DECO3850 REFLECTIVE REPORT

FINAL STUDIO REPORT

Physical Play/Graffiti Floor Team

In a world in which technology has become such a life-blood to society, new methods of interacting with it and each other are being explored more and more, especially in the area of physical computing. Interactive floors are one such technology, and it has been found that they provide a fun and engaging way of bringing people together, and can be used for a multitude of educational and entertainment purposes. This reflective report will detail my journey and what I have learnt in the process of coming up with the idea of, creating and showing our floor to the public.

Sarah Nelson
42940236
sarah.nelson1@uqconnect.edu.au
23 June 2014

TABLE OF CONTENTS

Table of Contents

DECO3850 REFLECTIVE REPORT

Physical Play/Graffiti Floor Team

Sarah Nelson 42940236
Physical Computing & Interaction Design Studio Reflective Report
23 June 2014

Introduction

Physical computing and interaction design are fast evolving and incredibly exciting areas of information technology to be involved in. It was a privilege to have been a part of the Physical Computing and Interaction Design Studio course taught at the University of Queensland this semester, and much has been learnt from the experience. The aim of the subject was to introduce us to the world of physical computing and interactive environments, and to encourage our creativity in brainstorming, designing and building interactive experiences for our users. This was done in a collaborative manner through a number of design activities in order to achieve the end goal of presenting working prototypes to the public at the Interaction Design Exhibition.

This report will describe the final product made and its design process, provide a comparison to existing projects and literature in the background survey and provide an evaluation of the project in relation to my contribution to the output and my reflections on the process. The success criteria and how well they were or weren't met will also be detailed.

Project

My team's project was named 'Graffiti Floor' due to the artistic and casual nature of painting and interacting with the floor. Users draw on the floor with the movement of their bare hands above it, in a variety of random colours. Various other features are also available for discovery by the users. Colours are changed by proximity of the hands, i.e. clapping; paint is kept on the floor and the thickness can be changed by holding the left hand up and raising and lowering the right hand; the circle surrounding users grows and shrinks when they jump; and the icons between users change when they are close enough to each other. Two music-related interactions were also included: the song "I believe I can fly" plays when a user holds their arms out like they're fly-

ing, and a song called "All I do Is Win" is played when all users simultaneously hold their hands above their heads.

Background Survey

Interactive floors are being exploited more and more in recent years. Apart from Ankith's project, however, I had never seen or heard of such a thing until this semester, when I was inspired by the SixthSense video watched in class to make some kind of ball game on the floor (because of the short clip of people kicking around a projected ball on the floor of a train in it). This caused me to think of making one and do research on what has already been done in the area. They are certainly not common, but I'm sure are something we'll see a lot more of in the future, as they are useful for a multitude of applications in a variety of places and are something that people will definitely enjoy interacting with.

In late 2004, a journal article was written on the iFloor, a physical computing project designed to "support and stimulate community interaction between collocated people" (Krogh, Ludvigsen, Lykke-Olesen, 2004). This appears to be one of the first of its kind, intended to bring people together in an interactive way, rather than just provide effects or other spatial interactions. It was set up in a library and was interacted with by posting questions and answers on the floor through users' mobile phones, which they would then browse through and discuss. This is similar to our project in the way that it was intended to help bring people together, and that users don't need a prior explanation to use it. It was based on "the exploitation of user knowledge and curiosity". This is similar to our project as curiosity played an important role in it, because the bright colours on the floor attracted the attention of many visitors.

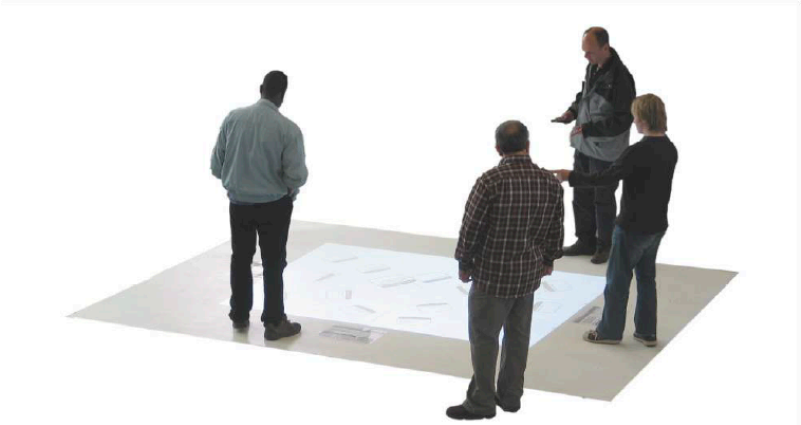

Figure 1: the iFloor in use. (Krogh, Ludvigsen, Lykke-Olesen, 2004).

Since the iFloor, the concept of an interactive floor has been developed in many different ways, for example the iGameFloor which focuses on gaming interactions and uses a bottom projected glass surface (Grønbæk, Iversen, Kortbek, Nielsen, Aagaard, 2007).

Figure 2: iGameFloor (Grønbæk, Iversen, Kortbek, Nielsen, Aagaard, 2007).

There has also been work done with haptic feedback floors, such as the Interactive Knocking Floor (Lee, Hahn, 2008), which sends messages to users through the feeling of touch in their feet. This shows that the medium of using a floor in ubiquitous computing has been developed in a variety of ways and is something that will continue to evolve and be incorporated into daily life more and more in the future.

