Sound Space and Interaction Final Report
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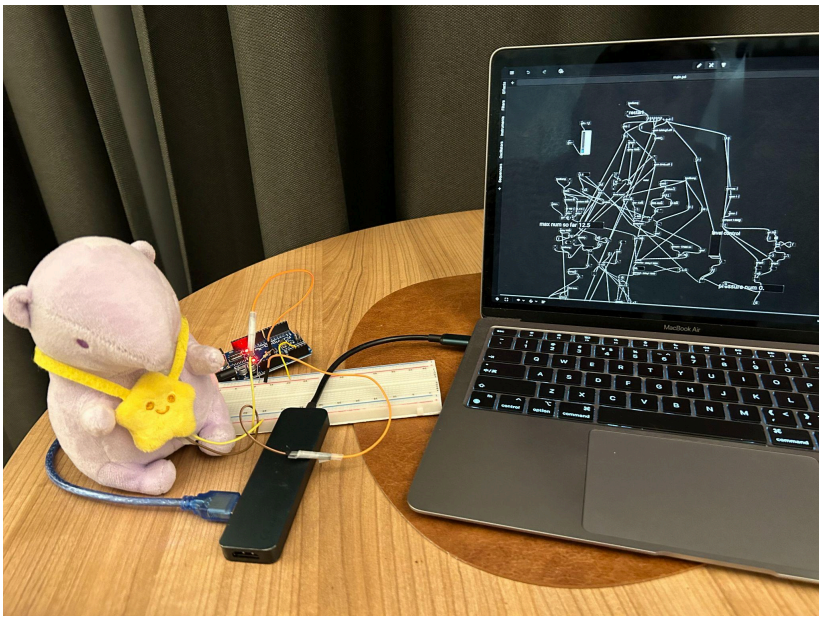


Picture of *The Purifier*, April 23rd, 2024

Creation process

Concept

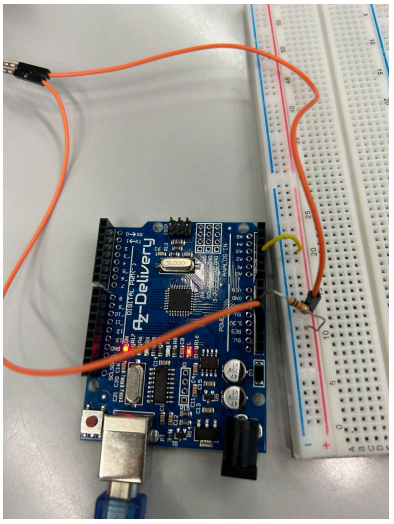
The project is called ‘Purifier’. It aims to convey the audience that everyone is able to purify their own space. The concept is to develop a tool that makes the audience realise the power they naturally carry to expel the noise and guard their peaceful inner place. It uses a sample of people talking to represent external voices (opinions , discussions,...); uses the sound of birds to represent the pure inner land; the bubbling magical sound to present the purifying process; and designed an interaction via which participants can feel the strength of themselves.

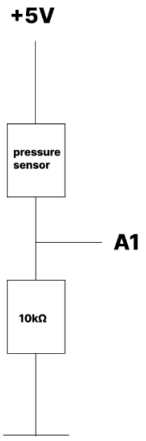
Development

I first developed the sound effect of purifying. For me the process of purifying is like a fairy performing magic, so I made bubbling sounds that carry such a sense. Some randomness was added to the bubbling effect to achieve a more artistic and immersive experience.

The second step is to build an arduino and make pd correctly get the pressure data, and make the pitch change with pressure accordingly. The higher the pressure, the

higher the pitch of the magical/purifying sound is. The connection can be referred to in the pictures below.





The third step is to set the onwards and backwards logic of the noise based on the pressure. The logic is that after every try, the system remembers the highest pitch within this try, and if it is bigger than the record from the last round, the ‘max’ number will be changed and transmitted to control the noise. The controlling logic is: the higher the max number is, the smaller the noise volume becomes.

In order to include more dialogue into the project, the next step was to make the noise give feedback. When the noise was ‘cleared away’ to a certain degree, it does not give up polluting your inner world. Instead, it crawls back and becomes louder and louder. This is to represent our daily practice of pursuing inner peace: we often try, sometimes in a serious way, sometimes casually, but it always takes several attempts before we finish purifying for a peaceful inner world.

When the process succeeds(after the noise volume goes under 0.05), the noise stops and the bird's sounds are generated.

The development of interaction methods has experienced several processes. At first the idea was to focus on sonifying the power of breath, but after tests it was found that different people have different ways of breathing, some use breast, some use stomach, and it is hard even with sensitive sensors to sense the ups and downs of the breast.

In the second stage, I changed the sensor from a pressure sensor (arduino) to voice input (using adc~ and env~). With such setup, users can blow into it when exhaling, thus sonifying the empowering & purifying process. But it turned out that this device performs the best when the surrounding is quiet, so I decided to change into the final

project we have now: using the interaction with holds and pressure sensor to realise the purifying process.

Description of the work

The sonic language is sequential and explorative, and it consists of both samples(noise, bird) and pd made sounds(the purifying process). The interactive dialogue can be described as follows: The user tries to clear away the noise by their own power(pressing the start on a toy). Their press is sonified by the pitch of a magical bubbling sound. The higher the pitch is, the quieter the noise would be. If you stop making efforts of purifying, then the noise would crawl back into a higher volume. In terms of the approach of space, the project uses more linear, virtual space than a genuine 3D space. And the sense of playing in space is achieved by the interaction between bubbling sound and noise.

Reflection

There are some obstacles in the developing process, some are about achieving better interaction and realising the concept of dialogue(the detail can be found in the description of the development). The others are some technical issues, such as how to only get the number in a float box when it changes(solved by using ‘max’ and ‘changed’), how to set a better stopping condition(solved be testing again and again), and how to smartly adjust to individuals as everyone has different range of holding pressure(solved by adding a level slider), how to correctly get the arduino input and transfer it into pd(solved by using the correct resistor and the correct template).

In the final presentation, it is suggested that it would be better if the noise comes from the concurrent reality. It is a really good suggestion for future developments. After seeing all the beautiful works from classmates, I think it may also be nice to include more speakers in the project, so that a better experience of spatial interaction can be achieved.

Generally speaking I am quite happy about the outcome. In this whole process, I learned how to conquer the difficulties to reach a set goal, how to ask for help, and how to figure out things on my own. My puredata skill has also improved a lot. I really appreciate this chance to push my limit further in providing an enjoyable experience.