INNER PERSPECTIVE

Jonathan Ganz

Elizabeth Parent

https://github.com/lizparent/CART360/tree/master/FinalAssignment

Elements and Themes

Our project is meant to be displayed in the environment of a person's home. There will be 3-4 panels on the walls of a room, most likely the bedroom, with white and red LEDs in them. The white LEDs will fade in and out from bottom to top as the person wearing the device breathes in and out. We will accomplish this by using a carbon dioxide detector. We will also use a heart monitor to get the person's pulse which will be displayed using the red LEDs. The device to be worn will be a small vibration detector on the neck attached by a wire to the carbon dioxide detector in front of their mouth like a headset microphone. It will transmit the data via Bluetooth to keep the design compact. At night, the sensors will pick up a slower breathing and heart rate. When it detects this, it will turn off the lights in the room and begin a timer to measure how much sleep the wearer gets. It will output a data points on a graph every morning when the person wakes up, showing the sleep time and wakeup time for that night. Our project is made for people who struggle with stress and for those who have a hard time relaxing and/or sleeping. The headset wearable will be very small and easy to wear without disrupting the user's day.

We want the user of our project to feel connected to the lights glowing on their walls as they immediately react to the rhythm of the user's breathing. We aim to make the user reflect on their emotional state, to try to understand themselves better, and to become healthier by learning about their sleep and stress levels and improving them. Often, people do not realize how stressed they are, so the fading and pulsing lights will be a good visual representation for them. The user will get to know the rhythm of their natural breathing and resting heart rate, therefore it will be easy to detect when they are not feeling normal. They will be able to focus on their breathing without any effort, and be calmed by the lights. They will also be able to track their sleep and aim for a better sleep schedule. By observing their sleep patterns, the user will become more aware of themselves through our project. We also hope that our project will make the user reflect on possible causes for their stress. They may also be motivated to create a space they feel completely comfortable in, by experimenting with factors which calm their heart and breathing. On top of learning more about their stress and sleep, our aim is for the user to begin associating calmness with the glowing lights, making it easier for them to de-stress over time.

I believe that our project is more than just a way to measure or track psychological data. In addition, it will truly help the user by giving them visual feedback on certain aspects of their

body's wellbeing, which in turn will encourage them to get into a better emotional state of mind. Our project is a tool and an art piece. It is a way for an individual to become more connected and understanding of themselves, using familiarity as comfort. It will motivate the user to become healthier by relaxing often and tracking their sleep schedules. Many students face those two major problems: lack of sleep and stress or anxiety. This project will challenge the user to get a level sleep chart and to improve their daily habits keeping their mental state in mind. We want the user to begin to associate the environment in which the project is installed with the feeling of calmness and relaxation. In addition, whenever the user walks by the walls with the mounted LED boards, they will see the rising and falling of their breathing, which will motivate them to stop for a minute to become aware and to reflect on how they are feeling in the moment.

The message we are trying to send with this project is that each user is in control of themselves and their emotional wellbeing. With an environment they can relax in and data being returned to them, an individual can pinpoint what causes them stress and reduce those factors as much as possible for them. Our project is a very personal piece and people's experience with it will vary, but something everybody will be able to take from it is the sense of control. They will be able to have control over the lighting in their environment which will have an effect on their feelings at the same time. In order for the control to feel absolute, the responsiveness and timing will be implemented very accurately. While many other projects force the feelings onto the user or give them a choice in setting, ours allows the setting and mood to evolve from the user's own body.

Similar Projects

The *Thync* is a small wearable tech that as per advertisement alters your mood through bioelectronics signals, allowing you to modify your current mood or emotion to provoke calm or sleep easily. While this certainly must monitor the emotional state of the person using their vital signs, rather than create an environment that is allowing for a calm state of mind or allowing yourself to shape your environment into one that you want, it allegedly overrides your own body's signals to provoke the setting that you choose. While very useful to force your body into a specific state, it seems very jarring to have a machine override the signals your body produces, and the dangers of having such a machine capable of overriding your own body are very clear.

Rather than try to hijack the signals your body outputs and replace them with settings that you choose, our project would aim to project your vitals and other stats in an emotive and ambient setting, allowing yourself to get an external replication of interior function and gauge yourself using this new perspective. This would not only feel more "natural" to many, but is by far less intrusive and visibly effective. While it may not be as effective of enforcing a certain mood or state of mind as the *Thync*, our project would rather aim to fluidly induce this mood and allow the person to not only get a read on how their body is reacting to their state of mind, but also allow them to control their environment with the same mastery that they have over their own bodies.

Pulse Park was an installation that involved an installation of 200 spotlights arranged in a flattened circle inside a park. Two metal bars were placed in the front, and passerby's and park-goers were enticed to grab them. Upon grabbing them, their pulse would begin to be picked up, and all 200 spotlights would flare and turn off following the rhythm of their heart. Upon letting go, they would find that their heartbeat rhythm would be mimicked by one of the spotlights, with this pattern continuing and slowly filling each of the 200 spotlights. The resulting lightshow would be the combined effort and unique signal from 200 random participants, and not only allowed the people to actively be a part of the installation, but also provided an important context of strangers around you and yourself translated into a universal-yet-unique signal. Our project, while similar, diverges on many points from this one. Aside from *Pulse Park* being a public exhibit, it does indeed monitor an individual's vital signals to then apply it to the environment much like our project, however instead of allowing one person to shape and see themselves in the environment, they become a facet of it, another number in the running average of people participating. Our project not only aim to be more personal, but also more tailored to the individual, allowing them both control of the environment and context of their bodies within it. This new perspective will be different from *Pulse Park*'s in that it is very much the revelation of your body and mind's current state and how that can be changed to in turn influence your environment.

LumiFi is a smart lighting environment and app that allows you to directly control the ambient lighting in your own home to suit your current needs. After specific lighting elements are set up around your home, you are able to control them through an app on your phone.

Similarly to *Thync*, it gives you discrete settings and pre-sets based on common moods, but in this case rather than directly influencing your mood it controls the light output and wavelength of wireless LED's around your house, allowing you to tailor how intense or colorful you want your home's lighting to be. In this case it is a much more subtle enhancement to mood, allowing your mood to gradually form around the setting you choose rather than brute force it. While this is a much more natural progression, it is non-the-less simply a series of pre-sets that the LED's fill out, giving it very little in terms of reactivity and in fact only functioning when the user actively sets them. While our project certainly aims to create ambient lighting and to induce or expose particular moods, we hope to push past button pre-sets. Not only will we allow the environment to shape your mood and mindset, but we will allow you to control your environment by extension through control of yourself.

Team Roles

Jonathan Ganz: (Primary Arduino integration, secondary building/design, inspiration research, documentation, materials)

Elizabeth Parent: (Primary building/design, secondary Arduino integration, elements and themes, documentation, storyboard)

Relevant Links

https://www.dfrobot.com/product-399.html

http://www.ohnitsch.net/2015/03/18/measuring-heart-rate-with-a-piezoelectric-vibration-sensor/

https://www.adafruit.com/?q=vibration

https://www.adafruit.com/product/374

https://www.atlasobscura.com/articles/heart-pulse-art-madison-square-park

https://www.cnbc.com/2015/07/31/wearables-that-can-read-your-mind-and-mood.html