PROPOSAL: GRAFFITI FLOOR
STUDIO III - PROPOSAL
Casual/Physical Play

4 April 2014

TABLE OF CONTENTS

Table of Contents

PROPOSAL REPORT
Physical play

Sarah Nelson s4294023
Faisal Alsiddiqi s4231504
Felix Lee s4257314
Pat Bennink s4274909

Physical Computing & Interaction Design Studio proposal
4 April 2014

Proposed idea

In the presentation our group proposed two similar but different ideas. Based on the feedback, we have decided to continue with the painting theme, but instead of painting on the wall, users will paint on the ground. This will enable them to use both their hands and feet as creative inputs, and will encourage movement and creativity in a casual but fun way. These sketches show our original concept presented in the presentation, however we will have to modify these for the new idea now called Graffiti Floor.

Survey of relevant background material

An interactive floor or wall is something that has been done many times in various physical computing projects and installations. The idea of painting a virtual surface using gestures is also not unique. The 'Body Paint' installation at Clicks or Mortar at the Victoria and Albert museum (http://vimeo.com/3576457#at=0, Akten, 2009) is an excellent example of using gestures to interact with virtual paint on the wall, however this differs from our graffiti wall idea as it provides less ability to draw or write (and therefore create a unique piece of art). Our idea was more like a blank canvas for people to draw on, similar to this video, (http://youtu.be/HZLa35ee5uQ, Interactive Entertainment Group, 2011) except with more free-flowing movements from both hands further back from the screen.

However, we have decided to shift our focus to floor interactions rather than wall, if this turns out to be feasible to create. We would like it to be something that people spontaneously discover while moving through the area - that they don't expect to happen, similar to this video of a spotlight following people as they walk past: (https://www.youtube.com/watch?v=678EaXPekFo, Sester, 2007).

Mediatec created a floor that shows an excellent example of the sort of interactivity we wish to create, made out of LEDs - which would be out of our time and budget to create, but we would be able to do using a projector (http://youtu.be/g6N9Qid8Tqs, Mediatec, 2010). This project was created by Mediatec and is quite impressive, but our idea would encourage more creativity by creating a canvas for people to paint on with their movements. This video (http://youtu.be/rqwcwydqdsg, Loop Light, 2012) shows a similar floor being used at a car show, and this one (http://www.youtube.com/watch?v=_W_RVSTh7sI&list=PL9D5BD51EE16FBB7B&feature=share&index=1, Loop Light, 2012) shows many sporting related uses of an interactive projected floor in order to advertise for Adidas. It incorporates dancers, particularly dancing in a break-dancing style on the floor, which our idea would be ideal for. Creating a blank canvas for users to interact and paint on will encourage movement, creativity and playfulness and will add excitement and interest to any place it is installed in. Not only this, but it will enable art to be made and appreciated in an entirely erasable, non-damaging way (unlike real graffiti). Further interactivity could be enabled by giving each person a separate colour and having the colours of two people that are painting near each other mix. And despite having come across

many examples of interactive floors, we have not yet found one that exists just like our idea.

Casual/physical play

Intended audience and experience

The intended audience for our project is all ages and is not restricted to any gender. The experience that we are trying to achieve is to capture the user's sense of exploration and curiosity, and it should attract an audience without their knowledge, which will trigger their interest in an unexpected way. Therefore, users will try to interact with the floor and find out what it is all about. The capabilities and functions of the Graffiti Floor will hopefully intrigue people to interact with it.

Animations and objects will be some of the additional features we can aim to implement into the floor, where users will be able to interact with the animations and objects projected on the floor.

We could also set up cameras that will take pictures or record videos of users while they are interacting with it, and screens that will allow users to view their photos after interacting with it. This will remind users of the unique and fun experience they had.

The location is a key aspect for the Graffiti Floor in order for us to achieve the targeted user experience. It should be placed in an area with fairly minimal traffic, such as pathways. For example, an open space in a mall where people are walking or waiting in the space. They might stumble upon the floor and the paint appearing beneath them would capture their attention. The reason we need the area to be minimal traffic is because the users will need to have at least some space to move around and express themselves.

Project constraints

Graffiti Floor will operate by tracking users' motions with a camera and projecting an image with a projector. Users will be able to paint on the floor by moving within the designated space or using gestures that the camera will recognize.

Multiple user interaction is one of the many features that the Graffiti Floor will be able to provide. However, the number of users that it will be capable of handling is restricted to the camera that tracks the users' motion. In addition, the size of the floor will be determined by the area of coverage that the camera is able to capture. The number of users interacting with the floor will play a significant role that may affect the experience for users, thus, it might be necessary to limit the number of users that can interact with it at once.

There will be the issue of a shadow caused by people standing on the floor in the light of the projection. One way this issue could be solved is by a projection from below, where the entire area of the floor is semi-transparent glass that allows projection on one side that also goes through the other. However, the projection from below requires a large set of equipment, which would be costly and difficult to build.

