewing,<br>Communication with<br>friends/family,<br>Distraction,<br>Sexting | Yes all the<br>time. | 1 8 9 12 13             | It helps me<br>communicate more<br>effectively.,<br>They're<br>funny., As a<br>different<br>form of<br>communication. | Image with<br>emoticon<br>attached<br>using<br>emoji | No        |  |
| 22/04/14<br>14:55 | Snapchat,<br>Whatsapp,<br>Twitter,<br>Facebook               | Photo<br>sharing,<br>Viewing,<br>Communication with<br>friends/family,<br>Distraction             | Yes all the<br>time. | 1 2 3 4 10              | It helps me<br>communicate more<br>effectively.,<br>They're<br>funny.                                                 | Photo                                                | Mayb<br>e |  |
| 22/04/14<br>17:07 | Instagram,<br>Snapchat,<br>Whatsapp,<br>Twitter,<br>Facebook | Photo<br>sharing,<br>Viewing,<br>Communication with<br>friends/family,<br>Distraction             | Yes all the<br>time. | 4 5 6 8 16              | It helps me<br>communicate more<br>effectively.,<br>As a<br>different<br>form of<br>communication.                    | Image with<br>emoticon<br>attached<br>using<br>emoji | Yes       |  |
| 22/04/14<br>17:08 | Instagram,<br>Snapchat,<br>Whatsapp,<br>Twitter,<br>Facebook | Photo<br>sharing,<br>Viewing,<br>Communication with<br>friends/family,<br>Distraction             | Yes all the<br>time. | 4 5 6 8 16              | It helps me<br>communicate more<br>effectively.,<br>As a<br>different<br>form of<br>communication.                    | Image with<br>emoticon<br>attached<br>using<br>emoji | Yes       |  |

**Emotion Image Survey (Responses) :**  
**Form Responses**

|                   |                                                                  |                                                                                                                   |                      |                                                             |                                                                                                     |                                                                |           |
|-------------------|------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------|----------------------|-------------------------------------------------------------|-----------------------------------------------------------------------------------------------------|----------------------------------------------------------------|-----------|
| 22/04/14<br>17:42 | Instagra<br>m,<br>Whatsap<br>p,<br>Twitter,<br>Faceboo<br>k      | Communicati<br>on with<br>friends/famil<br>y, Distraction                                                         | Sometimes            | Top left<br>down and<br>accross or<br>top left and<br>down? | They're<br>funny., As a<br>different<br>form of<br>communicat<br>ion.                               | Line<br>of text                                                | No        |
| 22/04/14<br>19:56 | Instagra<br>m,<br>Snapcha<br>t,<br>Whatsap<br>p,<br>Faceboo<br>k | Photo<br>sharing,<br>Viewing,<br>Communicati<br>on with<br>friends/famil<br>y, Distraction                        | Yes all the<br>time. | 1,2,4,5,6,8,<br>9,13,14                                     | It helps me<br>communicat<br>e more<br>effectively.,<br>They're<br>funny.                           | Image<br>with<br>emoti<br>on<br>attach<br>ed<br>using<br>emoji | Mayb<br>e |
| 22/04/14<br>20:48 | Whatsap<br>p,<br>Twitter,<br>Faceboo<br>k                        | Communicati<br>on with<br>friends/famil<br>y, Distraction                                                         | Never                | 6                                                           | I don't use<br>them.                                                                                | Clip<br>of a<br>favour<br>ite<br>song                          | Mayb<br>e |
| 22/04/14<br>21:58 | Whatsap<br>p,<br>Faceboo<br>k                                    | Communicati<br>on with<br>friends/famil<br>y                                                                      | Yes all the<br>time. | 1,4,5,6,12,1<br>3                                           | As a<br>different<br>form of<br>communicat<br>ion., the<br>make text<br>less formal<br>and friendly | Photo                                                          | Mayb<br>e |
| 22/04/14<br>22:00 | Whatsap<br>p,<br>Faceboo<br>k                                    | Photo<br>sharing,<br>Viewing,<br>Communicati<br>on with<br>friends/famil<br>y                                     | Sometimes            | 3,6,9,10,13,<br>14                                          | It helps me<br>communicat<br>e more<br>effectively.,<br>They're<br>funny.                           | Image<br>with<br>emoti<br>on<br>attach<br>ed<br>using<br>emoji | Yes       |
| 22/04/14<br>22:25 | Whatsap<br>p,<br>Faceboo<br>k                                    | Communicati<br>on with<br>friends/famil<br>y                                                                      | Sometimes            | 3 & 9                                                       | As a<br>different<br>form of<br>communicat<br>ion.                                                  | Photo                                                          | No        |
| 23/04/14<br>13:26 | Snapcha<br>t,<br>Whatsap<br>p,<br>Twitter,<br>Faceboo<br>k       | Viewing,<br>Communicati<br>on with<br>friends/famil<br>y, Distraction                                             | Yes all the<br>time. | 4, 12, 13,<br>14                                            | It helps me<br>communicat<br>e more<br>effectively.,<br>They're<br>funny.                           | Line<br>of text                                                | Mayb<br>e |
| 23/04/14<br>14:05 | Twitter,<br>Faceboo<br>k                                         | Viewing,<br>Communicati<br>on with<br>friends/famil<br>y, Distraction                                             | Sometimes            | 2,3,13,12                                                   | They're<br>funny., As a<br>different<br>form of<br>communicat<br>ion.                               | Clip<br>of a<br>favour<br>ite<br>song                          | Mayb<br>e |
| 24/04/14<br>14:29 | Whatsap<br>p,<br>Faceboo<br>k                                    | Viewing,<br>Communicati<br>on with<br>friends/famil<br>y, Reading<br>articles from<br>the pages<br>I'm following. | Sometimes            | 3, 11, 6                                                    | It helps me<br>communicat<br>e more<br>effectively.                                                 | Clip<br>of a<br>favour<br>ite<br>song                          | Mayb<br>e |

| Emotion Image Survey (Responses) :<br>Form Responses |  |                                       |  |  |  |  |  |
|------------------------------------------------------|--|---------------------------------------|--|--|--|--|--|
|                                                      |  |                                       |  |  |  |  |  |
|                                                      |  | E.g: news,<br>science,<br>sports etc. |  |  |  |  |  |

08/05/14  
15:56    Snapcha t,  
Whatsap p,  
Twitter,  
Faceboo k    Viewing,  
Communicati on with  
friends/famil y, Distraction    Yes all the time.    :P  
It helps me communicat e more effectively.,  
They're funny.  
;P  
;)  
:O  
>=[  
:S

