

# The Cloud

---say no to cyber-violence

---

ual: CCI Creative Computing – Physical Computing Term1 Group Work

By Lingyu Guo

&

Yiting Jia

## Concept

Project <Clouds> is an interactive installation which uses sound and colour changes to demonstrate the psychological and physical effects of online violence. By simply approaching the installation and touching the dangling tag, people can trigger a conversation about online violence. Subsequently, the sound and colour of the clouds will also change.

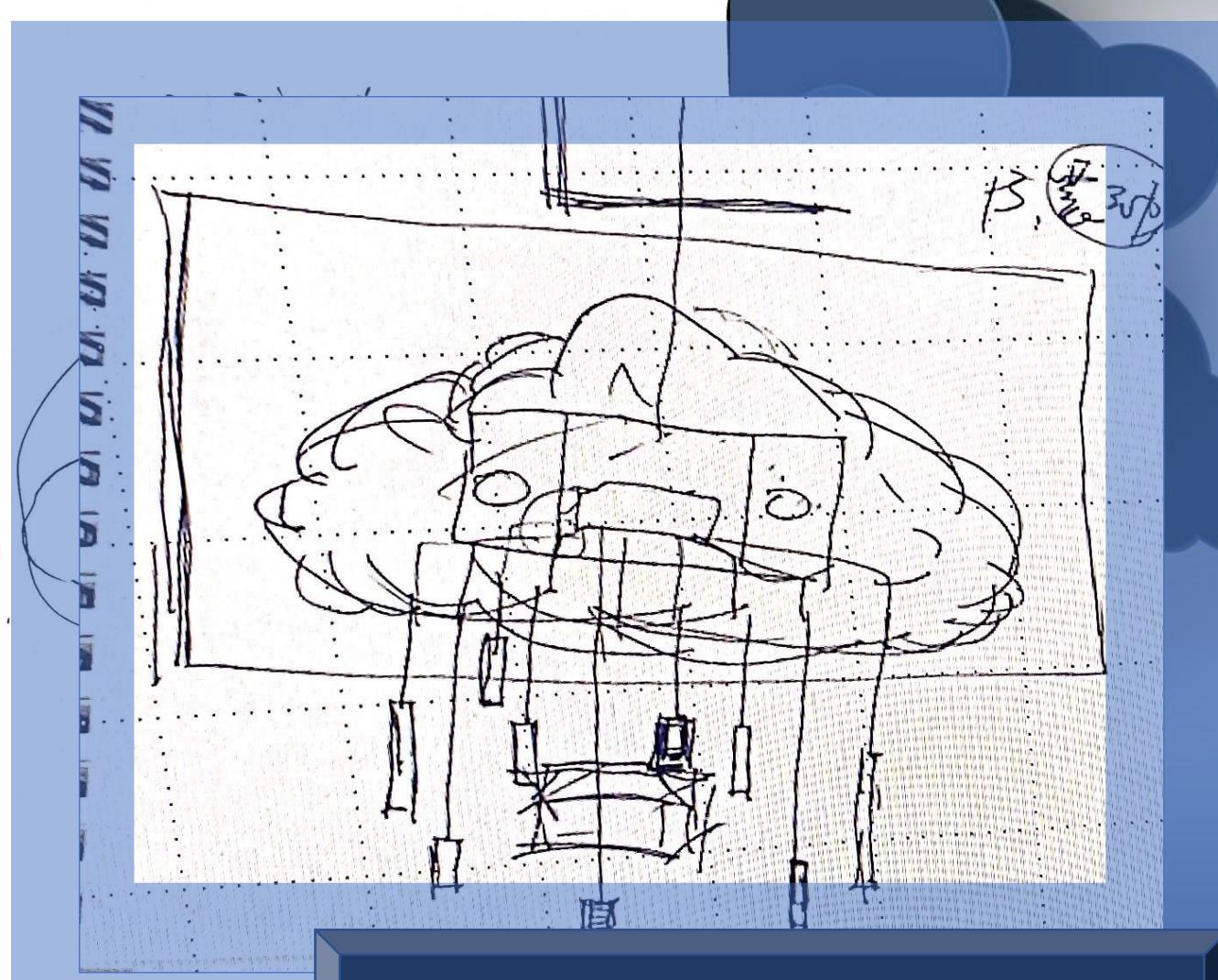


In today's fickle society, the cost of hurting people is becoming less and less expensive. The internet has brought convenience but also cyber bullying. People hide behind their screens to amplify their malice, attacking or fighting people they don't even know for the sake of their own momentary pleasure.



