

CART360

ASSIGNMENT THEN
Project Proposal

Presented to
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relief

relief is a play on word between its English interpretation as a feeling of rest and its French meaning as the surface variations of an object or the ground. Concretely, it is a human scale scanner that retrieves the depth of the body of its user and returns a unique soundtrack evolving along the bumps and crevices of that self. It, therefore, translates deeply physical information into oscillating sound waves. In the meantime, it allows oneself to release and listen.

The project contains three (and potentially four) parts. The first part involves two rails on which a scanning module is moving back and forth using stepper motors controlled by an Arduino. A Kinect (or a similar infrared sensor) is attached to the scanning module in order to scan the full body of the user and trace a depth portrait of them. This part includes also the design of the structure that will support the user comfortably while integrating the rails system.

The second part takes care of the image processing of the arrays of pixels generated by the Kinect. It then creates a soundscape unique to the relief of the body. This soundscape will probably be generated using multiple voices and/or additive synthesis in order to sing each array of the image according to a pre-established algorithm. This happens in real time during the scan.

The third part consists of the output device for the generated audio signal. One idea would be to design a helmet that could transmit sound using transducers directly on the head bones of the user. Another idea would be to use the structure on which the user sits as a speaker instead.

The fourth part (if there is time) would be to design a seismograph that traces the relief of the body detected and prints it in real time on a piece of paper as a persistent result of the whole experience. As a remain of who the user is (or was). As a map of a territory.

GITHUB REPOSITORY

sambourgault GitHub > CART360 repository > ASSIGNMENTS > ASSIGNMENT_THEN
https://github.com/sambourgault/CART360/tree/master/ASSIGNMENTS/ASSIGNMENT_THEN

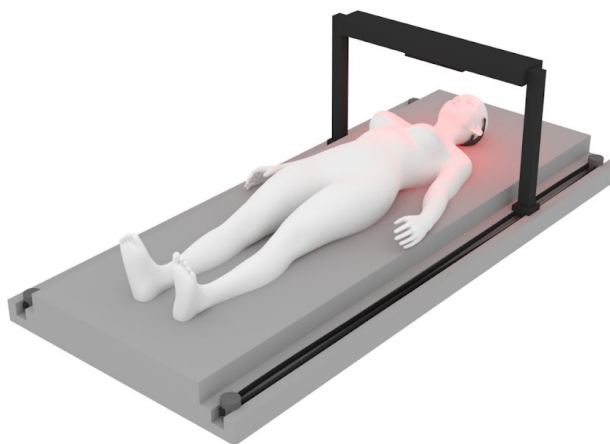
STORYBOARD

relief scans the body progressively and outputs an atmospheric soundtrack in the helmet wore by the user. The red light in the following frames is a visual representation of the infrared sensor scanning the body even though this phenomenon is invisible to the human eye. Note that the female 3D model is a free asset on TurboSquad.

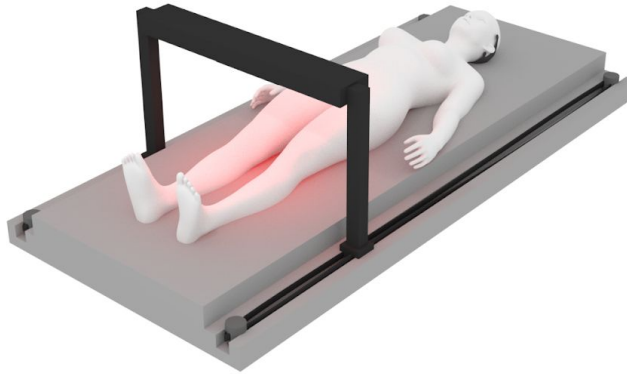
1. The scanning module begins at the top of the user's head.



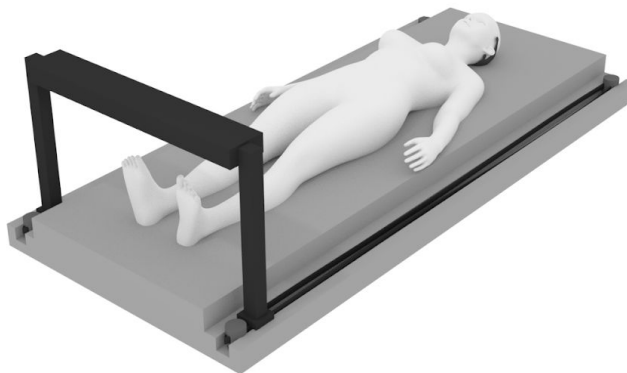
2. The scanning module starts to move along the rails. An Arduino is monitoring this gradual motion.



3. The scanning machine scans the entire body of the user.



4. The scanning machine stops at the end of the rail and goes back to the top for another user or another position to try.



5. The Kinect is installed in the scanning module and connected to a computer through cables (not shown here).



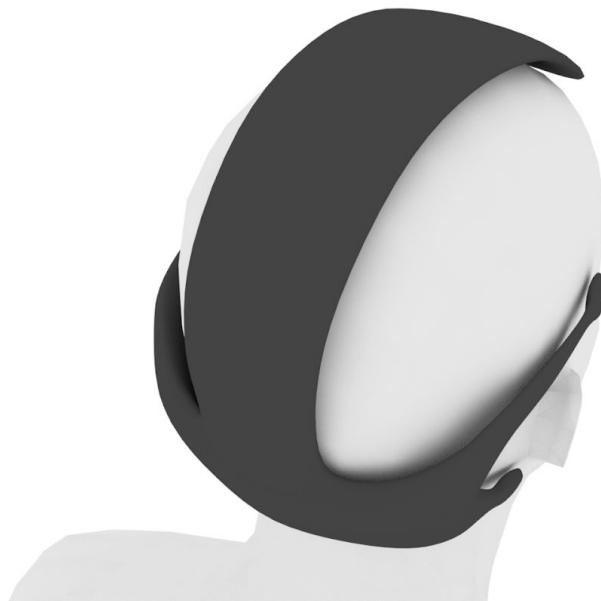
6. The scanning module is installed inside two rails in order to facilitate its movement.



