

Footsteps: An Urban Game to encourage Social Interaction in Networked Spaces

Tamara Chahine, Cherry Chau, Hanley Weng, Ryo Yambe, Cming Yick

Faculty of Architecture, Design & Planning,

University of Sydney, NSW 2006

tcha1746, ycha5217, hwen6932, ryam4488, syic5145@uni.sydney.edu.au

ABSTRACT

This paper introduces Footsteps, an urban game that pairs geographically separated traffic islands, and augments them with projections of human activity coming from corresponding islands. This concept was designed and prototyped for the OZCHI 2010 24-Hour Student Design Challenge, in which we were asked to enliven an unused space in our current location, using novel or existing technologies. We chose to address this challenge by presenting a game designed to encourage playful and social interaction in the city of Sydney. Given that this concept was prototyped and evaluated within 24 hours, we believe there is potential to improve the design through further exploration and user testing.

Author Keywords

24-Hour Student Design Challenge, OZCHI24, Urban informatics, Social interactions, Urban space, place

ACM Classification Keywords

H.5.2 User Interfaces

INTRODUCTION

In the design brief for this challenge, we were asked to identify and improve the experience of an unused space in our current location. To approach this problem, we undertook contextual investigations, designed, and then evaluated our design with prototypes. Before beginning to tackle the design problem, we needed to first make a distinction between ‘space’ and ‘place’. We understood space to be a physical location that provides opportunity (Harrison & Dourish, 1996) for interaction. A space becomes place when it gains meaning generated from patterns of human interaction - places are “sites of social activity” (Willis, 2008). We can improve the experience of a space by altering the physical setting to encourage social interaction.

As part of our design process, we explored many unused spaces in Sydney. Many spaces that we identified as unused were inaccessible to the general public, and offered little for public interaction. We chose traffic islands as a context because they are ubiquitous and are accessed by potentially thousands of people on a daily basis. Currently, there is no real incentive for people to interact with each other during the time they are forced to

spend in this space. To address this problem, we designed an urban game that facilitates social interaction by creating a playful engagement with the space. As a result, this formerly unused space can become a place where people are encouraged to initiate contact with each other to collectively ‘win’ the game.

BACKGROUND

Ideas around urban informatics - “the collection, classification, storage, retrieval, and dissemination of recorded knowledge in a city” (Foth, 2008) and similar projects helped inform and inspire our design choices. HINteractions is a related project that captures and displays data about people’s interactions in order to construct a ‘collective intelligence’ for a place (Garcia-Perate, 2009). HINteractions is based around the idea that people can become more informed and aware of human activity in a space through viewing this data. Footsteps adopts similar ideas in that it captures the flow of people as they move around traffic islands, projecting that data onto the space, but instead focusing on the social interactions that result from having this data displayed in the form of a game.

METHODOLOGY

After defining and interpreting the design problem for the challenge – needing to improve the experience of a space, the process we followed consisted of an agile approach to brainstorming and prototyping. We began by carrying out contextual observations in the city of Sydney. Through our exploration, we noted both physical and abstracted spaces and places, with particular regard to their past applications and their underlying potential. We explored rooftops, alleys between and behind buildings, and a few unused spaces around residential areas. We chose to design for traffic islands, based on the fact that they are publicly accessible spaces that we found to have more potential for interaction between people.

In total, we had three participants who were involved in the design and prototyping of our idea. Before designing, we conducted semi-structured interviews with two of the participants to help us better understand the design problem. In the next phase of our process we began creating affinity diagrams to refine our concepts and scenarios to aid in our brainstorming. This helped us to concisely define the functions of our planned design. At the next stage in our process, we used co-design as a method of involving users in our sketching and prototyping. Our prototypes evolved with user tests at each significant build, from sketches, to scaled models and eventually to integration with our context.

OZCHI 2010, November 22-26, 2010, Brisbane, Australia.