Design

The design process was challenging, and difficult due to the pressure of having to come up with an idea that was novel, used new technologies, created a unique experience for the user and was feasible to create within the thirteen weeks we had until the day of the exhibition. I came up with the idea of a large game of pong playable by two users with a projection on the floor for the first presentation. To me this was a novel idea, but research of the topic later revealed that either this or very similar ideas to this have already been done. Based on the feedback given by the lecturers and tutors, however, they didn't seem to want just a reproduction of an already-existing game, they preferred the idea of discovery, playfulness and multiple user interactions

not necessarily within the constructs of a game. Thus, when our group came up with the idea of painting on the floor or wall, and having users interact with each other with the paint, they were more supportive. It was not a straight-forward process, however, as design rarely is, and it was rather iterative, throwing around a variety of ideas until we finally settled on the Graffiti Floor. We decided to make it a floor mainly due to the fact that, in past exhibitions, quite a lot of projects involved interacting with a wall projection. I wanted to steer away from that with something that was rather new in my mind. I still have not actually found any other examples of projects just like ours; that involve painting on the floor like a canvas as well as other interactions. Most usually involve either some sort of graphical effect or the playing of a game, like soccer. The act of painting on the floor seems to be unique, so far. Of this I am pleased, as it was predominately my idea.

Evaluation

This semester has challenged me as a designer by forcing me to be creative in coming up with ideas of experiences I want to create for users. I have realized that, in this area of technology and in technology in general, it is not so much about what I can do or what I know that limits me as what I want to do. I am limited predominantly by my imagination and my capacity to think up ideas, as now that I have a foundation in a variety of IT disciplines (programming, databases, graphic and web design), anything else that need to know I can learn, often by teaching myself. The studio was a fantastic place for collaboration and learning and bouncing ideas off each other, and everything we needed was provided by the tutors and our lecturer, whether it was materials or help with ideas or coding problems.

I feel that I achieved a greater sense of competency in working with a group like this, and would be more excited to work on another such project in the future. Before I started this course, I was daunted and nervous about undertaking such a big project and felt a bit under pressure to come up with a good idea. I was also nervous that we wouldn't be able to bring it to completion by the day of the exhibition. I found out however that there was really nothing to worry about, as long as enough effort was put into the course throughout the semester.

The main areas I grew in were that of graphic design, idea generation, teamwork, project planning and user-testing, as well as public speaking and learning how to express my ideas better with others. The only thing I regret was that I was not more involved in the coding side of the project, as I find this

very interesting. I didn't feel very competent with it so I mainly let Felix and Faisal work on it and helped out with ideas and testing and graphics and such instead. Partly why I found the coding daunting was because of the break I took from it while on exchange last semester. I studied graphic design and marketing overseas and thus threw myself into designing our logo, poster, business cards and t-shirts instead. I'm proud of the efforts that Felix and Faisal put into adding so many features to the floor. However, this makes me excited to get more involved on the coding side of projects next semester.

Conclusion

The success criteria agreed on by our group in the prototype phase was as follows:

- Users will spend a fair amount of time drawing/exploring various interactions of the floor
- Some users will return to use the floor again (shows they enjoyed it the first time)
- People will be spectating the users on the floor; interested in what is happening
- Spark users' interest by catching them off guard
- At least some people will work out all the interactions
- User satisfaction for the quality of drawing

I consider our end product to have been a success, as most of these criteria were met when it was tested at the exhibition, even though not all of them were. Users did spend a fair amount of time interacting with the floor, and trying to work out the interactions; some users came back for another go; there were nearly always spectators near the floor, and users were quite satisfied with the quality of the drawing and its precision. However, due to the fact that our floor now keeps some of the paint on the floor, the surprise element we were planning on creating earlier on is no longer so applicable. It can still be unexpected to passers-by, but not in the way that they suddenly notice new paint being painted underneath them while they think they are walking on a normal floor. However, this is a suitable trade-off for the added visual benefits of having such a bright and colourful floor to paint on and interact with. It still has the unexpected quality of discovering new interactions, and I feel this is more appropriate for what we wanted to achieve regarding the user experience of the project.

Also, users found it more difficult than expected to discover the interactions. Nobody discovered them all by themselves, and at least one of the interactions was very difficult to work out without explanation. This means that, were we to actually set this up somewhere, we would probably have to provide visual or written explanations providing at least some hints for its full use. There is much that could be done with the project, and it would be fun to refine and develop it further.

All in all, I feel extremely privileged to have been a part of such an exciting area of technology in this course. I have learnt much as a designer, and look forward to seeing how interactive floors will progress in the future. I'll be able to tell people that I actually made one of them, "back when nobody had seen them before". I would love to be involved in more cutting edge projects that deliver exciting and practical user experiences in the future, if possible, and I feel much better equipped to work on such things after having learnt so much this semester.

References

Krogh, P, Ludvigsen, M, Lykke-Olesen, A. (2004). "Help Me Pull That Cursor" A Collaborative Interactive Floor Enhancing Community Interaction. *Australasian Journal of Information Systems*. 11 (2), 75-87.

Grønbæk K, Iversen, O, Kortbek, K, Nielsen, K, Aagaard, L. (2007). iGameFloor — A Platform for Co-Located Collaborative Games. *ACE '07 Proceedings of the international conference on Advances in computer entertainment technology*. 64 - 71.

Lee, S, Hahn, M. (2008). A study on user attitude toward the interactive floor. *18th International Conference on Artificial Reality and Telexistence*. 18, 309-312.