

Idea #1: Secret Garden

Interaction

There are two parts to the secret garden - daytime and nighttime. The daytime garden is a community herb garden planted along the windy path. Faucets and watering cans will be placed near the beginning and end of the path, so that people just walking through can water the plants. The night time garden is virtual. Animations of "plants that only come out at night" will occupy the hill. These virtual plants can be a little strange and a little surreal. People can water these virtual plans in three ways - shine a flashlight at the plant, visit a website or iPhone app. During the day, the virtual plants are invisible, but those with the iPhone app can see them through augmented reality.

Audience

Those passing through can water the daytime plants as they walk on the path. Those who use it as a regular quiet getaway can definitely do the same. The nighttime virtual garden are meant for those who stick around a little longer or only pass through at night.

Research

Observed people working in and using the space. When asked about why they were in it, they mentioned a liking of the peace and quiet the space offered (e.g., when compared to the hustle and bustle of the cut).

The 2 biggest questions that need urgent answers are:

How to get people to keep taking care of the community garden so it doesn't die?

How to introduce, if needed, the virtual nighttime garden to those who only use the space during daylight?

Site

The hill and the windy path at the bottom of hill.

Needs

Aesthetics

The greenness of the community garden beautifies the landscape. It will be a sharp contrast to the brownness that engulfs the site right now.

Social

People can connect through the community garden, wondering who has been taking care of their plant for them. Perhaps people who regularly walk by but don't interact will stop to chat while taking care of the plants.

Nature

Gardening is one of the most relaxing pastimes. Encouraging people to slow down a bit and touch nature will help destress them. The virtual garden breathes a different layer of "life" to gardening, since gardening is normally an activity that can only be done at night. As Peter suggested, perhaps the basil plant turns into a fire-breathing carnivorous plant in its dreams?

Secret Garden (cont'd)

Concept Validation

Buy a few small potted plants and herbs and place them along the path. Place thirst indicators in the pots of each plant. Place watering cans nearby and see which plants get watered and repeated visits.

Draw sketches of the nighttime garden and ask users about them. How would they try to interact with it? Are the methods we thought of (flashlight, internet, iPhone app) enough?

Feasibility

A community garden is easy to implement but since plants are seasonal, we need to be mindful of the types of plants used. An herb garden is more useful but a flower garden is pleasing to the eye. The virtual night garden can be implemented with individual projections on individual plants. Light sensors can be used for flash-light sensing. Hooking up the network of virtual plants to the internet is not difficult either.





Idea #2: Interactive Zen Waterfall

Interaction

Water falls slowly down the concrete columns supporting Gates. While mainly providing a soothing backdrop to the lawn area, the pattern of the falling water changes depending on the positioning of people throughout the area. Sitting in different areas activates pressure sensors which in turn cause stone blocks to protrude from the support columns, changing the pattern of the falling water. By exploring more of the lawn, people can discover which areas activate which stones.

Audience

Anyone who passes by or stays in the lawn area. Those passing by would likely not activate any of the sensors, but would benefit from the aesthetic beauty of the dynamic patterns of the waterfall. People sitting on the lawn would also benefit from the aesthetics, and furthermore gain enjoyment from being “rewarded” for exploring and using the space.

Site

The concrete support columns for the parts of Gates that jut out over the lawn.

Research

Observed people working in and using the space. When asked about why they were in the space, they mentioned a liking of the peace and quiet the space offered (e.g., when compared to the hustle and bustle of the cut).

Needs

Aesthetics

The waterfall enhances the sanctuarial feeling of the Gates lawn. This is an important aspect to focus on, as research shows users come to the space for its quiet and serene nature.

