Problem Statement

Due to increasing urbanisation, the city streets become overpopulated causing pedestrian congestion. With such unsustainable numbers of people crowding these urban environments walkability within the city continues to decline and the need for repairs and safety concerns constantly rising.

Lack of walkability has been proven to cause an increase in stress and anxiety levels for people leading to a lack of empathy and openness towards other people on the street.

In order to address this issue we are looking to conceptualise solutions and user test low-fidelity prototypes that looks at audience funnelling and function, and then narrow it down to a preferred solution through data analysis methods.

Approach

1

In this stage, we are deciding the main concepts and thinking about the most core functionality and form that is required to test and also consider the feasibility of the end product.

2

At the construction stage, we are building the low-fidelity prototypes that might help us identify the main components, including audience funneling, interaction feedback, core idea testing.

3

First stage of the iteration process: We take the concept(s) and set it up in a considered time and date, recording progress and process with interviews, questions to users, background research/data gathering and photos.

4

Second stage of the iteration process: We take the data and break it down, to see how effective the core value testing was and what were the main feedback given. We consider habits and percentages, comparing each functionality and form to other concepts to see how effective they were.

5

We choose the concept that is most successful, then apply some changes depending on the feedback OR we test a specific form/function for its effectiveness.

Approach

Data to be Collected

When testing our iterations, we wanted to track a few key things that would determine the success of each concept. We decided to track the amount of people walking by each prototype, as well as the amount of people that looked at the prototype, and the amount of people that engaged with the prototype.

These quantitative stats would give us a general idea of the effectiveness of each concept to attract people. We also collected photos and videos of people interacting with the prototype. For random people that were interested in the prototypes, we would record general opinions and reactions, and observe how they interacted with each.

We also had dedicated participants for each with whom we could sit down with for a more extended interview to discuss the features and opinions of the prototypes with more nuance.

How it was Interpreted

The quantitative stats were analysed in a spreadsheet, converted to percentages and placed into graphs to compare with each other effectively and easily. The observational images and videos were analysed to find actions that people were often drawn to do, as well as annotated. The interviews were summarised into key findings and feedback, and all of our data was used to create affinity diagrams to gain a general idea of the types of people that would be drawn to use each of these concepts.

Approach

Concepts for iteration

Global Footprint

This concept creates a live visualisation based on the amount of people that walk in an area, and presents this information in with a metaphorical comparison to other interesting distances. The live updating nature of the concept lets people feel connected to their walking environment and encourages walking to contribute to the greater goals as set by the visualisation.

Emotion Capture

This concept uses the often unseen and unheard emotions of people walking in cities and captures this to display a digital mosaic of these collected emotions. This allows people passing by to gain a perception of how the world around them thinks and feels, to increase the empathy that people feel for one another.

Music Interaction

This concept uses theory behind the power of music to draw people away from congested areas and allow for community interaction with a live musical arrangement. Through placemaking this concept has the potential to allow for underutilised spaces to be given purpose, and provides and engaging and fun way for people to interact with their surroundings.

Chosen Concept

Hardware and Software

In terms of the physical hardware we are getting in a camera which will be used for the facial recognition, kinect which will be required for gesture recognition and control. We might need a projector in later stages depending on the mode of display. With future versions we might consider adding some ambient lighting or music depending on how the iterations follow.

For software we are using Microsoft Azure and one of its face recognition Api's and adobe illustrator/ photoshops/ sketch to create better UI versions for the product. Microsoft visual studio for kinect to run. For the feedback element we are using a simple static website to display information and statics of the project if any one wants to access them via scanning the QR codes.

Method

User Testing Methods

Observational Testing

Observational Testing is a live testing method in which specific indicators for the function of the prototype is assessed on the fly. It can be both recorded and analysed later or done live, and is most effective when looking for data in a public setting without interfering with people's lives. Multiple data stats are taken and overall analysed at the end of the observation.

Rationale/Reason

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Method

Analysis Methods

Affinity Diagramming

Affinity Diagramming is a data analysis method that addresses users/audiences' needs and wants with a single sentence. The large amount of data gathered is broken down into opinionated, suggestive or emotional phrases, then grouped up into similar perspectives that target the general need and want of the user/audience.

