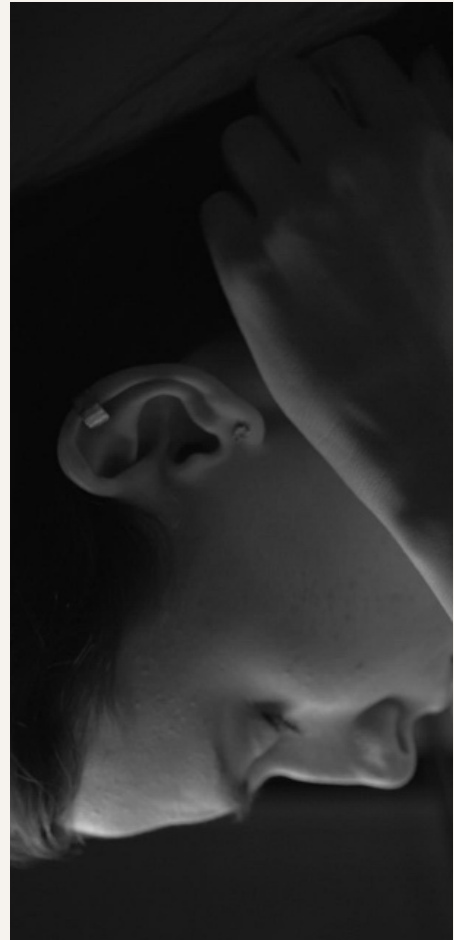




touch of the sound

Fabricademy Final Project
by Elena Rotaru

abstract



Musicians with hearing loss often use the vibration of their instrument, or the surface to which it is connected, to help them feel the sound that they create, so although they may not be able to hear, d/Deaf people can use the vibrations caused by musical sounds to help them 'listen' to music.

Deaf singers like Mandy Harvey, stand barefoot on the floor in order to feel these vibrations. Percussionist Evelyn Glennie is also particularly renowned for this and even Beethoven is said to have used the vibrations felt through his piano in his later years, when he was profoundly deaf. Deaf people attending a musical event people may use a balloon or a loudspeaker to feel vibrations caused by the performers.

Although they may not be able to hear, Deaf people can use the vibrations caused by musical sounds to help them 'listen' to music.

The skin has been considered as a conduit for information, where a vibrotactile display can be added by an array of vibration actuators, mostly applied to the skin on the back, abdomen, forehead, thigh, or the fingers.

The vibrotactile technology, will convert musical sounds that can be heard, into musical vibrations which are felt through the skin as vibrotactile feedback. It's an assistive technology which has been described as a form of "hearing through the skin".

acknowledgment

This project is carried out with the support of the Future Technologies Activity Project, funded by USAID and Sweden.

introduction

People with sensory impairment actually want to attend musical and sporting events just as anybody else does. The fact that you have a hearing impairment or sight loss doesn't mean that you don't want to be at the event. So it is important that venues and promoters recognise that the legal duties to make reasonable adjustments extend to them. It is an important way of making society more inclusive



Music is felt on a physical level by everyone. Getting a buzzing in our core when the bass is plucked or feeling the power of a drum that mimics our life force is universal. A hearing person can only try to imagine the sensations that are much more developed in a deaf person. One can try touching the ground and placing a back against walls at shows trying to see if they can tell the difference in rhythm and the type of instrument being played by the feelings that hum along the body when the music infiltrates the molecules in in the walls and in ourselves as well.

This is why it is thought that the application of vibrotactile technology to interactive performance by d/Deaf musicians has such great potential.

the problem

All over the world there are people with varying levels of hearing loss from mild to profound deafness, from children with glue ear to those who have lost hearing at a later stage in life.

Many deaf people play musical instruments and take part in music activities on a daily basis. It is a misconception that they cannot, or do not, participate in and enjoy music.

As with hearing young people, participating in music activities can have many benefits for children and young people who are d/Deaf. Music can help children increase their confidence, encourage learning about emotions and help develop fine motor skills.

my experience

In December, I had to choose the topic for my final project. During that time, I also had the opportunity to be a part of the organizing team for a hackathon on inclusion and accessibility hosted by Dreamups, which served as the starting point for the project I am presenting to you today.