Table 8-2 Emoji Colour Survey

| Time stamp           | Emoji choice                                                                                                                                                                                                                                                                                            | Based on your emoji choices, please choose a corresponding colour for each emotion.                 | Would you like the option to add a clip of a song to your photo as well as colour and emojis? |
|----------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------|
| 7/2/2014<br>14:34:53 | □□□□□                                                                                                                                                                                                                                                                                                   | 1-pink<br>2- yellow<br>3- orange<br>4- red<br>5-white<br>6-blue                                     | No                                                                                            |
| 7/2/2014<br>14:41:56 | 1<br>6<br>8<br>16<br>17<br>20                                                                                                                                                                                                                                                                           | 1 - yellow<br>6 - purple<br>8 - blue<br>16 - orange<br>17 - green<br>20 - pink                      | Yes                                                                                           |
| 7/2/2014<br>14:43:32 | Happy Face by 3<br>face throwing a kiss<br>smirking face<br>relieved face                                                                                                                                                                                                                               | Happy Face: Yellow<br>Face throwing a kiss:<br>Pink<br>Smirking Face: Purple<br>Relieved face: blue | No                                                                                            |
| 7/2/2014<br>14:59:20 | 1.Face with heart shaped eyes,<br>2.Happy face with wide mouth and squinting eyes, 3.face screaming in fear, 4.crying face. 5 flushed face ..and 6. relieved face ....if I could choose a character face not on here i'd choose a zen dude. sending out good vibes to all, that would be an ace option. | 1 - red, 2- yellow, 3 blue and yellow, 4 - blue, 5- light pink, 6 - lavender                        | Yes                                                                                           |
| 7/2/2014<br>15:03:42 | 1,6,7,13,22,16                                                                                                                                                                                                                                                                                          | 1- yellow<br>6-dark green<br>7-light green<br>13- dark blue<br>16-dark yellow<br>22-red             | Yes                                                                                           |
| 7/2/2014             | 1- Pouting Face,                                                                                                                                                                                                                                                                                        | 1- Red                                                                                              | Just a song clip                                                                              |

| Time stamp               | Emoji choice                                                                                                                                                                                                        | Based on your emoji choices, please choose a corresponding colour for each emotion.                                                                  | Would you like the option to add a clip of a song to your photo as well as colour and emojis? |
|--------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------|
| <b>15:06:31</b>          | 2- Flushed Face,<br>3- Winky Face with sticking out tongue,<br>4- Grimacing Face,<br>5- Happy Face                                                                                                                  | 2- Pink<br>3- Yellow<br>4- Orange<br>5- Yellow                                                                                                       |                                                                                               |
| <b>7/2/2014 15:16:17</b> | happy face with wide mouth and squinting eyes<br>face with stuck out tongue and closed eyes<br>angry face<br>happy face with open mouth and squinting eyes<br>face with heart shaped eyes<br>face screaming in fear | 1- blue<br>2 - purple<br>3-red<br>4-yellow<br>5-pink<br>6-black                                                                                      | No                                                                                            |
| <b>7/2/2014 15:44:57</b> | □□◎□□□                                                                                                                                                                                                              | □□◎□□□<br>1 blue, 2 yellow, 3 orange, 4 green, 5 grey, 6 pink                                                                                        | No                                                                                            |
| <b>7/2/2014 15:51:10</b> | 1 6 14 20 21 26                                                                                                                                                                                                     | 1 - yellow, 6 - yellow,<br>14 - yellow - 20 - yellow, 21 - red, 26 - yellow                                                                          | Just a song clip                                                                              |
| <b>7/2/2014 15:59:33</b> | 1, 3, 20, 27, 28, 30                                                                                                                                                                                                | 1 - yellowish/orange<br>3 - pink<br>20 - warm, bright red<br>27 - very dark green<br>28 - pale, electric green<br>30 - red, but patchy with white... | Yes                                                                                           |
| <b>7/2/2014 16:17:58</b> | 1,5,6,7,29,30                                                                                                                                                                                                       | Don't understand the question.                                                                                                                       | Yes                                                                                           |
| <b>7/2/2014 16:50:41</b> | 1.Happy and Crying face<br>2. Happy face with open mouth and squinting eyes<br>3. Expressionless face<br>4. Pouting face<br>5. Face throwing a kiss<br>6. Flushed face                                              | 1. Pink<br>2. Yellow<br>3. White<br>4. Orange (like above)<br>5. Red<br>6. Red                                                                       | A recording that corresponds, for 'expressionless' face maybe a sigh, etc.                    |
| <b>7/2/2014 17:13:09</b> | 1, 8, 21, 28, 15, 3,                                                                                                                                                                                                | 1-yellow<br>8-cold baby blue<br>21-blood red<br>28-whiteish grey like a ghost<br>3-pink rosy colour like rosy cheeks                                 | Yes                                                                                           |
| <b>7/2/2014 17:18:23</b> | 1, 3, 6, 8, 16, 27                                                                                                                                                                                                  | Yellow, pink, purple, blue, yellow, red                                                                                                              | Yes                                                                                           |
| <b>7/2/2014 17:30:35</b> | 5, 17, 27, 30, 7, 4                                                                                                                                                                                                 | 1- scarlet/pink<br>2- blue<br>3- green<br>4- red<br>5- orange<br>6- yellow                                                                           | No                                                                                            |
| <b>7/2/2014 18:26:25</b> | 1<br>3<br>4<br>5<br>6<br>10                                                                                                                                                                                         | 1- Yellow<br>2- blue<br>3- Green<br>4- Red<br>5- Blue<br>6- Blue                                                                                     | Yes                                                                                           |
| <b>7/2/2014 20:04:26</b> | 1,5,8,13,14,18,21,22                                                                                                                                                                                                | .                                                                                                                                                    | Yes                                                                                           |