Rationale/Reason

Affinity Diagramming is one of the most common and effective methods of practicing bottom-up data analysis. It helps us sort through myriads of complex data (which are mostly unbinary) and allows the data to come to a conclusion on the most important user needs and wants, as well as frustrations that we can target in our further prototypes.

Harris Profile / Decision Matrix

The Harris Profile or Decision Matrix is a simple but effective analysis method that allows prototypes to be judged overall with an emphasis on how effective each aspect of the prototype was. Each aspects of the prototype is weighed, then given a scalar score in order to find the total effectiveness of the prototype.

Rationale/Reason

The Harris Profile and Decision Matrix gives us the final decision based on the data we gathered and analysed. The way the decision matrix divides the aspects of each prototype and judges the weight according to data makes this a crucial and definite judgement on what concept we are choosing as our conclusive goal.

Method

Global Footprint LowFi

To prototype this concept, we created a large poster to represent a display and presented it in a high foot traffic area. As people walked by we counted each one and incremented to the stats on the visualisation, using thread to mark paths the people have collaboratively walked. This was to see if people would engage with the information being displayed, and if it would catch people's attention.

Method

Prototypes

Emotion Capture LowFi

To prototype this concept, we used paper to represent the displays with printed paper strips to represent the emotions being contributed. A mirror was also used to represent a camera. These paper screens were presented on an easel within a busy walking area as to test if this idea has the potential to attract people passing by.

As people look into the mirror of the prototype, they would be asked what emotion correlates the most to how they currently feel, to simulate how a potential facial recognition API would detect their emotions. Their emotions colour was then pinned up on the corresponding visualisation, resulting in a mosaic of colours.

Method

Music Interaction LowFi

To prototype this concept, we used Wizard of Oz testing to simulate a user having control over a musical piece. To display these controls to the user, we displayed the default kinect skeleton motion tracking over some static buttons, to see if users would instinctively know how to control a motion controlling system. This was testing in relatively high traffic area also, to see if people would engage with an interactive system like this if it was presented in a public area.

Findings

Prototype - Global Footsteps LowFi

Interviews

Insights:
- Real-time updation element is cool.
- Very confusing to first look at due to visual complexity.
- Hard to understand the relationship between the metaphor and footsteps.
- Needs more subtle visual queue to guide viewers eyes.
- The text and footstep number count triggers curiosity.

System Usability Scale

The System Usability Scale consists of multiple questions and a couple of open-response questions, mostly judged through a ‘Strongly Agree’ to ‘Strongly Disagree’ Scale. It’s a useful tool for measuring the usability of prototypes and differentiate between usable and unusable systems about the prototype.

Findings

Prototype - Global Footsteps LowFi

Affinity Diagramming

Semi-structured interviews are a good way to gain qualitative data and further insights from audiences and users without leading astray or very bounded to the main idea. Discussing ideas and feedback directly with the user gives us first hand information combined with personal experiences and direct responses to the interaction with the prototype.

Rationale/Reason

Interviews is a crucial part to a human-centred design as it allows potential stakeholders to be an active part of the design process without investing so much into it. Semi-structured interviews allows us to go further than first impressions and helps users empathise with the reasons behind each prototype, making it an effective data gathering method for analysis methods afterwards.

Decision Matrix

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Rationale/Reason

The System Usability Scale is a fast way of allowing users and audiences to answer interview-esque questions in a quick and concise manner. For our prototypes, the audience’s choice to interact with them or not are completely free of their choosing, and therefore allows us to receive definite data on first impressions which then helps us with audience funnelling.

Findings

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Findings

Overall Findings and Summary

Findings

Prototype - Music Interaction LowFi

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Findings

Prototype - Global Footsteps LowFi

Observations

1:15pm ~ 2:00pm (45minutes)

12 Interactions (coming up close, asking questions, actual interaction, etc.)
122 Look as they walk pass
239 total.

- People just look and walk past.
- People who interact usually start with “what is this?”
- People who wait for something/ stand still are more likely to interact (waiting for an elevator)
- Some people who walk pass multiple times look constantly as they walk past, but don’t interact.
- Most skim across first glance then read/ look longer second time.
- People tend to look when someone is already interacting with it out of curiosity.