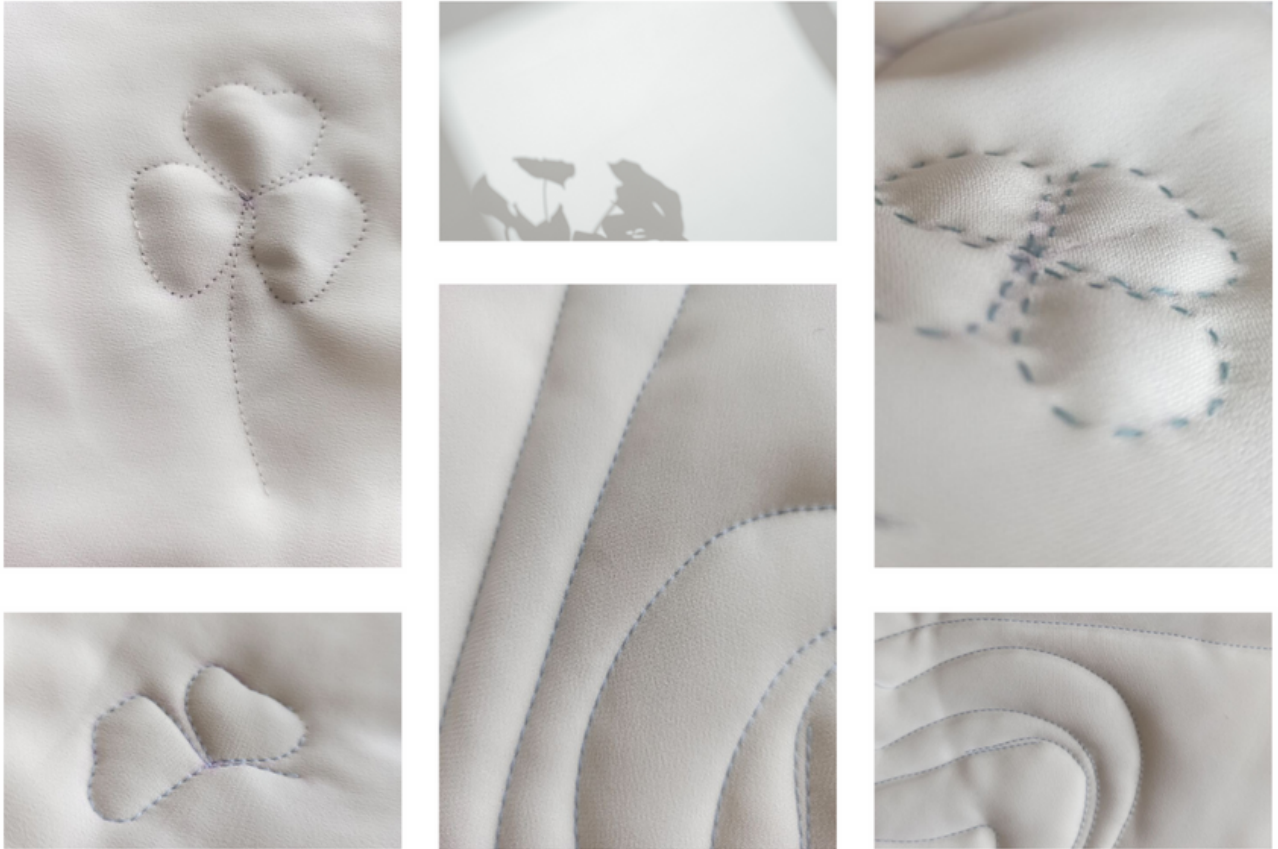
"Touch of the Sound" is designed to help people with hearing impairments to experience music by translating sounds into vibrations on the body.