| Time stamp                    | Emoji choice                                                                                                                                               | Based on your emoji choices, please choose a corresponding colour for each emotion. | Would you like the option to add a clip of a song to your photo as well as colour and emojis? |
|-------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------|
| <b>7/2/2014<br/>21:21:47</b>  | 1<br>6<br>15<br>16<br>21<br>23                                                                                                                             | 1 - yellow<br>6 - pink<br>15 - yellow<br>16 - orange<br>21 - red<br>23 - blue       | Yes                                                                                           |
| <b>7/2/2014<br/>21:34:28</b>  | Crying Face<br>Throwing a Kiss Face<br>Relieved Face<br>Fearful Face<br>Grimacing Face<br>Angry Face                                                       | 1 - Blue<br>2 - Red<br>3 - Pink<br>4 - Green<br>5 - Orange<br>6 - Yellow            | Yes                                                                                           |
| <b>7/2/2014<br/>23:23:32</b>  | 15,16,21,26,4,12                                                                                                                                           | 15 - yellow, 16 - pink,<br>21 - red, 26 - blue, 4 -<br>orange, 12 - blue            | No                                                                                            |
| <b>7/3/2014<br/>10:04:33</b>  | □□□□□                                                                                                                                                      | 1- orange<br>2. Yellow<br>3. Green<br>4. Red<br>5. Blue<br>6. Purple                | Yes                                                                                           |
| <b>7/3/2014<br/>17:47:57</b>  | 1.Flushed face<br>2. Happy face mouth open<br>3. Loudly crying face<br>4. Pouting face<br>5. Winky face with stuck out tongue<br>6. Face screaming in fear | 1. Black<br>2. Yellow<br>3. Blue<br>4. Red<br>5. Orange<br>6. Dark blue/night blue  | No                                                                                            |
| <b>9/23/2014<br/>15:35:59</b> | 3 10 13 16 20 27                                                                                                                                           | 1-pink 2-yellow 3-<br>yellow 4-red 5-                                               | Yes                                                                                           |

**Table 8-3 Feedback Results**

| Timestamp           | Do you have an account? A brief user guide explaining how to use Vibes appears after you click on your account. Was this helpful? | After reading the user guide, was it clear how to interact with the map? | Do you have any problems navigating around the map? | When there are multiple different Vises in one area the map is a great colour circle appears on the bottom left of the screen. What's cooler about this? | Do you have any problems editing out of an image on your profile? | When describing your Vibes, was there any sections of the app that you felt looked unpolished or unfinished? | What did you think of the overall aesthetic of Vibes?                                         | Was there what all the time should be included? | Are there any features that anything else you would like to add?       | Would you like your overall aesthetic in Vibes to be more prominent than that you would like to see? |
|---------------------|-----------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------|-----------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------|-------------------------------------------------|------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------|
| 7/12/2014 22:23:37  | No                                                                                                                                | I created an account a few weeks ago & didn't see my profile!            | No                                                  | The map doesn't move when I scroll up and down.                                                                                                          | No, maybe the "x" was slightly small not really!                  | No, My Vibes wouldn't load.                                                                                  | The graphics didn't update when I scroll up and down.                                         | No                                              | No, One for feeling unpolished - update mat would be a new & nice one. | It's real!                                                                                           |
| 7/12/2014 22:25:04  | No                                                                                                                                | Yes                                                                      | No                                                  | The map doesn't move when I scroll up and down.                                                                                                          | No                                                                | No, My Vibes wouldn't load.                                                                                  | Yes on profile pic when I scroll up and down.                                                 | No                                              | 4 Give you a colour profile month by month                             | Noise                                                                                                |
| 8/12/2014 13:22:26  | No                                                                                                                                | Yes                                                                      | Yes                                                 | The map doesn't move when I scroll up and down.                                                                                                          | Not really                                                        | No                                                                                                           | Used I made or profile pic.                                                                   | No                                              | 4 No                                                                   | No                                                                                                   |
| 8/12/2014 13:33:53  | No                                                                                                                                | Yes                                                                      | No                                                  | The map doesn't move when I scroll up and down.                                                                                                          | Not really                                                        | No                                                                                                           | Profile                                                                                       | No                                              | 3 No                                                                   | No                                                                                                   |
| 8/12/2014 16:15:29  | No                                                                                                                                | Yes                                                                      | Yes                                                 | The map doesn't move when I scroll up and down.                                                                                                          | Not really                                                        | No                                                                                                           | The profile was the only pic I could see when I scroll up and down.                           | No                                              | 4 I would use as more of a personal touch when I scroll up and down.   | No                                                                                                   |
| 8/12/2014 16:21:06  | No                                                                                                                                | Yes                                                                      | Yes                                                 | Sometimes it took a while to load.                                                                                                                       | Not really                                                        | No                                                                                                           | At first I wasn't sure but I figured out what was going on when I scroll up and down with it. | No                                              | 4 Help places?                                                         | No                                                                                                   |
| 8/12/2014 16:33:31  | No                                                                                                                                | Yes                                                                      | Yes                                                 | Yeah, tip on a message board.                                                                                                                            | Not really                                                        | No                                                                                                           | My photo didn't show in my profile.                                                           | No                                              | 4 Status on Vibes                                                      | No                                                                                                   |
| 8/12/2014 13:41:41  | No                                                                                                                                | Yes                                                                      | Yes                                                 | Left it around the messages tab.                                                                                                                         | Yes                                                               | No                                                                                                           | Profile                                                                                       | No                                              | 4 Like to see a bit of the logo & code                                 | Thumbs up                                                                                            |
| 8/12/2014 20:05:15  | No                                                                                                                                | Yes                                                                      | Yes                                                 | Left it around the messages tab.                                                                                                                         | Yes                                                               | No                                                                                                           | It was smooth.                                                                                | No                                              | 4 Like to see a bit of the logo & code                                 | No                                                                                                   |
| 10/12/2014 12:24:59 | No                                                                                                                                | Yes                                                                      | Yes                                                 | No, perfect                                                                                                                                              | Yes, worked too quickly                                           | No                                                                                                           | Think they are all there.                                                                     | Was slow                                        | 4 Maybe now people to do this...                                       | No                                                                                                   |
| 10/12/2014 14:46:13 | No                                                                                                                                | Yes                                                                      | Yes                                                 | No, perfect                                                                                                                                              | Yes, worked too quickly, kept trying to scroll up and down.       | No                                                                                                           | Maybe the settings?                                                                           | Nothing                                         | 3 Like it on the crypto mood                                           | No                                                                                                   |
| 10/12/2014 21:15:05 | No                                                                                                                                | Yes                                                                      | Yes                                                 | Yes, the colors and shapes.                                                                                                                              | Yes, the colors and shapes.                                       | No                                                                                                           | No, odd time it would stall.                                                                  | No                                              | 4 Private option                                                       | No                                                                                                   |
| 10/12/2014 22:42:24 | No                                                                                                                                | Yes                                                                      | Yes                                                 | Yes, the colors and shapes.                                                                                                                              | Yes, the colors and shapes.                                       | No                                                                                                           | No                                                                                            | No                                              | 4 No                                                                   | No                                                                                                   |
| 11/12/2014 11:33:24 | No                                                                                                                                | Yes                                                                      | Yes                                                 | Yes, it's pretty obvious.                                                                                                                                | Yes, it's pretty obvious.                                         | No                                                                                                           | No                                                                                            | No                                              | 4 Maybe some personal info on my Vibes                                 | No                                                                                                   |
| 11/12/2014 13:32:54 | No                                                                                                                                | Yes                                                                      | Yes                                                 | Yes, very cool.                                                                                                                                          | Yes, very cool.                                                   | No                                                                                                           | No                                                                                            | No                                              | 4 Help places?                                                         | No                                                                                                   |
| 11/12/2014 13:32:54 | No                                                                                                                                | Yes                                                                      | Yes                                                 | Yes, the map was easy.                                                                                                                                   | Little issue with having to help trace.                           | No                                                                                                           | Profile was busy.                                                                             | Anything was there                              | 5 Share my photos?                                                     | No, excellent work guys                                                                              |

## **Testing**

### **Build 4.0**

#### **Tasks:**

- 1 Open the app
- 2 Explore the Map:
  - Pan
  - Pinch and Zoom
- 3 View Map:
  - Interact with hexagons
  - Open Emotions Posts by clicking on Markers
- 4 Post an Emotion:

Question 1      Do you feel that you successfully completed all the tasks on the task sheet?