Social

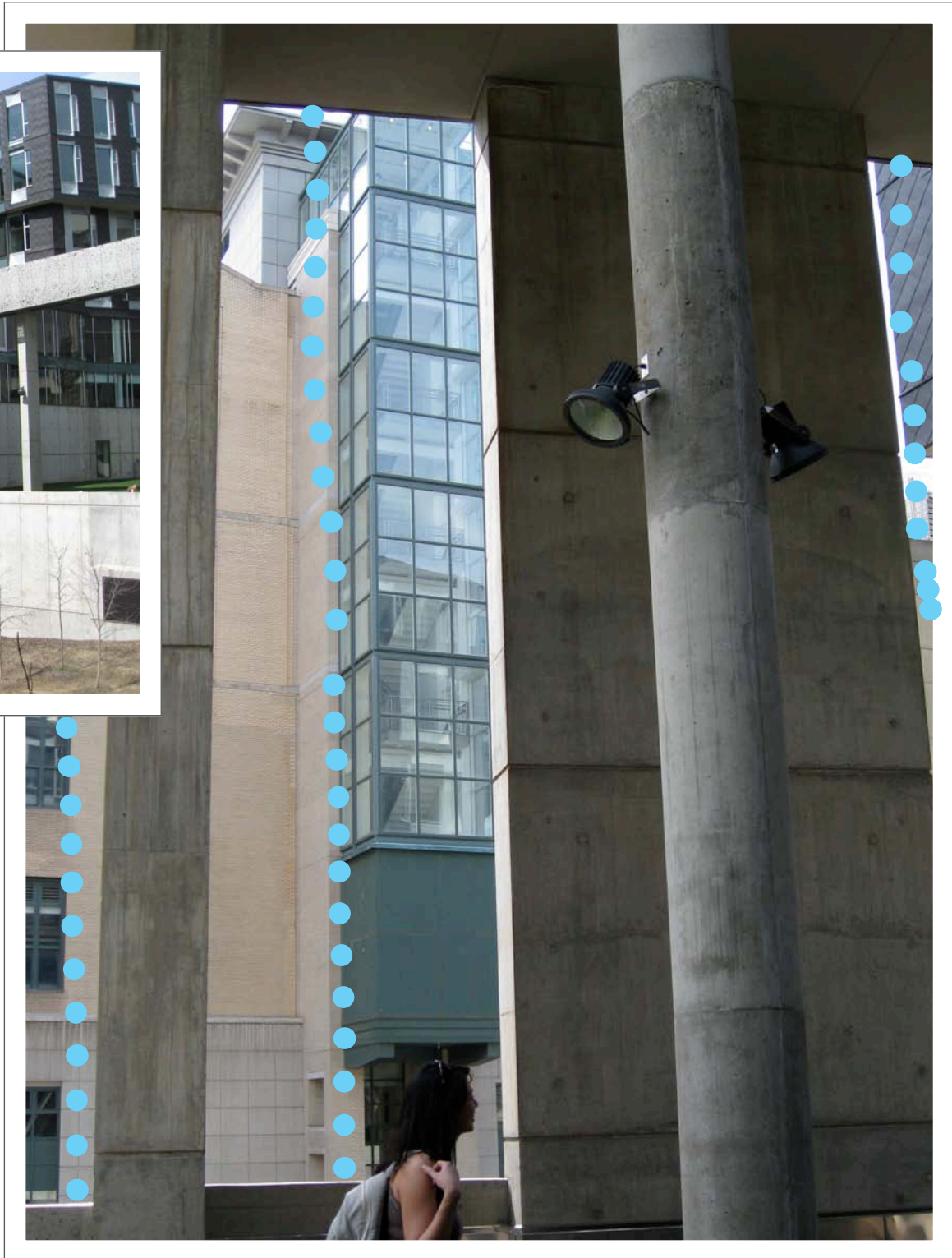
Potentially, sensors could be placed in such a way that only certain configurations of groups would activate them, encouraging people to experiment in the space with their peers.

Concept Validation

A detailed description and a few supporting images would easily explain the idea. From there, users could be asked if they would find the waterfall obtrusive, or if they could imagine themselves exploring the space to discover how each stone block was activated.

