Anxious Machine

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https://github.com/ElBarbs/CART360-ProjectProposal

Initial Proposal

We had this idea of having an installation that has social anxiety and exteriorizes it towards its visitors.

At first, we thought of having a robot as our artefact. It would have moved around the room and changed its behaviours based on the number of visitors. For example, it would have tried to find a spot with the less number of people if it gets very anxious. We wanted the tempo of the music being played to increase and the colours of the lights displayed on the artefact to change based on its anxiety level.

We were playing to use a Kinect Azure to track the number of people and motion sensors on the artefact to help him navigate.
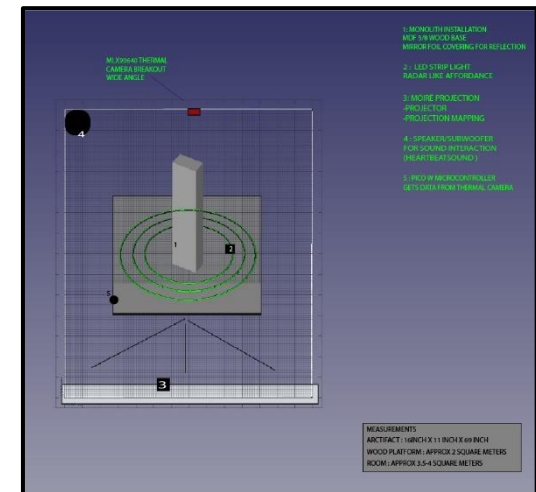
Prototype

We ended up going with a more static approach: having a monolith as the visual representation of the "Anxious Machine" and make the whole room react to the number of visitors in it.

The Kinect Azure being difficult to use, we switched to the MLX90640 thermal camera.

The monolith is covered in foil mirror paper so that the visitors see their reflections and understand the impact of their presence in the room.

We wanted 3 types of feedback:

- The 3 LED strip lights around the monolith (changes colour/speed).
- The heartbeat sound played on a subwoofer (accelerates).
- The Moiré patterns projected on one of the walls (which gets more intense).

Each type of feedback is supposed to make the visitors uncomfortable. The experience is different depending on how busy the exhibition gets.

Final Artefact

After getting feedback on our prototype, we decided to ditch the Moiré pattern and concentrate on the LEDs and the heartbeat sound.

We added the UNO R3 in the data workflow because the Pico WH didn't have enough SRAM to control the LEDs and its voltage output was limited to 3.3 V, making the LEDs very dim.

We reduced the number of LED strip lights to one because of time constraints.

We ended up putting the artefact at the back of the room to not restrain the vision of the thermal camera.

We had last-minute issues with changing the LED strip lights patterns and speed based on the anxiety level, so it stayed the same during the presentation.
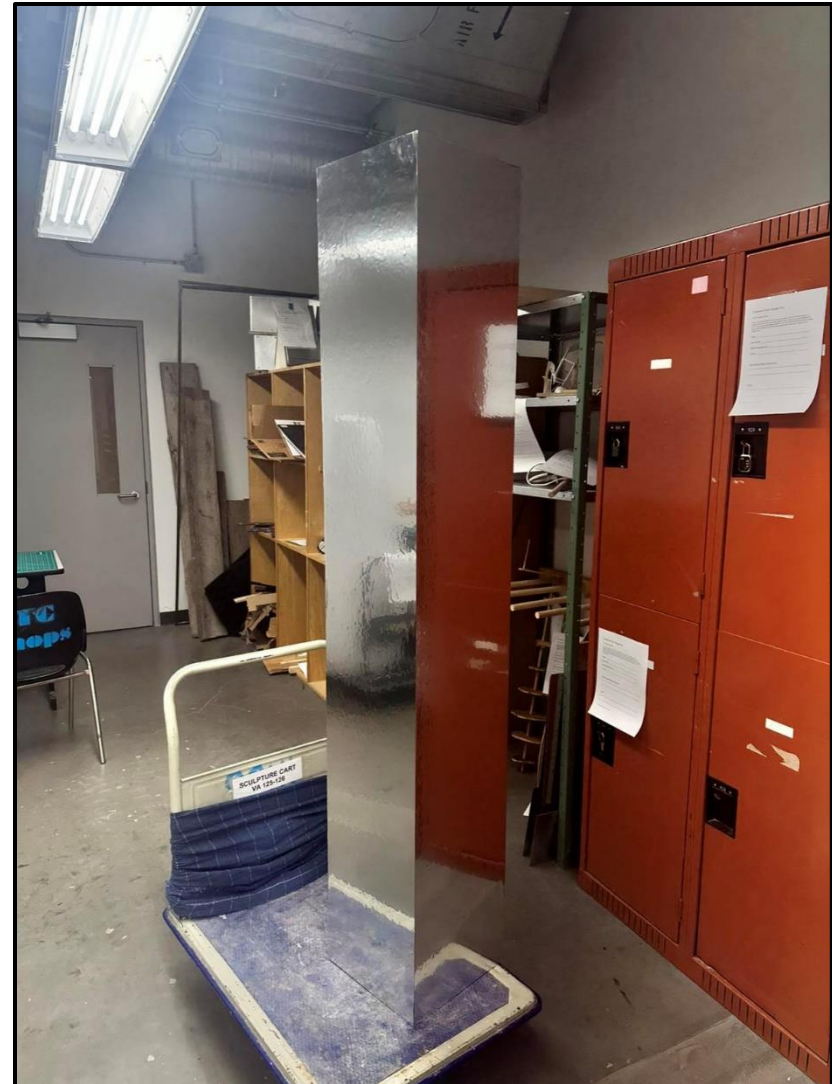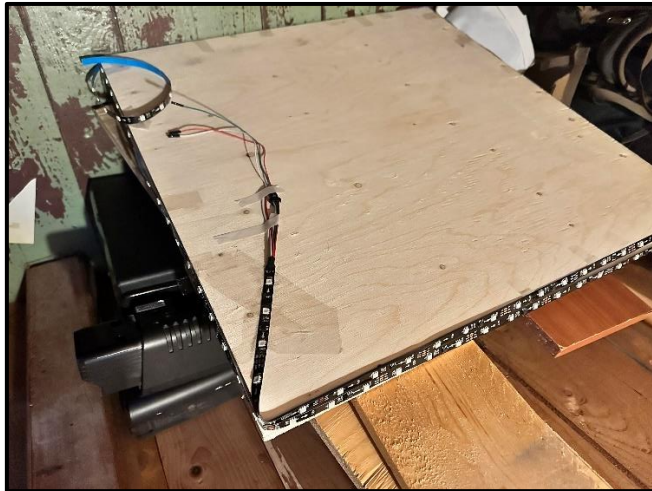
Observations

The room we reserve for our installation didn't have adjustable lighting, so it was very dark, and you couldn't see the monolith. It would have been nice to have LED strip lights leading up to the monolith to encourage visitors to get closer to it.

The batteries died during testing, so revisiting the code to do some optimization or getting a rechargeable lithium battery could be a solution to fix that.

The subwoofer we reserved from CDA wasn't powerful enough. If the volume was pushed too high, you could start hearing rattling. We need the subwoofer to transmit most of the vibration into the ground so that people can physically feel the heartbeat.

Future

Based on the feedback we got, we want to add a smoke machine and a stroboscope to make the experience even more intense, as if you're walking into a completely new universe by entering the installation room.

Bibliography

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