**Yes      No**

Question 2      In relation to the map, I found it to be:

**Very difficult to use 1 ... 2 ... 3 ... 4 ... 5 ... 6 Very easy to use**

Question 3      In relation to the map, I found it to be:

**Very difficult to use 1 ... 2 ... 3 ... 4 ... 5 ... 6 Very easy to use**

Question 4      The markers on the map were easy to navigate.

**Strongly disagree 1 ... 2 ... 3 ... 4 ... 5 ... 6 Strongly agree**

Question 5      The information in popups was clear and easy to follow.

**Strongly disagree 1 ... 2 ... 3 ... 4 ... 5 ... 6 Strongly agree**

Comments:

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**Table 8-4 Build 4.0 Test Results**

| <b>Build 4.0 Function Testing Results</b> |                                                                              |                                           |                                                |                                               |                                                         |
|-------------------------------------------|------------------------------------------------------------------------------|-------------------------------------------|------------------------------------------------|-----------------------------------------------|---------------------------------------------------------|
| User                                      | Do you feel that you successfully completed all the tasks on the task sheet? | In relation to the map, I found it to be: | The hexagons on the map were easy to navigate. | The markers on the map were easy to navigate. | The information in popups was clear and easy to follow. |
| 1                                         | Yes                                                                          | 5                                         | 4                                              | 1                                             | 3                                                       |
| 2                                         | Yes                                                                          | 4                                         | 5                                              | 2                                             | 4                                                       |
| 3                                         | Yes                                                                          | 6                                         | 4                                              | 3                                             | 4                                                       |
| 4                                         | Yes                                                                          | 5                                         | 5                                              | 5                                             | 2                                                       |
| 5                                         | Yes                                                                          | 6                                         | 5                                              | 4                                             | 5                                                       |
| 6                                         | Yes                                                                          | 5                                         | 3                                              | 3                                             | 3                                                       |
| 7                                         | Yes                                                                          | 4                                         | 6                                              | 1                                             | 3                                                       |
| 8                                         | Yes                                                                          | 6                                         | 5                                              | 2                                             | 4                                                       |
| 9                                         | Yes                                                                          | 4                                         | 5                                              | 4                                             | 2                                                       |
| 10                                        | Yes                                                                          | 5                                         | 4                                              | 1                                             | 2                                                       |
| 11                                        | Yes                                                                          | 5                                         | 6                                              | 3                                             | 3                                                       |
| 12                                        | Yes                                                                          | 6                                         | 4                                              | 4                                             | 4                                                       |
| 13                                        | Yes                                                                          | 6                                         | 5                                              | 2                                             | 5                                                       |
| 14                                        |                                                                              |                                           |                                                |                                               |                                                         |
| 15                                        |                                                                              |                                           |                                                |                                               |                                                         |
| 16                                        |                                                                              |                                           |                                                |                                               |                                                         |
| 17                                        |                                                                              |                                           |                                                |                                               |                                                         |

## **Build 5.0**

### **Tasks:**

- 5 Open the app
- 6 Create account
  - View Guide
- 7 Explore the Map:
  - Pan
  - Pinch and Zoom
- 8 View Map:
  - Interact with hexagons
  - Open Emotions by clicking Hexagons
- 9 Post an Emotion:
  - Take a photo
  - Add an emoji description
  - Post Emotion

Question 1      Do you feel that you successfully completed all the tasks on the task sheet?

**Yes      No**

Question 2      In relation to the map, I found it to be:

**Very difficult to use 1 ... 2 ... 3 ... 4 ... 5 ... 6 Very easy to use**

Question 3      In relation to the guide, I found the information helpful.

**Strongly disagree 1 ... 2 ... 3 ... 4 ... 5 ... 6 Strongly agree**

Question 4 The hexagons on the map were easy to navigate.

**Strongly disagree 1 ... 2 ... 3 ... 4 ... 5 ... 6 Strongly agree**

Question 5 The colour breakdown of hexagon content was clear and concise.

**Strongly disagree 1 ... 2 ... 3 ... 4 ... 5 ... 6 Strongly agree**

Question 6 The Emotion search filter was well organized.

**Strongly disagree 1 ... 2 ... 3 ... 4 ... 5 ... 6 Strongly agree**

Question 7 I found posting an Emotion to be:

**Very difficult 1 ... 2 ... 3 ... 4 ... 5 ... 6 Very easy**

Comments:

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**Table 8-5 Build 5.0 Results**