Findings

Prototype - Music Interaction LowFi

Observations

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Further Findings

Prototype - Emotion Capture LowFi

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User Testing Methods

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Further Findings

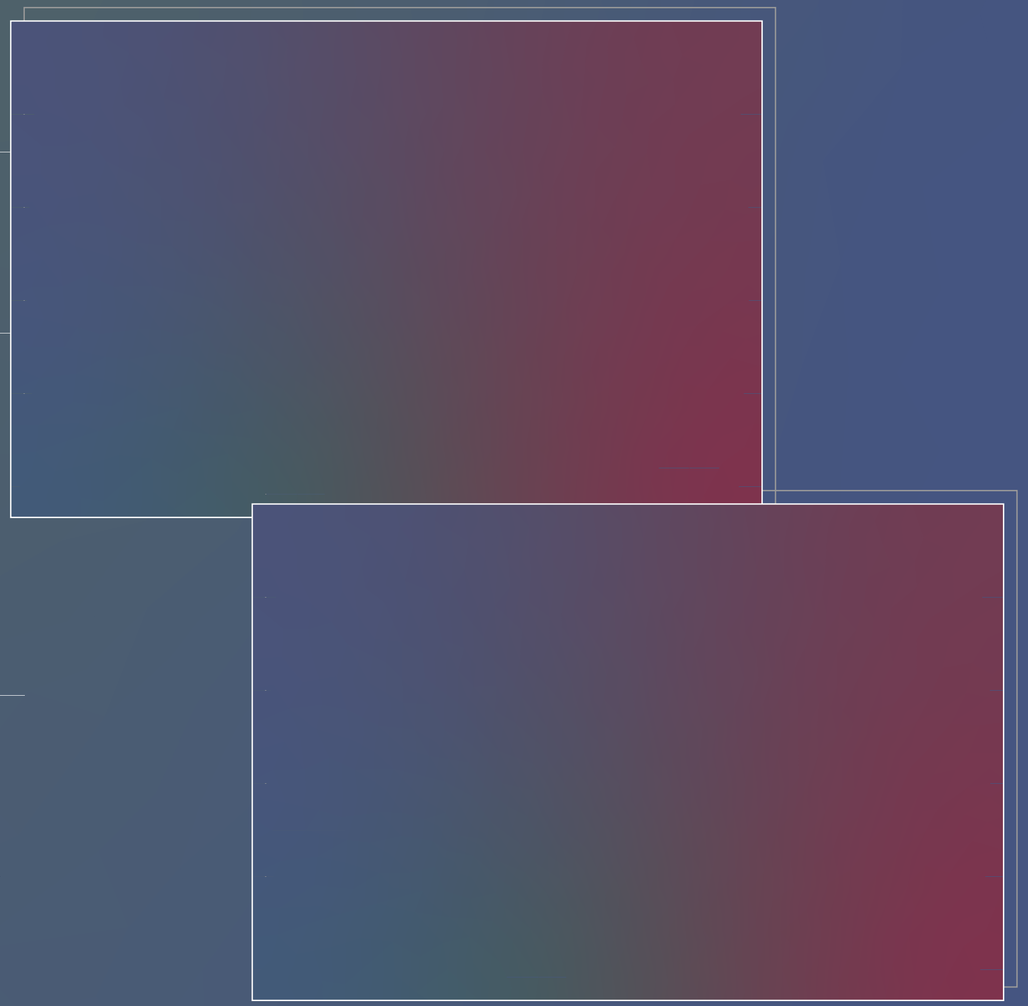
Overall Findings and Summary

Chosen Concept

Emotion Capture

What is it?

Interaction?



Chosen Concept

Target Audience

Our target audience is primarily composed of people that travel throughout the city on foot, focusing on two main user needs; walking in cities purely out of function (Work, School,, A to B) or walking in cities for leisure (Tourism, Exercise).

These people are also continuously on the street, dealing with pedestrian congestion issues on a regular basis, and also beginning to be fatigued with their surroundings and its appearance.

Chosen Concept

Implementation Plan

Hardware and Software

Phrases of Development

Team Member Responsibilities

Chosen Concept

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Chosen Concept

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