7. The user wears a helmet connected via Wifi or cables to the Arduino and received the audio signal which is outputted using sound transducers located on the branches of the helmet.



8. Some questions remain in how the helmet will become a to a one fits all device, maybe some kind of elastics would be better than this futuristic looking object.



FOUR RESEARCH QUESTIONS

Think of a context and an environment where you would like to intervene. Where will you present your project? Who is it made for?

I would see this project presented in a space where there is a relatively small flow of people but still some movements. An exhibition context could work well, but it could also be set up in a moderately crowded public environment, where people pass and might stop: library, school, etc. This experiment will be made for people who want to rest and listen to the sound of their own self, so for people that have some time ahead.

Think about the kind of relationship you wish to foster between your users and the artifact or installation. How can you use your project to destabilize the users and make them reflect on themselves, their environment and society?

The body is a territory. It's vast and full of unique details. I wish people to reflect on the beauty of their own body and how their physicality can be represented in various interesting ways. It is important to me that people feel how the body as a medium can be translated into new forms. *relief* is, therefore, a sensual experiment to discover your own body.

Think about the notion of empowerment. Is your artifact really helping or challenging its users in any way or is it just another psychological prosthesis?

It allows the user to rest and contemplate their own self. It allows them to have a grasp at an audible representation of them self-based on their own body. In my opinion, this is a good way to empower oneself by shifting their attention from the standard visual idea that they (probably) have of their body to an alternative representation.

Think about something meaningful. What are you trying to tell us with your project?

relief tries to root the physicality of the body in an audible way rather than a standard visual one. It aims to the discovery of oneself away from the mirror and closer to what makes each body unique and worthy of attention. In a world full of images, *relief* draws away from the tendency of experiencing through the eyes only. It's also an attempt to say "hey, breath for a moment, listen and feel how your body resonates".

INSPIRATIONS

Nigredo - Marco Donnarumma

<https://marcodonnarumma.com/works/nigredo/>

Nigredo is an audiovisual piece presented to one individual at a time that explores the notion of fear of the bodies of others. It is an attempt to exhibit how the fears of other people are impossible to grasp and appear baseless within one subjectivity. The participant is attached to a chair and their head is blocked into a headband connected to an XTH Sense biosensor.

This sensor reads the heartbeat, the blood flow and the muscle contraction of the participant in real time during the experience. This data is then sent back to the user in the form of sound, light and intense vibrations. These vibrations aim to resonate through the whole body the participant and shock them physically and mentally. Through this intense stimulus, the user feels then external to their own body.

Momentum - Schnellebuntebilder & kling klang klong

<https://schnellebuntebilder.de/projects/momentum/>

Momentum is a synesthetic experiment developed through the collaboration of Schnellebuntebilder and kling klang klong. Using the Kinect to track body motion, this experiment generates sounds and visuals based on the movement. It visualizes the user's body as a large set of moving particles and each particle becomes a unique unit of sound. The physical body seems then to disintegrate within the digital space and the physical matter is lost. This piece uses skeleton and optical flow data to create a sense of time and displacement within space. This data is then sent to Max MSP in order to divide the input into distinctive signals and fed to Ableton Live to generate the sound. The whole experiment happens in real time, therefore, the user can experiment the generative output while dancing in front of the Kinect. This piece triggers the performance of its user, which can then be observed and enjoyed by others.

Ishin-Den-Shin - Yuri Suzuki

<http://yurisuzuki.com/design-studio/ishin-den-shin>

Ishin-Den-Shin is an interactive piece that explores intimacy through touch and sound. It allows one participant to record sound in a microphone and to become the speaker of their own recording using touch. Once the audio is recorded, the microphone plays it back through vibrations into the participant's body. The user can then touch the ears of other participants in order to output the audible signal. This signal can be heard by others through bone conduction in their jaw and cheekbones. Only the ones being touched by the participant can have access to the message which allows the physical sharing of secrets, whispers and other intimate communication. In *Ishin-Den-Shin*, the body of the participant becomes the actual medium for the audible message.

HOW IS *relief* DIFFERENT

In some sense, *relief* combines different elements from the three projects explored above. Similarly to *Nigredo* and *Momentum*, it uses the physical qualities of the body as a primary source of information that is then translated into an audible and visible output. Contrary to *Nigredo* though, *relief* doesn't try to shock the body and disconnect it from the participant's sensation center but rather to exhibit the beauty of emergence and to uncover new ways to understand and explore oneself. Also, unlike *Momentum*, *relief* strives to reveal small details of the participant's physiognomy rather than broad gestures as it is often the case with the

Kinect. In this sense, *relief* aims for a tender and introspective expression of the physicality of one's self. But the piece introduces also the notion of the body as a medium for sound waves to travel into similarly to *Ishin-Den-Shin*. But in *relief*, the participant's whole body becomes the instrument or the performative (but static) object; a performance that concentrates on the meaningfulness of that specific individual experience. It allows the participant to rest and reflect slowly on the physicality of their own body as a conversation within oneself, still accessible to others surrounding this gradual evolution though. This conversation within oneself is probably the element that makes *relief* different from the three other pieces, which externalize (*Momentum*, *Ishin-Den-Shin*) or dissociate (*Nigredo*) the user from their own body. *relief* aims toward an exchange between the physical and the audible self: the mass arrangement of the body feeds the self with perpetual and internal vibrations.