| Build 5.0 Function Testing Results |                                                                              |                                           |                                                            |                                                |                                                                |                                               |                                   |
|------------------------------------|------------------------------------------------------------------------------|-------------------------------------------|------------------------------------------------------------|------------------------------------------------|----------------------------------------------------------------|-----------------------------------------------|-----------------------------------|
|                                    | Question 1                                                                   | Question 2                                | Question 3                                                 | Question 4                                     | Question 5                                                     | Question 6                                    | Question 7                        |
| <b>User</b>                        | Do you feel that you successfully completed all the tasks on the task sheet? | In relation to the map, I found it to be: | In relation to the guide, I found the information helpful. | The hexagons on the map were easy to navigate. | The colour breakdown of hexagon content was clear and concise. | The Emotion search filter was well organized. | I found posting an Emotion to be: |
| <b>1</b>                           | Yes                                                                          | 5                                         | 5                                                          | 6                                              | 4                                                              | 4                                             | 1                                 |
| <b>2</b>                           | Yes                                                                          | 6                                         | 4                                                          | 4                                              | 4                                                              | 2                                             | 4                                 |
| <b>3</b>                           | Yes                                                                          | 5                                         | 5                                                          | 4                                              | 6                                                              | 4                                             | 3                                 |
| <b>4</b>                           | Yes                                                                          | 4                                         | 6                                                          | 6                                              | 6                                                              | 4                                             | 5                                 |
| <b>5</b>                           | Yes                                                                          | 4                                         | 5                                                          | 3                                              | 4                                                              | 2                                             | 2                                 |
| <b>6</b>                           | Yes                                                                          | 6                                         | 5                                                          | 5                                              | 5                                                              | 4                                             | 1                                 |
| <b>7</b>                           | Yes                                                                          | 6                                         | 4                                                          | 4                                              | 6                                                              | 4                                             | 2                                 |
| <b>8</b>                           | Yes                                                                          | 4                                         | 3                                                          | 6                                              | 5                                                              | 4                                             | 5                                 |
| <b>9</b>                           | Yes                                                                          | 5                                         | 4                                                          | 6                                              | 5                                                              | 2                                             | 4                                 |
| <b>10</b>                          | Yes                                                                          | 5                                         | 5                                                          | 5                                              | 5                                                              | 3                                             | 2                                 |
| <b>11</b>                          | Yes                                                                          | 5                                         | 4                                                          | 5                                              | 5                                                              | 2                                             | 2                                 |
| <b>12</b>                          | Yes                                                                          | 5                                         | 6                                                          | 4                                              | 4                                                              | 4                                             | 5                                 |
| <b>13</b>                          | Yes                                                                          | 6                                         | 4                                                          | 6                                              | 5                                                              | 4                                             | 2                                 |
| <b>14</b>                          | Yes                                                                          | 5                                         | 6                                                          | 4                                              | 4                                                              | 4                                             | 4                                 |
| <b>15</b>                          | Yes                                                                          | 4                                         | 4                                                          | 6                                              | 4                                                              | 2                                             | 3                                 |
| <b>16</b>                          | Yes                                                                          | 4                                         | 6                                                          | 6                                              | 5                                                              | 4                                             | 1                                 |
| <b>17</b>                          | Yes                                                                          | 4                                         | 5                                                          | 6                                              | 5                                                              | 3                                             | 3                                 |
| <b>Avg</b>                         |                                                                              | 4.88                                      | 4.76                                                       | 5.06                                           | 4.82                                                           | 3.29                                          | 2.88                              |
|                                    |                                                                              | Easy                                      | Agree                                                      | Agree                                          | Agree                                                          | Slightly Disagree                             | Difficult                         |

## **Build 6.0**

### **Tasks:**

- 10 Open the app
- 11 Explore the Map:
  - Pan
  - Pinch and Zoom
- 12 View Settings:
  - View Guide
- 13 View Map:
  - Interact with hexagons
  - Open Vibes by clicking Hexagons
- 14 Open search from menu:
  - Filter Vibes and Time
- 15 Post a Vibe:
  - Take a photo
  - Add an emoji description
  - Vibe It
- 16 View Profile:
  - Add more

Question 1      Do you feel that you successfully completed all the tasks on the task sheet?

**Yes      No**

Question 2      In relation to the map, I found it to be:

**Very difficult to use 1 ... 2 ... 3 ... 4 ... 5 ... 6 Very easy to use**

Question 3      In relation to the guide, I found the information helpful.

**Strongly disagree 1 ... 2 ... 3 ... 4 ... 5 ... 6 Strongly agree**

Question 4 The hexagons on the map were easy to navigate.

**Strongly disagree 1 ... 2 ... 3 ... 4 ... 5 ... 6 Strongly agree**

Question 5 The colour breakdown of hexagon content was clear and concise.

**Strongly disagree 1 ... 2 ... 3 ... 4 ... 5 ... 6 Strongly agree**

Question 6 The vibe search filter was organized.

**Strongly disagree 1 ... 2 ... 3 ... 4 ... 5 ... 6 Strongly agree**

Question 7 The time filter was organized and easy to find.

**Strongly disagree 1 ... 2 ... 3 ... 4 ... 5 ... 6 Strongly agree**

Question 8 I found posting a vibe to be:

**Very difficult 1 ... 2 ... 3 ... 4 ... 5 ... 6 Very easy**

Question 9 The feedback on the progress of posting a vibe was good:

**Strongly disagree 1 ... 2 ... 3 ... 4 ... 5 ... 6 Strongly agree**

Question 10 In relation to the Profile page, I found it to be:

**Very difficult to use 1 ... 2 ... 3 ... 4 ... 5 ... 6 Very easy to use**

Comments:

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**Table 8-6 Build 6.0 Results**

|                   | Question 1                                                                    | Question 2                                                     | Question 3                                                     | Question 4                        | Question 5                       | Question 6                       | Question 7                                | Question 8            | Question 9         | Question 10                | Comments                                             |
|-------------------|-------------------------------------------------------------------------------|----------------------------------------------------------------|----------------------------------------------------------------|-----------------------------------|----------------------------------|----------------------------------|-------------------------------------------|-----------------------|--------------------|----------------------------|------------------------------------------------------|
| <b>User Story</b> | Do you feel that you succcessfully completed all the tasks on the task sheet? | In relation to the map, I found it to be: information helpful. | In relation to the map, I found it to be: information helpful. | The hexagon was easy to navigate. | The color was clear and concise. | The search bar was easy to find. | The time filter was zed and easy to find. | I found a vibe to be: | The feed was good. | The profile page was good. | In relation to the profile page, I found it to be:   |
| <b>1</b>          | Yes                                                                           | 6                                                              | 5                                                              | 4                                 | 5                                | 5                                | 2                                         | 4                     | 6                  | 3                          | Profile page doesn't scroll                          |
| <b>2</b>          | Yes                                                                           | 5                                                              | 6                                                              | 5                                 | 6                                | 5                                | 2                                         | 5                     | 5                  | 4                          | Profile page doesn't scroll                          |
| <b>3</b>          | Yes                                                                           | 6                                                              | 5                                                              | 5                                 | 5                                | 5                                | 4                                         | 6                     | 6                  | 3                          | Time filter is tricky, settings are tricky to get to |
| <b>4</b>          | Yes                                                                           | 5                                                              | 6                                                              | 6                                 | 5                                | 4                                | 3                                         | 4                     | 5                  | 3                          |                                                      |
| <b>5</b>          | Yes                                                                           | 6                                                              | 6                                                              | 6                                 | 6                                | 6                                | 4                                         | 4                     | 4                  | 2                          | Profile page doesn't scroll                          |
| <b>6</b>          | Yes                                                                           | 5                                                              | 4                                                              | 4                                 | 5                                | 2                                | 3                                         | 4                     | 6                  | 3                          |                                                      |
| <b>7</b>          | Yes                                                                           | 4                                                              | 6                                                              | 5                                 | 5                                | 3                                | 3                                         | 6                     | 4                  | 5                          | Profile page doesn't scroll                          |
| <b>8</b>          | Yes                                                                           | 4                                                              | 5                                                              | 6                                 | 5                                | 2                                | 4                                         | 4                     | 5                  | 3                          |                                                      |
| <b>9</b>          | Yes                                                                           | 4                                                              | 6                                                              | 6                                 | 6                                | 3                                | 2                                         | 6                     | 6                  | 3                          | Can't exit guide, Profile page doesn't scroll        |
| <b>10</b>         | Yes                                                                           | 6                                                              | 4                                                              | 4                                 | 6                                | 2                                | 2                                         | 6                     | 6                  | 4                          |                                                      |
| <b>11</b>         | Yes                                                                           | 6                                                              | 4                                                              | 4                                 | 6                                | 2                                | 2                                         | 5                     | 5                  | 4                          |                                                      |
| <b>12</b>         | Yes                                                                           | 6                                                              | 4                                                              | 4                                 | 4                                | 2                                | 4                                         | 6                     | 6                  | 3                          | Buttons required Doubleclick                         |
| <b>13</b>         | Yes                                                                           | 5                                                              | 6                                                              | 4                                 | 4                                | 4                                | 3                                         | 5                     | 5                  | 2                          |                                                      |
| <b>14</b>         | Yes                                                                           | 4                                                              | 6                                                              | 5                                 | 5                                | 3                                | 3                                         | 5                     | 6                  | 3                          | Slow Buttons                                         |
| <b>15</b>         | Yes                                                                           | 5                                                              | 4                                                              | 6                                 | 4                                | 5                                | 2                                         | 5                     | 6                  | 4                          |                                                      |
| <b>16</b>         | Yes                                                                           | 4                                                              | 5                                                              | 6                                 | 5                                | 6                                | 2                                         | 6                     | 4                  | 2                          |                                                      |
| <b>17</b>         | Yes                                                                           | 5                                                              | 4                                                              | 6                                 | 5                                | 4                                | 4                                         | 6                     | 4                  | 1                          | Added emoji twice to image                           |
| <b>18</b>         | Yes                                                                           | 6                                                              | 4                                                              | 6                                 | 5                                | 6                                | 2                                         | 4                     | 5                  | 2                          |                                                      |
| <b>19</b>         | Yes                                                                           | 5                                                              | 6                                                              | 4                                 | 4                                | 2                                | 4                                         | 4                     | 6                  | 1                          |                                                      |