Feasibility

Water is in abundance, and the water-return systems necessary for an installation like this are commonplace. Similarly, installing pressure sensors around the space would be relatively trivial. The extruding stone blocks, though, might be more difficult to install, as they would need to be incorporated into the support structure without compromising that structure. An issue that needs to be explored is the viewing angles. Further research in the space would illuminate the optimal views of the waterfall.





Idea #3: Power and Shade

Interaction

The powerUp mushrooms are movable along widely spaced tracks embedded in the lawn. In addition to providing a moveable power source for the CMU community, the mushroom cap can also be used to provide shade. The mushrooms can detect when it's users are squinting and offer the option to provide shade by flashing a discrete message. If user responds affirmatively, the mushroom cap will be raised from its stem, and extend to cover a wider perimeter. After the user sets the angle of shade desired using gesture, the mushroom cap will rotate with the movement of the sun to continue providing shade.

Audience

The audience is people who want to enjoy being outside on a sunny day while they still have to do some work or other (mostly) independent activity. They may get together with a small group of people but they are interested in being away from noise and crowds.

Research

We spoke to a couple of students sitting on a blanket out on the lawn with their books, laptops and coffee. They mentioned that they wanted to be outside since it was a nice day that day, they needed to study and that location had power outlets and was close to coffee, both of which they needed to study. They also mentioned that the spot was relatively undiscovered, unlike a similar grassy area outside their residence where they might be hit by frisbees. They also enjoyed the relative thickness of the grass compared to other areas on campus.

Site

The site is the grassy areas just outside the 3rd floor café at the Gates-Hillman center and under the Randy Pausch bridge.

Needs

Users want to work outside but need to have access to power and see their screens. They also need a relatively quiet and secluded area.

Functional

The powerUp mushrooms provide access to power for laptop users and shade to prevent glare so that users can work effectively while enjoying the sun.

By enhancing certain amenities that users already seek and keeping its more unique features unadvertised except to users under specific conditions, regular users can enjoy the notion of being in a "secret garden"

Social

The size of the mushroom shades is ideally suited for individuals or pairs of people to prevent large crowds from taking over.

Emotional

Fun yet functional

Aesthetics

The colorful mushroom forms are evocative of the video game SuperMarioBrothers and are a nod to computer scientists. It is also intentionally organic to keep the area from feeling cold and sterile

Power and Shade (cont'd)

Concept Validation

The concept can be validated by showing current users a series of sketches about how the mushroom works and capturing their reaction and feedback.

Feasibility

Most of the technology that is required exists in some form: face recognition, physical movement of shade based on gesture or light.





Idea #4: LED Guide lights and LED blankets

Interaction

LED lights guide the user as to where to explore at night. We foresee the lights as a direction for a particular experience leading the people around the hill. The lights can be designed to be motion activated so they only see a short amount of the path and would be curious to explore more.

LED outlined blankets get charged during the day when people use it under the sunlight. During the night, the LED is charged and is turned on to illuminate the sitting area and visually pleasing the audience.

Audience

The audience is people who come to the hill area next to gates and would like to feel secluded and be able to not feel overwhelmed by crowds.

Site

The site is the hill and grassy lawn area behind gates cafe, which most people don't notice.

Research

We explored the location behind gates café and found very few groups of people working on the grassy lawn. The people were working next to the Pausch Bridge supporting concrete slabs where there were electric outlets to plug their laptops in and work. When we asked about why they liked to hang around here, they mentioned they like the seclusion and the quietness, sort of like a secret garden.

Needs

The LED-based idea satisfies mostly aesthetics and functional aspects. Any social playful aspects of creating visual patterns with the LED blankets are due to creating something visually pleasing.

Functional

The LED guide lights help illuminate the pathway around the hill area and introduce people to explore the area if they have never been or noticed this secluded location. The LED blankets allow people to stay clean by not laying on the grass or dirt.