It aims to create a world that considers everyone's needs.

materials

Qty	Description	Price	Link
12	Vibrating Mini Motor	1.95 \$	https://www.adafruit.com/product/1201
2	Conductive Thread	6.95 \$	https://www.adafruit.com/product/640
1	Flora Board	14.95 \$	https://www.adafruit.com/product/659
1	Power Source	6.95 \$	https://www.adafruit.com/product/3898
5	Circuit Playground Bluefruit	24.95 \$	https://www.adafruit.com/product/4333
10	Haptic Motor Controller	7.95 \$	https://www.adafruit.com/product/2305
10	Electret Microphone Amplifier	7.95 \$	https://www.adafruit.com/product/1713

experimenting

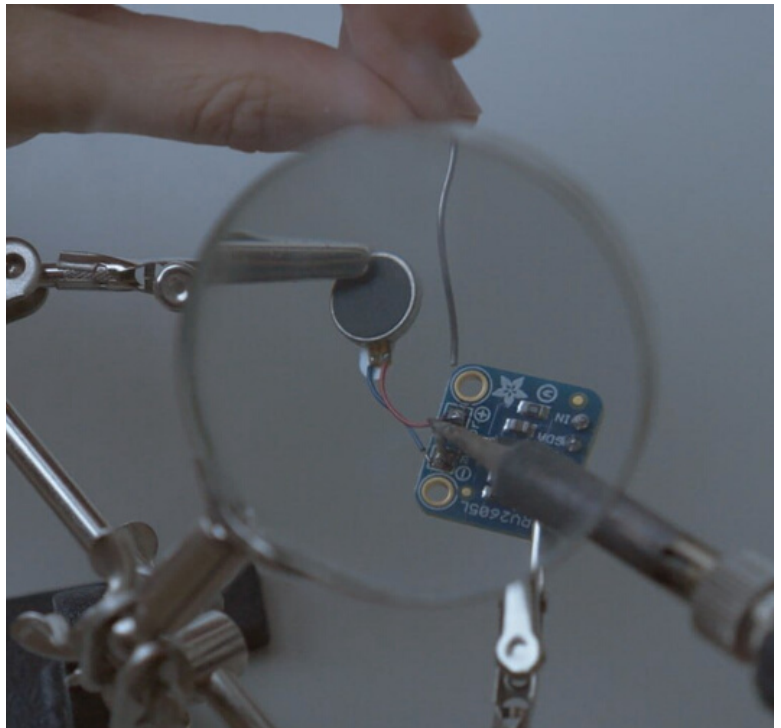
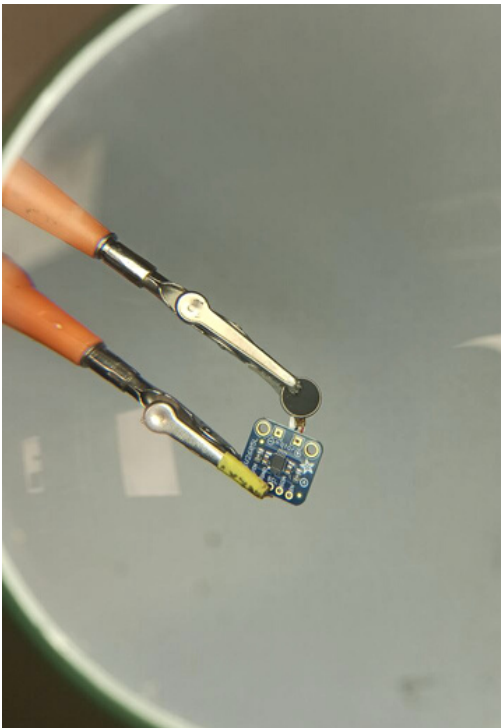


quilting - quilting is the term given to the process of joining a minimum of three layers of fabric together either through stitching manually using a needle and thread, or mechanically with a sewing machine or specialised longarm quilting system.