|            |      |       |       |       |               |                   |       |       |                |           |                           |
|------------|------|-------|-------|-------|---------------|-------------------|-------|-------|----------------|-----------|---------------------------|
| <b>20</b>  | Yes  | 6     | 6     | 5     | 6             | 3                 | 3     | 6     | 5              | 3         | Menu layout is spread out |
| <b>Avg</b> |      | 5.15  | 5.10  | 5.05  | 5.10          | 3.70              | 2.90  | 5.05  | 5.25           | 2.90      |                           |
|            | Easy | Agree | Agree | Agree | Slighty Agree | Slightly Disagree | Agree | Agree | Slightly Agree | Difficult |                           |

## Build 7.0

### Tasks:

- 17 Open the app
- 18 Explore the Map:
  - Pan
  - Pinch and Zoom
- 19 View Settings:
  - View Guide
- 20 View Map:
  - Interact with hexagons
  - Open Vibes by clicking Hexagons
- 21 Open search from menu:
  - Filter Vibes and Time
- 22 Post a Vibe:
  - Take a photo
  - Add an emoji description
  - Vibe It
- 23 View Profile:
  - Add more

Question 1      Do you feel that you successfully completed all the tasks on the task sheet?

**Yes      No**

Question 2      In relation to the map, I found it to be:

**Very difficult to use 1 ... 2 ... 3 ... 4 ... 5 ... 6 Very easy to use**

Question 3      In relation to the guide, I found the information helpful.

**Strongly disagree 1 ... 2 ... 3 ... 4 ... 5 ... 6 Strongly agree**

Question 4      The hexagons on the map were easy to navigate.

**Strongly disagree 1 ... 2 ... 3 ... 4 ... 5 ... 6 Strongly agree**

Question 5      The colour breakdown of hexagon content was clear and concise.

**Strongly disagree 1 ... 2 ... 3 ... 4 ... 5 ... 6 Strongly agree**

Question 6      The vibe search filter was organized.

**Strongly disagree 1 ... 2 ... 3 ... 4 ... 5 ... 6 Strongly agree**

Question 7      The time filter was organized and easy to find.

**Strongly disagree 1 ... 2 ... 3 ... 4 ... 5 ... 6 Strongly agree**

Question 8      I found posting a vibe to be:

**Very difficult 1 ... 2 ... 3 ... 4 ... 5 ... 6 Very easy**

Question 9      The feedback on the progress of posting a vibe was good:

**Strongly disagree 1 ... 2 ... 3 ... 4 ... 5 ... 6 Strongly agree**

Question 10      In relation to the Profile page, I found it to be:

**Very difficult to use 1 ... 2 ... 3 ... 4 ... 5 ... 6 Very easy to use**

Comments:

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**Table 8-7 Build 7.0 Results**

