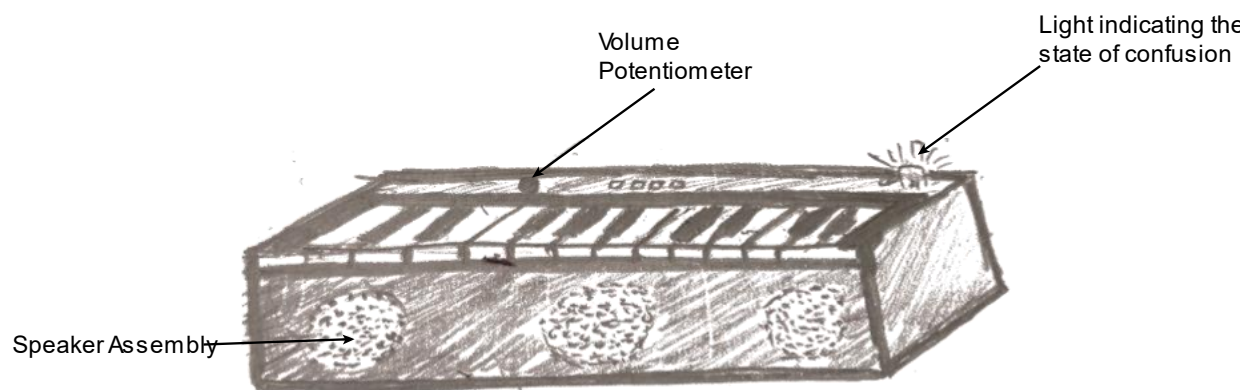


The Confused Piano

Physical Computing Final Project Proposal

The Confused Piano is going to be a project that will find a neat looking electric piano that should hopefully be inviting to play. However, they will find that the notes are not in the place they should be. They will be given the chance to rid the piano out of this confusion by reproducing a particular array of notes that will be played to them. If they are able to do this, the keys will be given the ability to rearrange themselves into the expected arrangement of notes. They will then be able play the piano as long as they don't leave for too long. Being alone, confuses the piano.



Components Required:

- Laser Cut acrylic/wood for the frame
- Laser cut acrylic for the keys
- 3 speakers to play up to 3 notes at a time
- LEDs
- Potentiometer for controlling volume
- Buttons to turn on the system
- IR sensor or Ultrasound Distance Sensor
- Battery or wire connecting to a power source
- Switches to go underneath the keys to read when a note is played

Software Requirements:

The software will first be required to play notes in a tone that sounds pleasant and not just the what the module tone() in Arduino can produce. This will involve background research into different libraries and testing of the Arduino's capabilities. It will then have to take various kinds of inputs like the buttons from the piano keys, the analog input from the potentiometer to control the volume, and the distance sensor to see if the piano is alone. A key feature in this project

will be in when the user is trying to play the tone that will cure the piano of its confusion. It will need to keep a record of the notes that are being played and compare them to the array of notes that will cure it. I am also planning to implement the code such that the randomization of the notes changes slightly each time a new user is using the piano. If time permits, I might want to explore digital audio filters and effects.

Order of Construction and Testing:

- Test different libraries and the sound they produce
- Start designing the frame for the project
- Parallely, write and test the code for matching the tone to cure the confusion using LEDs and switches
- Make a single Piano key and speaker work
- Add 2 more keys and speakers to see how a chord sounds
- Test the distance sensor and integrate its function into the code
- Implement the curing of confusion using sound
- Start assembling the project
- User test the project with 2-3 people and find the bugs
- Fix bugs
- Make an information poster for final show
- Write artist's statement for the final show