CS 408 Team 8
Project: bubble
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PROBLEM STATEMENT

The goal of bubble is to provide users with a location based social network that is mainly explored in an AR environment. It will encourage users to engage with content that is trending in the area around them, as well as connect with users whom they likely interact with or see on a daily basis. By using AR technology, the network will be more grounded in the real world, and inspire users to explore the world around them.

BACKGROUND INFORMATION

Problem, Domain, and Targeted Users

With the advent of social networks, the world has shrunk in its size, and connected people globally. Because of this, there has been less of a focus on small communities, or connecting with people geographically nearby. In an attempt to reinvigorate these proximity based communities, bubble will provide users with a social network that lives around them, rather than connecting them to people they will likely never meet. Smartphone users are the target demographic of bubble, as it is much easier to integrate AR technology with a smartphone app than any other hardware platform that exists at the moment.

Other Existing Solutions & Limitations

While social networks are plentiful, ones that focus entirely on connecting you with people nearby are far less common, and those that do exist are often focused on dating. Bubble differentiates itself by striving to kindle friendships and connections based on proximity, instead of trying to bring people together globally (as this is already satisfied by Facebook, Twitter, and other social networks). An obvious limitation with bubble is that, if a critical mass of users is not reached in a specific area, it may be difficult to engage with new content on a regular basis. Because of this, we will do our best to advertise the platform especially around college campuses and other population hubs.

ENVIRONMENT

Our development environment will be entirely focused around iOS. Because of this, we must use Xcode as an IDE, and are choosing to use Swift as our codebase language. We will

also be integrating heavily with Apple's ARKit framework which is available in Xcode in order to implement a lot of the AR features critical to bubble's functionality. Finally, we will be using Firebase as a backend and database for any user data we need to store, and for authentication purposes.

REQUIREMENTS

Functional

ID	Functional Requirement	Hours	Status
1	As a user, I would like to be able to sign in to bubble using my email or social account.	5	Planned for Sprint 1
2	As a user I would like to sign out of my account.	1	Planned for Sprint 1
3	As a user I would like to see a button that lets me add a post.	2	Planned for Sprint 1
4	As a user I would like to make a post.	4	Planned for Sprint 1
5	As a user, I would like to see different posts as I move my location that are based on my proximity to them.	5	Planned for Sprint 1 & 2
6	As a user, I would like to vote on posts to increase or decrease their visibility to other users.	4	Planned for Sprint 1 & 2
7	As a user, I would like to have a 2D map representation of the bubbles around me.	10	Planned for Sprint 1 & 2
8	As a user, I would like to have an AR representation of the bubbles around me.	20	Planned for Sprint 1 & 2
9	As a user, I would like to click on a bubble post to get a full screen representation of it.	2	Planned for Sprint 1 & 2
10	As a user, I would like to have control over how accurate my location is in order to preserve privacy.	1	Planned for Sprint 1
11	As a user, I would like to be able to edit a post I made within a small time window after it was posted.	2	Planned for Sprint 2
12	As a user, I would like to see a timestamp of when a post was created.	1	Planned for Sprint 2
13	As a user, I would like to be able to view posts I've made that have not timed out yet.	10	Planned for Sprint 2
14	As a user, I would like to be able to remove posts I've made previously that have not yet timed out.	2	Planned for Sprint 2

15	As a user, I would like to have an aesthetically pleasing animation when I create a new bubble.	10	Planned for Sprint 2
16	As a developer, I would like to view statistics on engagement in the application.	1	Planned for Sprint 1
17	As a developer, I would like to view feedback and bug reports from users.	1	Planned for Sprint 1
18	As a user, I would like to edit my account information.	2	Planned for Sprint 1
19	As a developer, I would like to inspect my code, test it using automated and manual testing methods, as well as document my classes.	100	Planned for Sprint 1 & 2
	Total	183	

Nonfunctional

ID	Non-Functional Requirement	Hours	Status
1	As a developer, I would like to learn how to use ARKit.	20	Planned for Sprint 1
2	As a developer, I would like to use 3D modeling software in order to create aesthetically pleasing animations and objects for the AR map.	15	Planned for Sprint 1
3	As a user, I would like to have my location and login information stored securely.	10	Planned for Sprint 2
4	As a developer, I would like to learn how to use Firebase	10	Planned for Sprint 1
	Total	55	

USE CASES

Case: Social login

Action	**System Response**
1. Click social media account button (Facebook, Google, etc.) 3. Input credentials	2. Open social media login 4. Login user and use credential to authenticate/create user with Firebase 5. Close social media login

Case: Email login

Action	System Response
1. Enter email and password	2. Login user

Case: Make a post

Action	System Response
1. Tap a “make post” button	2. A modal view of textedit area will appear
3. Type text and click post	3. System stores post and it appears as a bubble in that location

Case: Upvote a post

Action	System Response
1. Tap upvote button	2. Increment post’s upvotes
	3. Update UI to represent new vote number
	4. Update UI to increase bubble size

Case: Downvote a post

Action	System Response
1. Tap downvote button on a post	2. Decrement post’s votes
	3. Update UI to represent new vote number
	4. Update UI to decrease bubble size

Case: View 2D bubbles of posts in mapview

Action	System Response
1. Press the 2D map button when in the AR view	2. Transition the UI to show a fullscreen map

Case: View 3D bubbles of posts in AR view

Action	System Response

1. Press the AR button when in the 2D map view	2. Transition the UI to show the rear camera with the bubbles around the user

Case: View post in full screen

Action	**System Response**
1. Tap a bubble	2. Transition the bubble to fill user's screen 3. UI displays post in full screen

Case: Change location accuracy

Action	**System Response**
1. Click on profile 3. Click on settings 5. Input desired location accuracy	2. Display profile page 4. Display settings 6. Store location accuracy setting

Case: Edit post

Action	**System Response**
1. Tap the profile button	2. Display the profile/settings view
3. Tap the posts button	4. Display the previous posts table view
4. Edit a post made recently	

Case: View post timestamp

Action	**System Response**
1. Select post	2. Display timestamp

Case: View my own posts

Action	**System Response**

1. Click on profile	2. Display profile view
3. Tap the posts button	4. Display user posts table view

Case: Remove my own posts

Action	**System Response**
1. Tap the profile button	2. Display the profile/settings view
3. Tap the posts button	4. Display the previous posts table view
5. Swipe to delete the post I want to remove	6. Remove the post from the database and from other users' map views.

Case: View animation when creating new bubble post

Action	**System Response**
1. Press the post button in the 2D or AR view	2. Transition the interface to show a floating bubble where text can be entered
3. Enter the text of the post I want to make	
4. Press the send button	5. Store the post in the database and refresh the map view for all users.

Case: View engagement statistics (developer only)

Action	**System Response**
1. Open Firebase to view analytics about users engaging with the application	

Case: View bug reports/feedback (developer only)

Action	**System Response**
1. Open email to view bug reports and feedback sent about the application	

Case: Edit account information

Action	**System Response**

1. Tap on Profile button	2. Display the profile/settings view
3. Tap on the edit button	4. Make the text fields editable
5. Modify the information I want	
6. Press the save button	7. Store the updated information in the database

Case: Inspect and test code (developer only)

Action	**System Response**
1. Write manual tests	2. Return whether or not tests pass
3. Implement automated testing	4. Return whether or not tests pass