
Rock, Paper, Awesome!

Mike Tissenbaummiketissenbaum@gmail.com

Ontario Institute for Studies
In Education (OISE)

Matt Zukowskimattzukowski@gmail.com

Ontario Institute for Studies
In Education (OISE)

Rebecca Coberrebecca.cober@utoronto.ca

Ontario Institute for Studies
In Education (OISE)

Alisa Acostaalisa.acosta@utoronto.ca

Ontario Institute for Studies
In Education (OISE)

Jim Slottajslotta@gmail.com

Ontario Institute for Studies
In Education (OISE)
University of Toronto
252 Bloor St. W.
Toronto, ON M5S1V6 Canada

Keywords

Tangible Interactions, Embodiment, Smart
Spaces, Ambient Awareness, User
Contributed Design, Collaboration.

ACM Classification Keywords

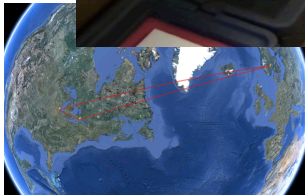
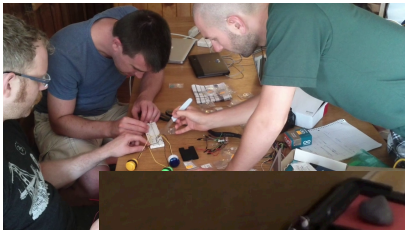
H.5.3 Group and Organization Interfaces,
H.5.2 User Interfaces: Interaction styles,
H.3.4 Systems and Software: Distributed
systems

Abstract

Rock, Paper, Awesome (RPA) is an investigation into ways of connecting spaces that are distributed physically, but connected socially and professionally, through member designed and fabricated tangible interactions. Using an open source, message-based technology framework, RPA allows members in each location to implement and develop their own set of tangible interactions and ambient representations that communicate the *same core semiotics* (the game itself) between spaces. The goal of RPA is to foster capacity within the community for designing and developing interesting interactions, thereby enabling the community to engage in creating and sharing more meaningful ambient and interactive elements that serve to bring their physical environments together.

Introduction

Two educational research labs — one in Toronto and one in Chicago — are collaborating: designing materials and interactions, conducting research, and writing papers and grant proposals. The researchers know one another quite well; their faculty, graduate students, and developers spend time at retreats and conferences, site visits, etc. But for the bulk of their professional interactions, the members of the two communities are separated into their respective physical environments (lab spaces, offices, etc). How can we bring such communities more closely together? Is there a possible role for tangible and physical computing, and ambient or interactive media that are deeply connected to the semantics, work flow, physical presence, ideas, activities, and interests of the distributed communities? Our project aims to connect such communities, adding a new dimension to their interactions where community members engage in creative fabrication and exchange of tangible, interactive media that reflect their ideas, workflow or presence, bridging the distances and connecting the community.



Copyright is held by the author/owner(s).

TEI 2013, February 10-13, 2013, Barcelona, Spain

ACM

In order to begin investigating these types of interactions, we first developed Rock, Paper, Awesome! (RPA). RPA is a new take on the classic game, Rock, Paper, Scissors, which allows players to construct their own tangible and ambient representations of game interactions while simultaneously extending game “moves” across space and time. RPA works as a mediator between the different players’ work spaces (e.g., research labs, home, gallery), becoming the “universal translator” of each groups’ designed interactions and combining a variety of communication modalities to create a common play space and distributed, tangible interaction.

Because of the distributed nature of RPA, ambient representations are essential for effective communication between players, showing the state of individual games and the moves of participants. Lights, sound, and motion are all possible representations of the RPA game space, allowing RPA to rest on the periphery of players’ awareness until an actionable event takes place, making it a persistent but unobtrusive part of their physical space [1].

An example of an RPA “build”

For this conference we will present several distinct versions of RPA to show how different designs of tangible interactions and ambient representations can communicate the *same core semiotics* (the game itself) among players. In one location, users activate proximity sensors to make their move (i.e., sitting in a designated chair indicates a selection of “rock”), a rotating flag provides awareness of game states (i.e., another player has performed a game action), and customized sounds indicate winning and losing (similar to ringtones). In another lab, these same elements of the game are designed in completely different form, with placement of coffee cups within designated rings, different ringtones, etc.

User contributed and user designed

Powered by SAIL Smart Space (S3) [2], and an Arduino microcontroller, players can design how they join the game (e.g.,

pressing a button, waving a hand, turning on a light), how they choose their “weapon” (e.g., sitting in specific location, revealing or occluding a fiducial, picking up an object), and representing game states like winning, losing or “game on” through music, lights, waving flags, etc. The code for RPA is open source (see URL), with players uploading their variants or building on those of others, enabling a community of tinkerers and designers to evolve.

Constructing meaning and engaging with our world

On the surface, Rock, Paper, Awesome is simply a new way to play a classic game. For us, it is a first step towards investigating novel ways for users to interact with the world around them and for connecting these investigations within a broader knowledge community. As educational researchers, our long-term goal is to develop a platform on which learners can create their own tangible and ambient representations for communicating and interacting in novel ways across time and space. The RPA “game” is a form of icebreaker into this wider space of interactions. Allowing many concomitant technologies and practices to be digested and negotiated across our three research labs. Once this ecology of design and sharing has been achieved, we expect new forms of tangible and embodied interactions to bloom across our distributed physical and virtual environments.

References

- [1] H. Ishii, C. Wisneski, S. Brave, A. Dahley, M. Gorbet, B. Ullmer, and P. Yarin. Ambient displays: Turning architectural space into an interface between people and digital information. In Proceedings of the First International Workshop on Cooperative Buildings (CoBuild’98), Springer-Verlag, February 1998.
- [2] J. D. Slotta. (2010). Evolving the classrooms of the future: The interplay of pedagogy, technology and community. In K. Mäkitalo-Siegl, F. Kaplan, J. Zottmann & F. Fischer (Eds.). Classroom of the Future. Orchestrating collaborative spaces. (215-242). Sense.

Access to the GitHub repository for RPA:

(https://github.com/educoder/rock_paper_awesome)