experimenting

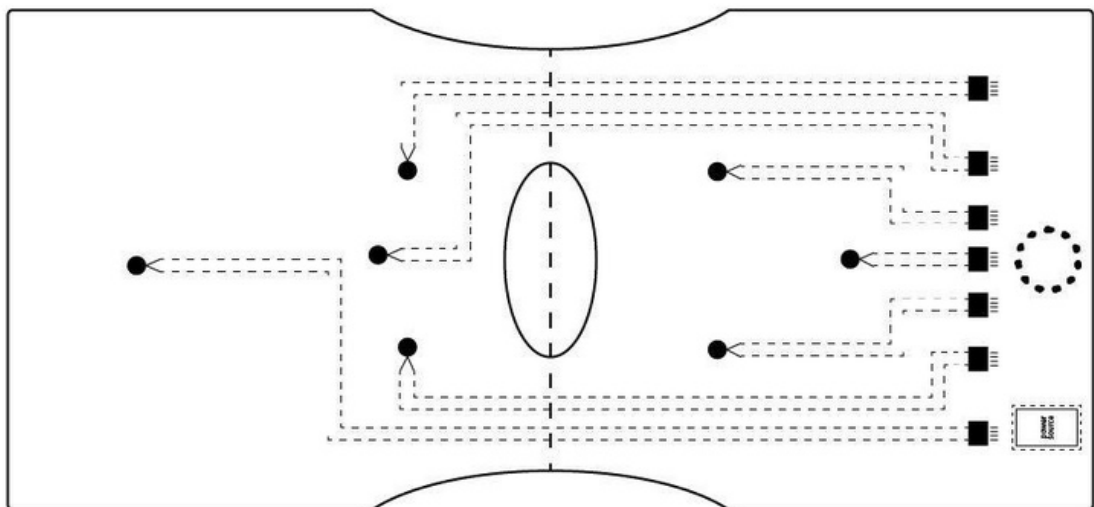
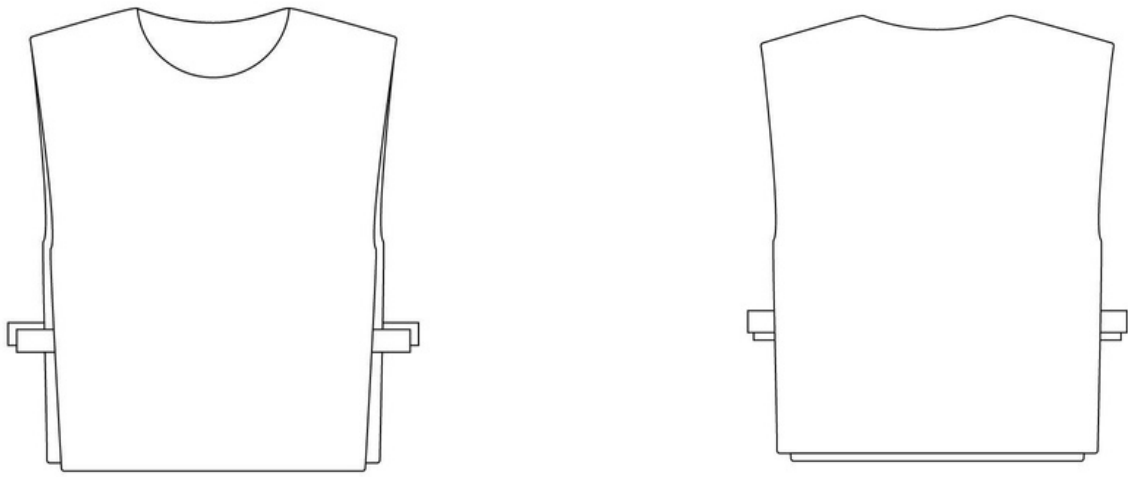


circuit prototyping - building an actual circuit to a theoretical design to verify that it works