| Build 7.0 Function Testing Results |                                                                                                                        |                                                                                                    |                                                                                                                                                    |                                                                                                                                                                                                                          |                                                                                                                                                                       |                                                                                       |                                                                         |                                                        |                                                                                                                         |                                                                                                                                  |                                                                                                                              |
|------------------------------------|------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|-------------------------------------------------------------------------|--------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------|
|                                    | Question 1                                                                                                             | Question 2                                                                                         | Question 3                                                                                                                                         | Question 4                                                                                                                                                                                                               | Question 5                                                                                                                                                            | Question 6                                                                            | Question 7                                                              | Question 8                                             | Question 9                                                                                                              | Question 10                                                                                                                      | Comments                                                                                                                     |
| U<br>s<br>e<br>r                   | Do you feel that you succ<br>essf<br>ully<br>com<br>plete<br>d all<br>the<br>task<br>s on<br>the<br>task<br>shee<br>t? | In relation to the<br>ma<br>p, I<br>fou<br>nd it to<br>be:<br><br>Infor<br>mati<br>on help<br>ful. | In relat<br>ion to the<br>guid<br>e, I<br>foun<br>d the<br>the<br>e:<br><br>hex<br>on<br>p.<br>the<br>e.<br><br>relat<br>ion<br>on<br>help<br>ful. | The ago<br>ns<br>on<br>the<br>own<br>ma<br>p<br>er<br>e.<br><br>hex<br>nav<br>igat<br>e.<br><br>sear<br>ch<br>filter<br>akd<br>own<br>of<br>orga<br>nize<br>hex<br>cont<br>ent<br>was<br>clea<br>r<br>and<br>con<br>cise | The colo<br>ur<br>bre<br>akd<br>own<br>ma<br>of<br>orga<br>nize<br>ago<br>d.<br><br>vibe<br>sear<br>ch<br>filter<br>organ<br>was<br>ized<br>and<br>easy<br>to<br>find | The vibe<br>sear<br>ch<br>filter<br>organ<br>was<br>ized<br>and<br>easy<br>to<br>find | The time<br>filter<br>organ<br>was<br>ized<br>and<br>easy<br>to<br>find | I<br>fou<br>nd<br>pos<br>ck<br>a<br>vib<br>e to<br>be: | The fee<br>nd<br>on<br>the<br>the<br>Prof<br>ile<br>pag<br>ss<br>of<br>pos<br>ting<br>a<br>vib<br>e<br>was<br>goo<br>d: | The In<br>relat<br>ion<br>on<br>the<br>the<br>Prof<br>ile<br>pag<br>ss<br>of<br>pos<br>ting<br>a<br>vib<br>e<br>was<br>goo<br>d: | In<br>relat<br>ion<br>on<br>the<br>the<br>Prof<br>ile<br>pag<br>ss<br>of<br>pos<br>ting<br>a<br>vib<br>e<br>was<br>goo<br>d: |
| 1                                  | Yes                                                                                                                    | 3                                                                                                  | 3                                                                                                                                                  | 5                                                                                                                                                                                                                        | 6                                                                                                                                                                     | 2                                                                                     | 5                                                                       | 5                                                      | 4                                                                                                                       | 5                                                                                                                                |                                                                                                                              |
| 2                                  | Yes                                                                                                                    | 6                                                                                                  | 5                                                                                                                                                  | 6                                                                                                                                                                                                                        | 5                                                                                                                                                                     | 3                                                                                     | 2                                                                       | 6                                                      | 3                                                                                                                       | 5                                                                                                                                | User guide is unclear                                                                                                        |
| 3                                  | Yes                                                                                                                    | 4                                                                                                  | 6                                                                                                                                                  | 6                                                                                                                                                                                                                        | 5                                                                                                                                                                     | 4                                                                                     | 2                                                                       | 6                                                      | 5                                                                                                                       | 4                                                                                                                                |                                                                                                                              |
| 4                                  | Yes                                                                                                                    | 6                                                                                                  | 5                                                                                                                                                  | 4                                                                                                                                                                                                                        | 6                                                                                                                                                                     | 2                                                                                     | 3                                                                       | 5                                                      | 4                                                                                                                       | 5                                                                                                                                |                                                                                                                              |
| 5                                  | Yes                                                                                                                    | 6                                                                                                  | 6                                                                                                                                                  | 4                                                                                                                                                                                                                        | 4                                                                                                                                                                     | 3                                                                                     | 4                                                                       | 4                                                      | 6                                                                                                                       | 6                                                                                                                                |                                                                                                                              |
| 6                                  | Yes                                                                                                                    | 5                                                                                                  | 6                                                                                                                                                  | 6                                                                                                                                                                                                                        | 6                                                                                                                                                                     | 4                                                                                     | 2                                                                       | 6                                                      | 5                                                                                                                       | 6                                                                                                                                |                                                                                                                              |
| 7                                  | Yes                                                                                                                    | 6                                                                                                  | 5                                                                                                                                                  | 6                                                                                                                                                                                                                        | 5                                                                                                                                                                     | 4                                                                                     | 2                                                                       | 6                                                      | 6                                                                                                                       | 4                                                                                                                                |                                                                                                                              |
| 8                                  | Yes                                                                                                                    | 4                                                                                                  | 6                                                                                                                                                  | 6                                                                                                                                                                                                                        | 6                                                                                                                                                                     | 3                                                                                     | 2                                                                       | 4                                                      | 5                                                                                                                       | 6                                                                                                                                | Keypad is needs heavy press to add emoji                                                                                     |
| 9                                  | Yes                                                                                                                    | 6                                                                                                  | 5                                                                                                                                                  | 5                                                                                                                                                                                                                        | 5                                                                                                                                                                     | 4                                                                                     | 4                                                                       | 5                                                      | 6                                                                                                                       | 6                                                                                                                                |                                                                                                                              |
| 10                                 | Yes                                                                                                                    | 6                                                                                                  | 5                                                                                                                                                  | 5                                                                                                                                                                                                                        | 6                                                                                                                                                                     | 2                                                                                     | 3                                                                       | 6                                                      | 6                                                                                                                       | 6                                                                                                                                |                                                                                                                              |
| 11                                 | Yes                                                                                                                    | 4                                                                                                  | 4                                                                                                                                                  | 5                                                                                                                                                                                                                        | 5                                                                                                                                                                     | 4                                                                                     | 2                                                                       | 4                                                      | 6                                                                                                                       | 6                                                                                                                                |                                                                                                                              |
| Avg                                |                                                                                                                        | 5.09                                                                                               | 5.09                                                                                                                                               | 5.27                                                                                                                                                                                                                     | 5.36                                                                                                                                                                  | 3.18                                                                                  | 2.82                                                                    | 5.18                                                   | 5.09                                                                                                                    | 5.36                                                                                                                             |                                                                                                                              |
|                                    | Easy                                                                                                                   | Agree                                                                                              | Agree                                                                                                                                              | Agree                                                                                                                                                                                                                    | Slightly Agree                                                                                                                                                        | Slightly Disagree                                                                     | Easy                                                                    | Agree                                                  | Easy                                                                                                                    |                                                                                                                                  |                                                                                                                              |

## 9 Bibliography

Forest Johnson, Zachary (October 11, 2011). ‘Hexbins!’. Indiemaps.com. Retrieved from <http://indiemaps.com/blog/2011/10/hexbins/>

Chalabi, Mona (June 5, 2014). “The 100 most used emojis”. Fivethirtyeight.com.com. Retrieved from <http://fivethirtyeight.com/datalab/the-100-most-used-emojis/>

Mico Expressions. Retrieved from <http://www.paulekman.com/micro-expressions/>

Ericksondec, Christine (December 19, 2013). “When Words Just Don’t Cut It: Emojis as Art”. Mashable.com. Retrieved from <http://mashable.com/2013/12/19/emoji-art-show/#gallery/emoji-inspired-artwork/52b343f297b2f86e5e007ab1>

McBride, Bryan (October 2012). “PHP-Database”. GitHub.com. Retrieved from <https://github.com/bmcbride/php-database-geojson>

Shapiro, Julian (). “Velocity.js”. Julian.com. Retrieved from <http://julian.com/research/velocity/>

