Ice-Burg Project

Introduction

Having been inspired by Professor Streeter's Embodied Interaction class, and having accepted the challenge of the Design Impact grant proposal, six of us HCI students set out to create an interactive art installation entitled “Ice-Burg”. The purpose of Ice-Burg is to explore the concept of placemaking in public spaces by connecting people who would otherwise not know each other through engaged interaction with two separate structures. The structures provide levels of feedback such as sound and light, triggered by proximity and touch. Viewers are invited to touch the structures on handprints which light up, and change color when touched simultaneously on a handprint on the corresponding spot, on the opposite structure. We as HCI students wanted to create something that is unique, and draws from our training. We were inspired to incorporate HCI concepts, as well as evoke emotion and reflective thought. Our goal is to combine theoretical foundations with technical application, in an artistic form.

Process

Roles & Responsibilities

Due to the nature of this project, team members needed to wear multiple hats to perform design and production, as well as additional administrative and project management duties. My specific roles and duties performed are as follows:

- Design lead on the fabrication team
- Scrum master (Introduced Agile methodology for project management)

Teams

From the outset our team, consisting of individuals from a wide variety of backgrounds, such as Graphic/Visual Design, Architecture, Movie Production, UX Design, Front End Development, and Project management, naturally fell into various roles. We defined our roles and responsibilities based the experience we brought to the table, as well as what work we were most interested in. This allowed us to organically form a Fabrication Team and a Development Team. The areas of responsibility for these teams are as follows:

Fabrication Team

- Cube
- Base
- Sound system design

Development Team

- Cameras
- Lights
- Sensors

Ideation & Research

During our initial concept development we performed rapid ideation through Whiteboarding sessions and observations. We used common HCI methods, such as Contextual Inquiry, to get a better understanding of the problem space. During this phase we produced various artifacts such as an Affinity Diagram, and paper prototypes. I personally created a Decision Table and a Data Flow Diagram, to help visualize the process and data models. As we refined our design we also used Usability Testing on production scale prototypes made of cardboard, to gain insights into how users might interact with the structures.

Fabrication

To inform the fabrication and development of the production structures, we made half scale working prototypes. This allowed us to test different methods of fabrication, and in turn minimize waste of materials. Personal contributions include:

- Simplifying the shape to a cube, turned on its point, which eliminated the cost of paying for complex cuts.
- Using aluminum angles for the construction of the cube
- Using copper foil for the handprints and conductive material for capacitive touch sensors

Development

Since none of the team members have a background in software development, I brought in my co-workers to serve as consultants/coaches, to help with the system architecture. This allowed team members to focus on developing smaller, more manageable software programs, which control sections of the system such as lights, touch sensors, and proximity detection. We used the consultants to help with sound, and the development of a message bus to facilitate communication between the two structures.

Documentation

To document the process we brought in a DePaul film student to film us, and cut a 3 minute clip that describes the project. We also setup a WordPress blog, so each team member can publish weekly blog posts.

IRB Approval

Several team members have expressed interest in turning the data collected from the Ice-Burg project into a research paper. Therefore we have looked into the process of getting IRB approval so that we can conduct our research.

Site Location

We have reached out various DePaul personnel to assist in finding a location to display Ice-Burg. We have some promising locations, but have not locked down a location as of yet.

Next Steps

I will begin fabrication of the final production cubes, and attach them to the bases.

Personal Lessons Learned

Personally, the greatest lessons I have learned mainly deal with soft skills, and dealing with different personality types in a constructive manner. This project is not like any I have encountered in the “real world”, because not only are we performing roles in the production of Ice-Burg, but we are all Stakeholders. Therefore, we all have equal weight, and personal ownership in the project, so all major decisions require a consensus. It is a fine line that we walk between our own egos, and sense of ownership over various aspects of the project, and that of what’s best for the completion of the project. I personally have had to exercise my communication skills in the resolution of serious conflicts, which could have potentially derailed the project. Knowing when to relent, and when to assert yourself in conveying your ideas is very, very difficult. I know for a fact that these are crucial skills for navigating the workplace. I don’t think students in a classroom can truly experience the level of interpersonal communication that the Ice-Burg project has offered us. The stakes are higher than simply trying to earn an A in a group project, because we won a grant and real money, as well as our pride, is at stake. I am proud of the way that I handled certain situations during this project, and realize the importance of my growth in these areas.