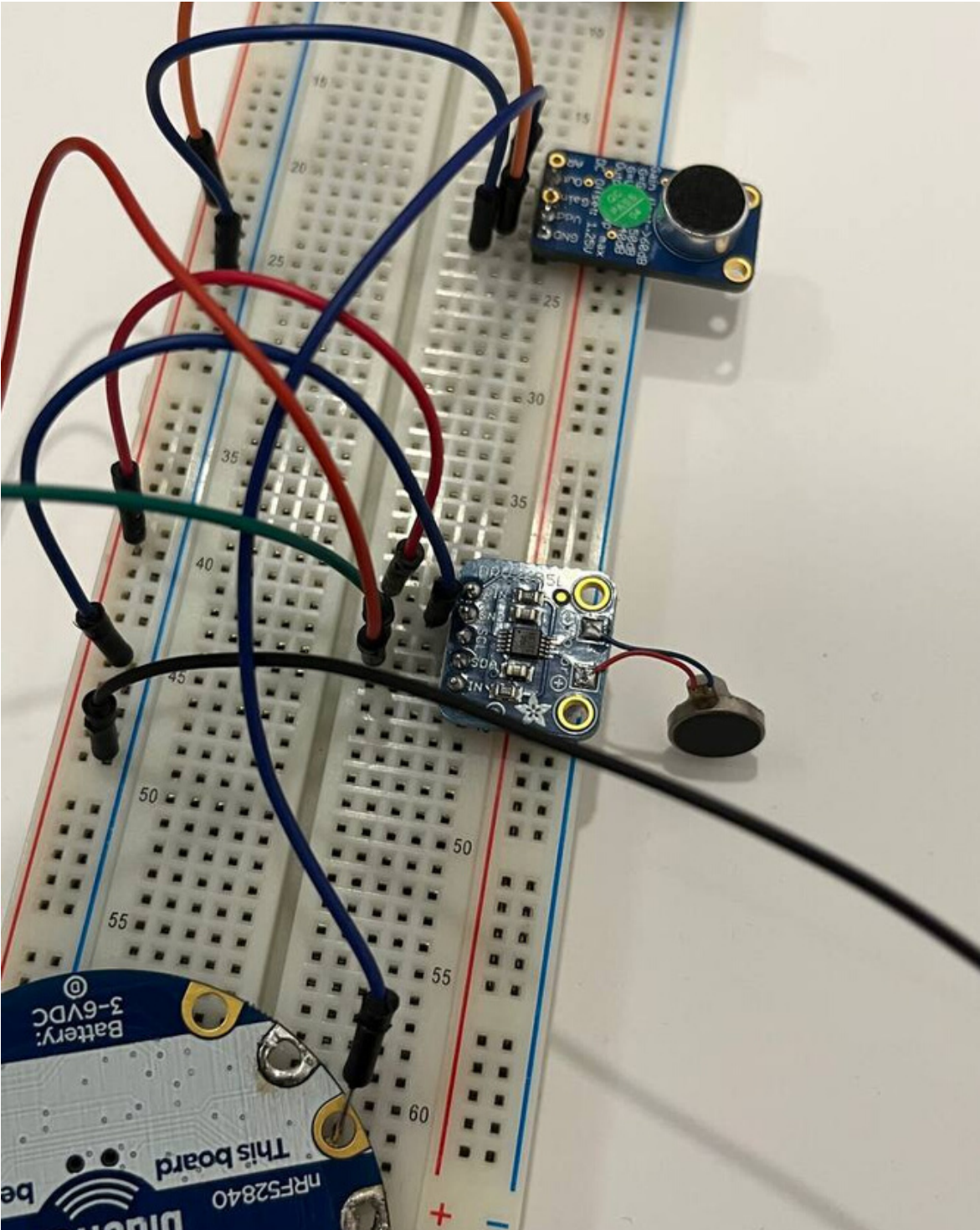


development process

1. sketching



2. prototyping



3. quilting



4. circuit embedding



the final product



conclusion

This vest is the first prototype of this wearable. It still has to be optimized.

In order to improve the user experience, the garment should be designed in accordance with the target group's consulting

In conclusion, it is very important to conduct interviews with potential users, to truly validate the concept.

bibliography

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3. **Can People With Hearing Loss Enjoy Music? -**
<https://www.attune.com.au/2021/08/17/can-people-with-hearing-loss-enjoy-music/>
4. **Deafness And Music: Can Vibration Be Used When Playing Music Together? -**
<https://kids.frontiersin.org/articles/10.3389/frym.2021.732713>

about me

I am a beginner fashion designer, looking for ethical ways to do my job. It is also very important for me to create meaningfully. This is what brought me to Fabricademy.