Lou, Mary (September 16, 2014). “Off-Canvas Menu Effects”. Tympanus.net. Retrieved from <http://tympanus.net/development/offcanvasmenueffects/index.html>

Hall, Steven (December 1, 2013). “Hexbins with D3 and Leaflet Maps”. Delimited.io. Retrieved from <http://www.delimited.io/blog/2013/12/1/hexbins-with-d3-and-leaflet-maps>

Linyows (December 3, 2012). “jQuery Emoji Plugin”. GitHub.com. Retrieved from <https://github.com/linyows/jquery-emoji>

Kangax (October 23, 2013). “How to save a HTML5 Canvas as Image on a server”. Stackoverflow.com. Retrieved from <http://stackoverflow.com/questions/13198131/how-to-save-a-html5-canvas-as-image-on-a-server>

Rowell, Eric (). “HTML5 Canvas Tutorials”. html5canvastutorials.com. Retrieved from <http://www.html5canvastutorials.com/advanced/html5-canvas-get-image-data-url/>

Drew010 (July 16, 2012). Answer to: “How to save a PNG image server-side, from a base64 data string”. Stackoverflow.com. Retrieved from <http://stackoverflow.com/a/11511605>

“PHP: Resize Image on Upload | Thumbnail Image Resizing” (September 5, 2013). Mendoweb.be. Retrieved from <http://www.mendoweb.be/blog/php-resize-image-upload-thumbnail-image-resizing/>



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|------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| i    | <a href="http://pressroom.eircom.net/multimedia/gallery-entry/eircom_household_sentiment_survey_september_2014/">http://pressroom.eircom.net/multimedia/gallery-entry/eircom_household_sentiment_survey_september_2014/</a> | ix<br><a href="https://www.mapbox.com/">https://www.mapbox.com/</a>                                                                                                                                            | html5-canvas-as-image-on-a-server                                                                                                                                         |
| ii   | <a href="http://indiemaps.com/blog/2011/10/hexbins/">http://indiemaps.com/blog/2011/10/hexbins/</a>                                                                                                                         | x<br><a href="http://blog.templatemonster.com/2013/09/18/tutorial-how-to-code-flyout-navigation-wheel-menu/">http://blog.templatemonster.com/2013/09/18/tutorial-how-to-code-flyout-navigation-wheel-menu/</a> | <a href="http://www.html5canvastutorials.com/advanced/html5-canvas-get-image-data-url/">http://www.html5canvastutorials.com/advanced/html5-canvas-get-image-data-url/</a> |
| iii  | <a href="https://github.com/calmcginley/emo_app#emo_app">https://github.com/calmcginley/emo_app#emo_app</a>                                                                                                                 | xi<br><a href="https://github.com/bmcbride/php-database-geojson">https://github.com/bmcbride/php-database-geojson</a>                                                                                          | <a href="http://stackoverflow.com/a/11511605">http://stackoverflow.com/a/11511605</a>                                                                                     |
| iv   | <a href="http://www.paulekman.com/micro-expressions/">http://www.paulekman.com/micro-expressions/</a>                                                                                                                       | xii<br><a href="http://julian.com/research/velocity/">http://julian.com/research/velocity/</a>                                                                                                                 | <a href="http://www.mendoweb.be/blog/php-resize-image-upload-thumbnail-image-resizing/">http://www.mendoweb.be/blog/php-resize-image-upload-thumbnail-image-resizing/</a> |
| v    | <a href="http://en.wikipedia.org/wiki/Contrasting_and_categorization_of_emotions">http://en.wikipedia.org/wiki/Contrasting_and_categorization_of_emotions</a>                                                               | xiii<br><a href="http://tympanus.net/development/offcanvas_menueffects/index.html">http://tympanus.net/development/offcanvas_menueffects/index.html</a>                                                        | <a href="http://www.tutorialspoint.com/mysql/mysql_regexps.htm">http://www.tutorialspoint.com/mysql/mysql_regexps.htm</a>                                                 |
| vi   | <a href="http://mashable.com/2013/12/19/emoji-art-show/#gallery/emoji-inspired-artwork/52b343f297b2f86e5e007ab1">http://mashable.com/2013/12/19/emoji-art-show/#gallery/emoji-inspired-artwork/52b343f297b2f86e5e007ab1</a> | xiv<br><a href="http://www.delimited.io/blog/2013/12/1/hexbins-with-d3-and-leaflet-maps">http://www.delimited.io/blog/2013/12/1/hexbins-with-d3-and-leaflet-maps</a>                                           | xxiii <a href="https://bootstrap-datepicker.readthedocs.org/en/release/#">https://bootstrap-datepicker.readthedocs.org/en/release/#</a>                                   |
| vii  | <a href="http://fivethirtyeight.com/datalab/the-100-most-used-emojis/">http://fivethirtyeight.com/datalab/the-100-most-used-emojis/</a>                                                                                     | xv<br><a href="http://tympanus.net/Development/OffCanvas_MenuEffects/cornermorph.html">http://tympanus.net/Development/OffCanvas_MenuEffects/cornermorph.html</a>                                              | xxiv<br><a href="http://momentjs.com/">http://momentjs.com/</a>                                                                                                           |
| viii | <a href="http://www.w3schools.com/jquerymobile/tryit.asp?filename=tryjqmob_popup_basic">http://www.w3schools.com/jquerymobile/tryit.asp?filename=tryjqmob_popup_basic</a>                                                   | xvi<br><a href="http://lechuck80.deviantart.com/art/Whatsapp-Emoji-Collection-357910493">http://lechuck80.deviantart.com/art/Whatsapp-Emoji-Collection-357910493</a>                                           | xxv<br><a href="http://fortawesome.github.io/font-awesome/">http://fortawesome.github.io/font-awesome/</a>                                                                |
|      |                                                                                                                                                                                                                             | xvii<br><a href="https://github.com/linyows/jquery-emoji">https://github.com/linyows/jquery-emoji</a>                                                                                                          | xxvi<br><a href="https://github.com/apache/cordova-plugin-console">https://github.com/apache/cordova-plugin-console</a>                                                   |
|      |                                                                                                                                                                                                                             | xviii<br><a href="http://stackoverflow.com/questions/13198131/how-to-save-a-">http://stackoverflow.com/questions/13198131/how-to-save-a-</a>                                                                   | xxvii<br><a href="https://github.com/Leaflet/Leaflet.markercluster">https://github.com/Leaflet/Leaflet.markercluster</a>                                                  |
|      |                                                                                                                                                                                                                             |                                                                                                                                                                                                                | xxviii<br><a href="https://www.mapbox.com/mapbox-studio/#darwin">https://www.mapbox.com/mapbox-studio/#darwin</a>                                                         |

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