The Sentient Street

Henry Armero Memorial Award Project Proposal

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ABSTRACT

This project is the construction of “The Sentient Street” — a public art installation in which all objects in a public space are given a personality and interact with the viewers/passersby by engaging in conversation with them. “The Sentient Street” is an installation that will use the technology of intelligent environments to bring joy and serendipity to the public of Pittsburgh. It will engage with the community by interacting with those who happen upon it, disguising itself as a normal, unaltered public space, until the objects within the space detect the presence of an individual. When the presence of an individual is detected the objects will begin conversing with the individual and each other, immersing the viewer in a small community of animate-inanimate objects. The goal of this project is to bring joy and wonder to the community as well as use our obsession with technology for playfulness and fun rather than for efficiency.

BACKGROUND

Imagine meandering through a side-street in downtown Pittsburgh. Upon entering the street you are verbally greeted by the shrub to the right of the garage. Further along you are accosted by an existential road sign contemplating the delicate balance between life and death. Throughout your journey down this street you engage with many beings of the same nature: inanimate objects made animate, ready to envelop the unsuspecting viewer in a fully interactive, immersive experience.

The goal for this project is to explore immersive and intelligent environments in a playful way that is more oriented toward emotional fulfillment rather than efficiency. As a student in the Human-Computer Interaction department here at Carnegie Mellon, I am exposed to much discussion about the user interface, the intelligent environment, and how an environment can interact with its user in order to make the user’s experience within such an environment ‘optimal.’ Intelligent environments are designed to determine what environments are most conducive to a user’s work-related habits.

Although I see the benefit of such an approach, I cannot help but see the power of intelligent environments outside the realm of the cold, sleek world of product

development and user experience. Intelligent environments can also be used more playfully, with or without a dependency on technology—an overuse of which, from my experience, sometimes serves to isolate or intimidate the viewers and take away from the merriment of an experience. From such observation as both a student of the Human-Computer Interaction department and the Fine Art department, I intend to take the term “intelligent environment” very literally, and instill consciousness in inanimate objects so as to create a small micro-society of formerly inanimate, interactive beings.

The goal of most of my art making is to deliver a specific feeling to an audience. For this project I would like to deliver playfulness to the people of Pittsburgh. It is important that in light of all this technological advancement and the ever-quickening pace of our world, we take a step back and recognize the tools we have at our disposal for happiness, fun, and community-building.

The project will serve as a bridge between my fine art practice and my technological background in computer science. The space will be selected and curated with the help of a mentor, Jon Rubin, who will oversee this project as part of an independent study next semester.

In terms of functionality, some of the objects will be controlled by microcontrollers (most likely Arduinos) wirelessly communicating with speakers installed and hidden within the objects. These objects will be equipped with speech-recognition and, most likely, custom-altered basic open-source machine-learning software for natural language processing that can parse and ‘read’ an english sentence and produce a semi-logical response (just like the iPhone’s Serie). Other inanimate objects will be supplied with speakers hooked up to cheap cell phones where real people from remote locations will be listening to and responding to viewers who speak to their object. I intend for the latter of these two methods to be the dominant method for bringing these objects to life.

The sources of inspiration for this project are many, including the growing demand for intelligent environments, a topic especially prevalent in the department of HCI (Human-Computer Interaction). Beyond the user interface, and the user experience however, lies our innate and complicated desire to produce machines in a human’s image. The production and development of humanoid robots, 3D-modeled avatars, and virtual reality are all technological representations of ourselves. Much of the technology developed in these areas breaches the realm of the uncanny. With this project, I too, will be referencing and testing the limits of the uncanny valley, giving the

objects human personas.

IMPACT

The impact this project will have on the CMU community is one of joy and play. The CMU community will be encouraged to visit the and interact with the installation. In addition, due to the versatility of this project and its goals, installing it on CMU campus is also a viable option, one that will be explored and discussed during my independent study with Jon Rubin.

This project will be the largest project I've embarked on thus far that brings together the 3 genres in my work: psychological affect, community building, and technology. I hope to start the project here in Pittsburgh and perfect its execution so that it can become a nomadic artwork—one that brings amusement to other cities as well.

TIMELINE

I have broken the Timeline into 5 parts:

1.) Developing idea and scouting space (December - February):

For the first month or so of the project I will be scouting locations in Pittsburgh and formulating contextual goals specific to the locations explored.

2.) Obtaining permit (February - April):

Obtaining a permit will be an ongoing process that I will work on while developing other parts of the project. I will contact the county first and foremost. I will also go to the FMS building on campus and inquire about receiving permission for installing a smaller version of the project on campus for my senior show.

3.) Programming, testing, building miniature iterations (February - May):

Constructing smaller iterations of the project will be the crux of the work. During this time I will be ordering and testing equipment. I will also be

exploring algorithms of machine learning and natural language processing.

4.) Installing (May):

I predict that installing will last throughout the month of May. The installation will be very involved, requiring an incredible amount of troubleshooting technical difficulties, not to mention scheduling and practicing the routines of those who agree to participate.

5.) Deinstalling (June):

Finally, the deinstallation will occur in June. I have designed this timeline such that if any of the processes take longer than expected, I will have some extra time (July and August) to complete the project.

BUDGET

The budget will consist of:

Microcontrollers:

Arduinos are about $22 each depending on the model. In order to control a public space, several of these will be needed.

Cellphones:

Cheap phones can be purchased from Best Buy for around $10. I would like the majority of the objects to be brought to life by hooking up these cellphones to speakers and having people engage with their viewer remotely.

Speakers:

Micro-controlled speakers are purchasable through Adafruit Industries and range from around $2.00 - $10.00 depending on their amplitude and volume.

Permits:

Acquiring a Special Event Permit from the city of Pittsburgh requires paying a fee that is determined depending on the nature of the event and the city's evaluation of it. This also includes insurance. I predict that most of the funding will be put toward this endeavor.