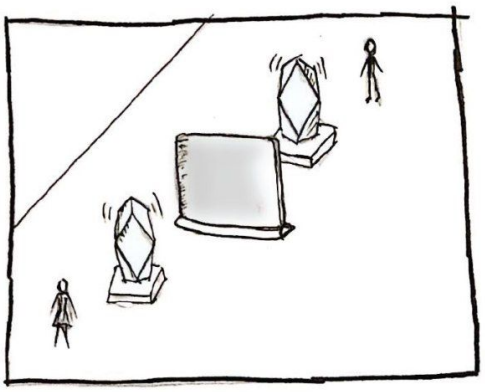
The second greatest lesson I learned is that no project with this level of ambition gets done without the help of many people. We have had great support from people from all walks of life. From DePaul students outside our major, whom we had never met before, to DePaul faculty who are in charge of various departments, as well as our personal contacts outside of DePaul. It has been eye opening, and inspiring to see the level of support and helping hands we have received. We could not have gotten this far without it. And last, but not least, I would be remiss not to acknowledge that we wouldn’t have even taken on this project had it not been for the encouragement, inspiration and efforts of Professor Hank Streeter.

What I Would Do Differently

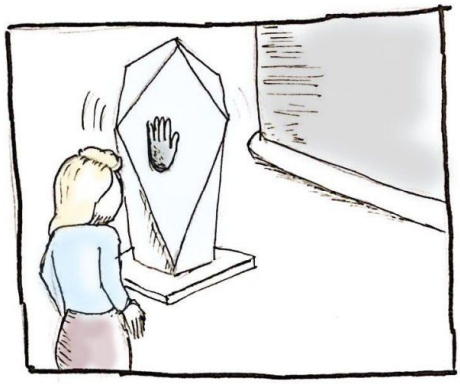
If I could do it again, I would really try to worry less. Worrying does not help in getting things done, and in actuality is quite a detriment. Not to mention the toll it takes on your health. Yes, there is grant money at stake, and we all want to make Ice-Burg a success, but it is also a learning experience. Not a commissioned work. The next time around, I will try my best to treat it as such.

Appendix

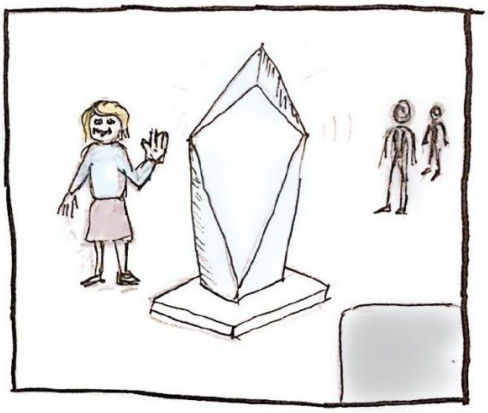
Storyboard



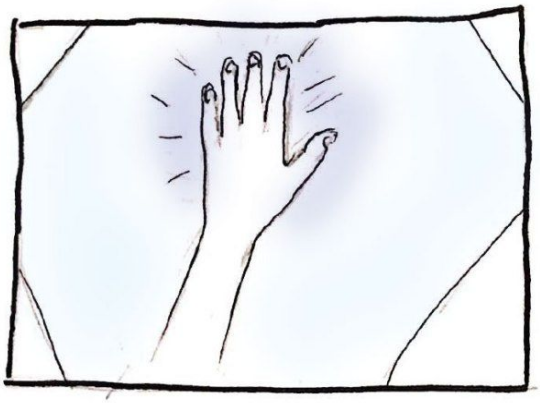
1. Indoor public space



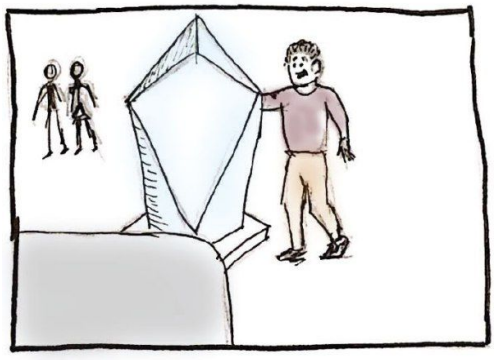
2. Structure emits light pulse and sound



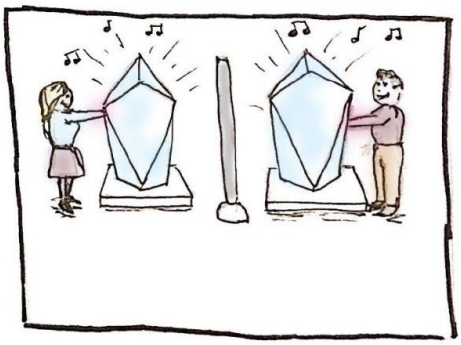
3. Structure is inviting touch



4. Hand print changes color when touched



5. Corresponding hand print changes color



6. Music is made when simultaneously touched

Ideation


finalize project plan (timeline)
Storyboard
Citations
fabrication (+ project plan implications & tech)
Name
Finalize budget (contingency? additional)

Prototyping & Fabrication