Copyright the author(s) and CHISIG

Additional copies are available at the ACM Digital Library

(<http://portal.acm.org/dl.cfm>) or ordered from the CHISIG secretary (secretary@chisig.org)

OZCHI 2010 Proceedings ISBN: 978-1-4503-0502-0



Figure 1. Building, testing physical prototypes with users

CONCEPT

The aim of Footsteps is to improve the experience of waiting at traffic islands by introducing a game that incorporates the movement of people on the island. Currently, people are forced to wait for an unspecified period of time with little to do. The game is simple – traffic islands that have approximately the same number of people waiting to cross are paired. On both islands, the footsteps of people are detected, and then projected onto the opposing island. To win the game, pedestrians must step on these projected footsteps (displayed in different colours), and score points for their island.

Visual feedback is provided for both the pedestrian's own footsteps and the remote footsteps projected onto their island. The game ends when the traffic lights turn green, and all players have left both islands. Integrating the timing of the game with the natural timing of the traffic lights creates tension as part of the gameplay, as “without inevitability, the outcome of the conflict seems distant...(with) little incentive to invest emotions” (LeBlanc, 1999). The winning island is determined as the one with the most points at the end. The score is displayed on the traffic poles throughout the game.



Figure 2. Context chosen for our design

We acknowledge that designing for this context comes with certain constraints on the gameplay, namely, the number of people on the island at any given time, and the safety of those people during the game. To address safety concerns around having a game based on the street, we incorporated this issue into the gameplay. Each island will be surrounded by a projection of a ‘border’.

Pedestrians can lose points for their island if they come into contact with this border. With additional testing, further problems with the gameplay can be addressed.

EVALUATION AND DISCUSSION

Throughout the design process, we developed many prototypes to demonstrate and evaluate our concept. From the beginning of the process, we involved three users in designing and testing our ideas. Our prototypes evolved from the feedback provided by these users. Initially, our prototype began as paper sketches with users, augmenting the formulation of ideas. Following this, we quickly constructed a scaled prototype for role-playing different scenarios. Upon testing this prototype with users, we found that our aesthetic representations were lacking, but that the users were generally interested in the game interactions. From this, we continued to develop the scaled prototype for further testing. Once content with our physical prototype, we began constructing our video depiction of our concept, which helped us to further refine the user interactions with the game.

The evaluations of our physical prototype (see: Figure 1.) showed that users were particularly interested in the ideas behind playing a game in networked spaces. Future work would need to address problems with the footstep projections, such as the safety issues accompanying a higher density of people playing the game on traffic islands. With further opportunity to develop this concept, we can continue to improve the specific features of the game experience.

ACKNOWLEDGMENTS

We would like to thank the organisers of the 24-hour Student Design Challenge for giving us the opportunity to participate and write this paper.

REFERENCES

- Foth, M. (2009) Foreword. Handbook of Research on Urban Informatics: The Practice and Promise of the Real-Time City. Information Science Reference, IGI Global, Hershey, Pa. xxiii-xxvi.
- Garcia-Perate, G., Agarwal, P., Wilson, D. HINteractions: facilitating informal knowledge exchange in physical and social space. In Proc. TEL 2009, ACM Press. 119-122.
- Harrison, S. and Dourish, P. (1996). Re-place-ing space: the roles of place and space in collaborative systems. In Proc. CSCW 1996, ACM Press. 67-76.
- LeBlanc, M. (2006) Tools for Creating Dramatic Game Dynamics In The Game Design Reader: A Rules of Play Anthology. Salen, K., and Zimmerman, E. (eds). MIT Press. 439-459.
- Willis, K. (2008). Places, Situations and Connections. In A. Aurigi & F. De Cindio (Eds.), Augmented Urban Spaces: Articulating the Physical and Electronic City Aldershot: Ashgate. 9-26.
- LeBlanc, M. (2006) Tools for Creating Dramatic Game Dynamics In The Game Design Reader: A Rules of Play Anthology. Salen, K., and Zimmerman, E. (eds). MIT Press. 439-459.