Brightness level is an important factor that will affect the user experience. It is possible that the floor could be situated in various locations, such as hallways, public areas, specific rooms etc. However, the brightness level of the location must be low enough for the projection to be visible to users. For example, users might not able to notice the 'paint' in broad daylight if the graffiti floor is situated in an open space location. In addition, some colours may display poorly under high brightness level situations, such as bright yellow in the daytime.

Relevance to theme

The theme for the studio this year is all about playful and open-ended interactions in everyday life. This theme works in unison with most if not all projects that have been proposed and planned for implementation this year. Furthermore it perfectly fits the idea's surrounding our group's focus on casual play. To us, playful and open-ended interactions are all about getting the target audience involved in something a little bit surprising but not at all invasive or pressuring. This involves allowing the target to fully decide whether or not they would like to be involved without fear of repercussion. These themes led us as we worked through our initial brainstorm and then also as we further developed our chosen idea. In the end we settle with the simply named Graffiti Floor, a spiritual successor to our initial idea, the Graffiti Wall. The whole idea behind these two proposals is a focus on casual play, i.e. something that anyone can enjoy.

To break it down into bite sized pieces, we first thought about how we could make our project playful, this idea was essential for our group as our teams focus is "casual play". The result of our brainstorm left us with quite a few different ideas, with one main agreement, they all sounded fun and they were all rather simple. We want our users to experience joy and playfulness without expending great amounts of energy or effort, our project is designed more so as a distraction than a game. There is no "end-game" and no winning, there is just play. This idea relates back to the problem of where we would put this game in the real world, where would a playful distraction work best, of course the answer to that is anywhere people are waiting. It goes further than that as we realised that when we started working with the base of something that is playful, and lacking an end, that the result is an open-ended interaction. If the idea comes together as we plan, then the user has no goals, they are just passing time, they aren't seeking to reach the end or achieve a top score. This is what makes the idea of painting on a large scale so wonderful, there is little motive behind it other than to simply entertain and distract. The user can implement their entire body into "painting" and enjoy the project without fear of having to finish what they started. If one person leaves as they were making something on the "canvas" someone else can continue with what they started, or just paint over it. There are no restrictions and this allows the project to be excessively open-ended. This focus on open-ended play links well into our vision of discovery within the project; we want to add an element of surprise to the interaction, something unexpected that our users can be intrigued by

and we feel this further expands upon the idea of open-ended interaction even more, taking it to the next level. Just a few little surprises that leave the user with a sense of discovery and accomplishment without leaving them feel like they have to "finish the game".

Considering all this we feel that our Graffiti Floor, allowing anyone to come along and paint on a large surface using their body, with no restrictions and no ulterior motives, fits perfectly into the theme of playful and open-ended interactions in everyday life. We want people to have fun and interact with each other while they are waiting for the bus, or waiting for the train. We want something to take their mind off work and responsibility for a moment; let them enjoy a simple moment of playfulness that modern society is often lacking. Let the users enjoy this without giving them a deadline or an end-point, removing all pressure and stress from the game. To us this is what the theme is all about, and we feel our proposal is the perfect representation for the theme. Let commuters paint a picture, or throw paint at each other and wonder at what happens when the paint collides, make it simple, fun and enjoyable for everyone.

Project plan

Resources

Projector, Projector stand
Wide-angle camera
Computer, Internet connection
Adobe Flash CS6 (ActionScript 3.0)
Black-out fabric

4th April **Project Proposal (Deliverable)**

7th April **First Stage Prototyping**
* Create prototype for testing in the workshop
* Identify issues with current prototype
* Explore back-up plans for prototype

14th April **Research**
* Explore other features that can be added into project
* Explore ways to overcome issues

21th April **Second Stage Prototyping**
* Refined version of prototype
* Conduct user-testing for feedback

29th April **Prototype/Sketch/Mock-up (Deliverable)**
* Working prototype of designed interactive environment
* In-class presentation
* Prototype appraisal report on other team's work

5th May **Third Stage Prototyping**
* Refined version of prototype
* Conduct user-testing for feedback
* Refine ideas to improve interactive experience

12th May **Feedback Analysis**
* Analyse feedback received from both prototypes

19th May **Final Stage Prototyping**
* Clear idea of final-product
* Ensure feedback for current prototype is generally positive
* Build towards final-product

26th May **Final Product**
* Final adjustments on final product
* Multiple tests on final product to make sure it won't fail
* Ensure back-up plan for final product is operating

3nd June **Exhibit Finished Product (Deliverable)**
* Final-product demonstrated at The Edge at South Bank

Roles and Responsibilities

SARAH NELSON (TEAM LEADER/RESEARCHER)

Sarah is the team leader and the researcher for our team, she will be over looking the progression of the project and ensuring each member is on track with assigned tasks. As a researcher, Sarah will be exploring new ideas and features to be added into 'Graffiti Floor'.