Social

The LED Guide lights help people explore areas as a group or individually.

Emotional

None.

Aesthetics

The LED-based ideas highlight the theme of the Pausch Bridge. The LED guide lights sets an attractive pathway, which highlights the spaces around the hill.

People can arrange the LED blankets by using it in as patterns that highlight the hill.

Needs

LED Guide lights and LED blankets (cont'd)

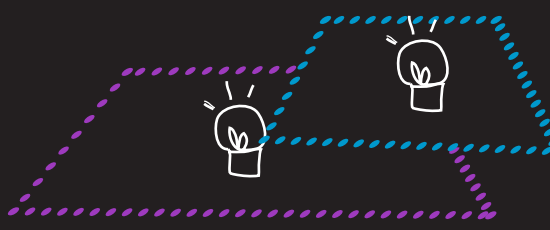
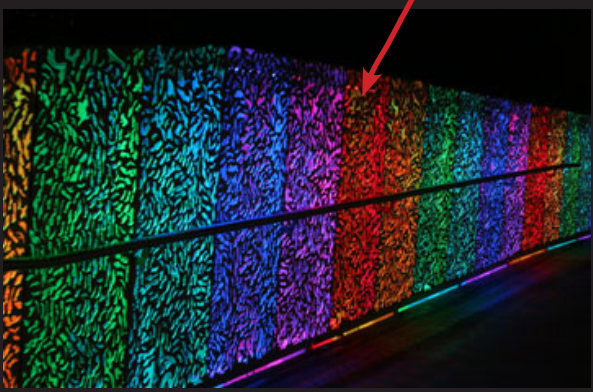
Concept Validation

The LED-based concepts can be validated by giving the users a detailed description also showing supporting sketches. We can also ask their opinions of whether the idea will have a positive effect or negative (such as distracting, gaudy, etc.).

Feasibility

The LED guide lights and blanket are very feasible to implement since LED technology is easy to implement with motion sensors. The LED blankets with solar panels are also easy to implement since both of these technologies are well explored in other applications and widely used.





Idea #5: Sound Cancellation

Interaction

Active noise cancelling speakers are located throughout the space. Any unwanted noise would be detected by a network of microphones surrounding the space and be cancelled out by the noise cancellation speakers. Furthermore, people can selectively pick out sounds to be removed from their personal environment by using interactive control panels embedded on the grass fields.

Audience

Anyone who passes by or stays in the lawn area. Those passing by would likely not activate any of the sensors, but would benefit from the noise-free environment. People sitting on the lawn would also benefit from the serenity, and furthermore gain enjoyment from muting personal annoyances.

Site

The site is the grassy areas just outside the 3rd floor café at the Gates-Hillman center and under the Randy Pausch bridge.

Research

Observed people working in and using the space. When asked about why they were in the space, they mentioned a liking of the peace and quiet the space offered (e.g., when compared to the hustle and bustle of the cut).

Needs

Functional

The speakers actively cancel out any noise in the environment, making group collaborations more feasible and enjoyable.

Social

In addition to personal soundproof spaces, the speakers can also be used to create group spaces.

Emotional

None

Aesthetics

The noise removal enhances the sanctuarial feeling of the Gates lawn. This is an important aspect to focus on, as research shows users come to the space for its quiet and serene nature.

Concept Validation

A detailed description and a few supporting images would easily explain the idea. From there, users could be asked if they would find the noise cancellation useful, and at what granularity (public vs. group vs. individual).

Feasibility

The technology to selectively remove patterns from waveforms is well-established in audio processing, and it is possible to manipulate sound waves in the environment. However, according to Wikipedia's article on active noise control (http://en.wikipedia.org/wiki/Active_noise_control), noise cancellation of 3-dimensional zone requires many microphones and speakers, making it less cost-effective. In addition, there are many interferences from both the space and the people residing in it which make noise cancellation much more difficult.