"I'm a multimedia design student and I chose this career path due to my love of design and creating things that people can use and interact with. It's a wonderful feeling to have your hard work go into something fun that you can show to others and that will brighten their day. The area I love most in multi-media design is graphics and web design, though I would like to be much more proficient at this and there is a lot of room for me to improve and grow, as there is in all areas of the discipline. We have decided on using actionscript 3.0 to make our project with, and I have some experience with this from high school. I should be able to pick it up relatively quickly. Coding is not my strong point, though I have worked with python, C, assembly language, java, php and javascript.

As team leader I will work on ensuring that the team is on-task and up-to-date with where we need to be at each stage of the project. I have also done a fair amount of research into real-world examples of projects like ours, which helps the group to understand what has been done and what is achievable with the technology."

FAISAL ALSIDDIQI (USER EXPERIENCE DESIGNER)

Faisal is the user experience designer where he will be tackling the user experience part of the project by understanding the psychology of human behaviour. The goal of this course is to explore the experience in physical interaction with technology and Faisal will ensure our final product achieves this goal.

"I started off as an I.T. student thinking that it is what I want for my future. However, the more multimedia courses I take the more I realised how much I enjoyed it and it became clear to me that I.T. was not what I wanted to do. I am good at sketching but still need more practice to perfect it. I work well with teams and I believe that there is no such thing as a bad idea. Designing is a strong suit of mine and I am comfortable with my skills using Photoshop

Casual/physical play

and few other adobe programs. I have basic knowledge in programing. I also enjoy editing videos as well as creating them. My main weaknesses are time management and sometimes communicating an idea across to others. This project gives us the opportunity to display our ability to attract people and making them feel or react in a certain way depending on our design skills. In addition, I have taken some psychology courses during my time in Canada, and I believe I can contribute my knowledge with human behaviour to the team. Programming is not my strongest suit but I think it is good enough to help contributing to the group and the project."

PATRICK BENNINK (FEEDBACK ANALYST)

Patrick is the feedback analyst on the team and he will focus on analyzing feedback received from user-testing sessions. Analyzing feedback will help the team to identify any issues with the current prototype and aspects that the team should pay attention.

"Our proposed project is a very design focused idea, it revolves mostly around creating a wonderful user experience than using complicated game play and interactions. Because of this my strength as a designer that I have developed through the last 3 years of Multimedia design will be a benefit to our team. Furthermore I feel that I can bring a lot of creativity and ideas to the table that can help spark group discussions and allow us to take the project along a new path or add an exciting feature. My ideas may not always be on point but often they have some merit behind them and can help out in one way or another. On the other side of things I don't have much experience with the programming side of the project. I have previously done ActionScript 3.0 but I am not confident in my ability and therefore I won't be a great amount of assistance when it comes down to coding."

FELIX LEE (PROGRAMMER)

Felix is the main programmer for the team, he will be focusing on the technical part of the project and ensures the product will be functioning as designed. He will be maintaining the product regularly throughout the prototyping process and updating new features as the team progresses.

"Computer technology always fascinates me, and it has been my hobby to update myself regularly and understand more about computer

technology. There are many ways to design how users interact with a piece of technology, and it is always fun to explore new ideas with other minds. I enjoy the process of designing when a group of people work towards a goal and overcome any issues that may arise during the process. The coding language our team will use for this project is ActionScript 3.0, I have a fair amount of knowledge regarding this language and I am comfortable to code with it. My weakness would be pitching ideas to a large group of audiences, however, I will manage to speak out my mind to the group."

Casual/physical play

References

Mehmet Akten. (2009). *"Body Paint" Installation at "Clicks or Mortar".*Available: http://vimeo.com/3576457. Last accessed 2 April 2014.

Interactive Entertainment Group. (2011). *Digital Graffiti Wall.*Available: http://youtu.be/HZLa35ee5uQ. Last accessed 2 April 2014.

Loop Light. (2012). *Motion Tracking Interactive LED Floor.* Available: http://youtu.be/rqwcwydqdsg. Last accessed 2nd April 2014.

Loop Light. (2012). *Adidas GBC 2012.* Available: http://www.youtube.com/watch?v=_W_RVSTh7sI&feature=share&list=PL9D5BD51EE16FBB7B&index=1. Last accessed 2nd April 2014.

Marie Sester. (2007). *ACCESS - an interactive art installation by Marie Sester.* Available: http://youtu.be/678EaXPekFo. Last accessed 2 April 2014.

Mediatec. (2010). *Interactive LED Floor.* Available: http://youtu.be/g6N9Qid8Tqs. Last accessed 2nd April 2014.

Mimi. (2010). *Science Centre Singapore: Singapore's 3rd Most Visited Attraction.* Available: http://www.sleeplessinkl.com/2010/08/22/science-centre-singapore-singapores-3rd-most-visited-attraction. Last accessed 2nd April 2014.