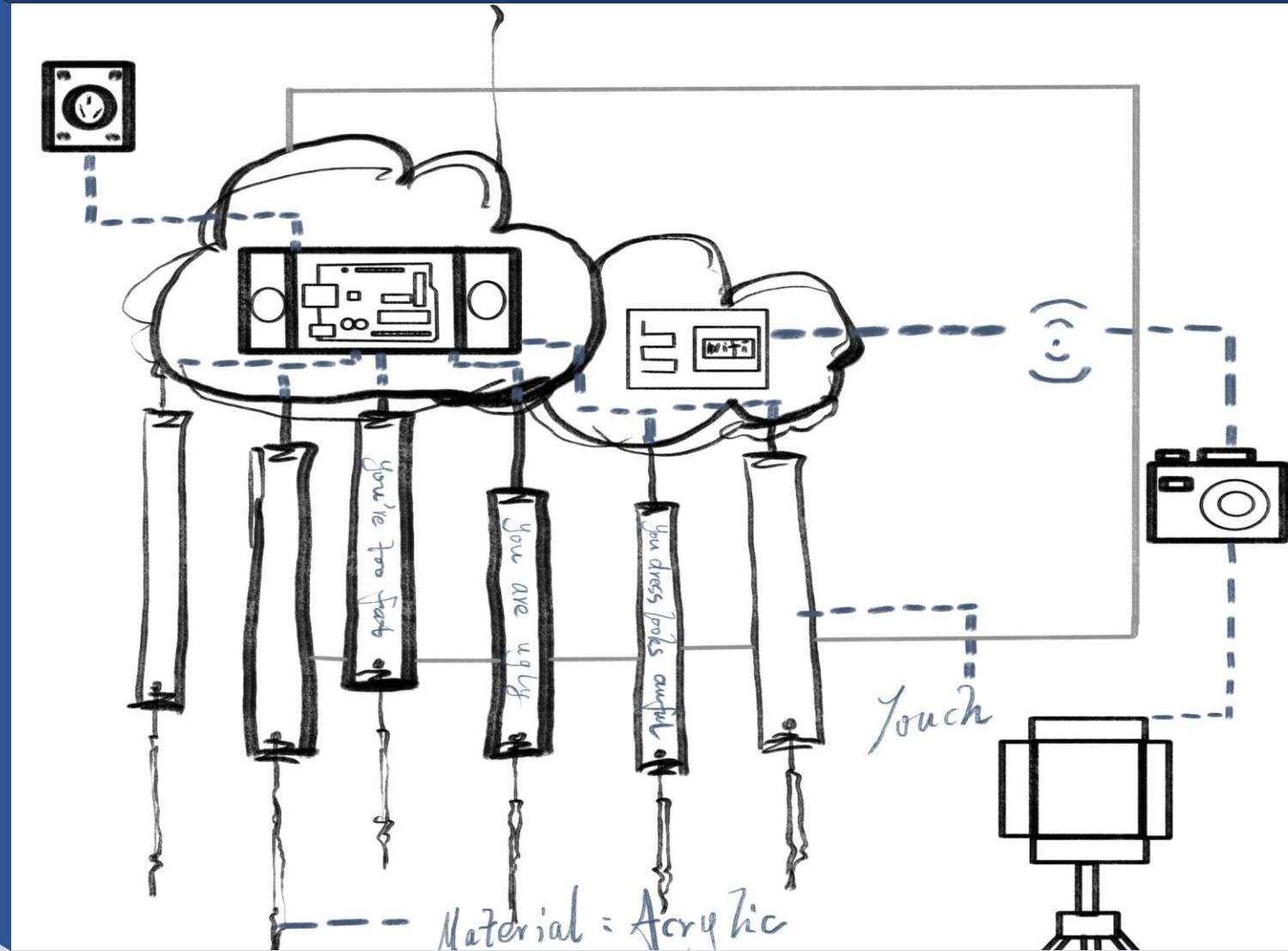
The aim of this project is to make people better aware that an offhand comment or a seemingly uncritical comment can cause harm to another person, and that this harm stings the other person or the person being commented on like a poisonous thorn.

- buzzer/audio → 喇叭/音频 X<sub>2</sub><sup>+</sup> → output.
- LED light. 闪光 flash → 震动 → output.
- 暖光 warm > 改变 change by conditions.
- 冷光 cold. ↓
- sensor.
- 吊牌 tags touch sensor.
- 金属 cooper tape 铜制 的传感带 metal. Aluminium sense tapes. input.
- CDML Machine Learning input.
- 录音 → 暴力的话. → input. recordings of the sentences of cyber-violence.
- 投影 projector. output.
- distance sensor & detect people who came close. → input.
- Light on.



Our primary ideas and sketches

 In our projection, the viewer will have a visual experience of the damage done by online violence. The audience will touch the dangling tag of the installation with their hands to trigger subsequent changes throughout the installation: the lighting will change from a warm orange to a melancholic blue, mean words will be accompanied by bursts of thunder and lightning, and the projection will then project a mask of weeping.



# Inspiration of the clouds installation art pieces

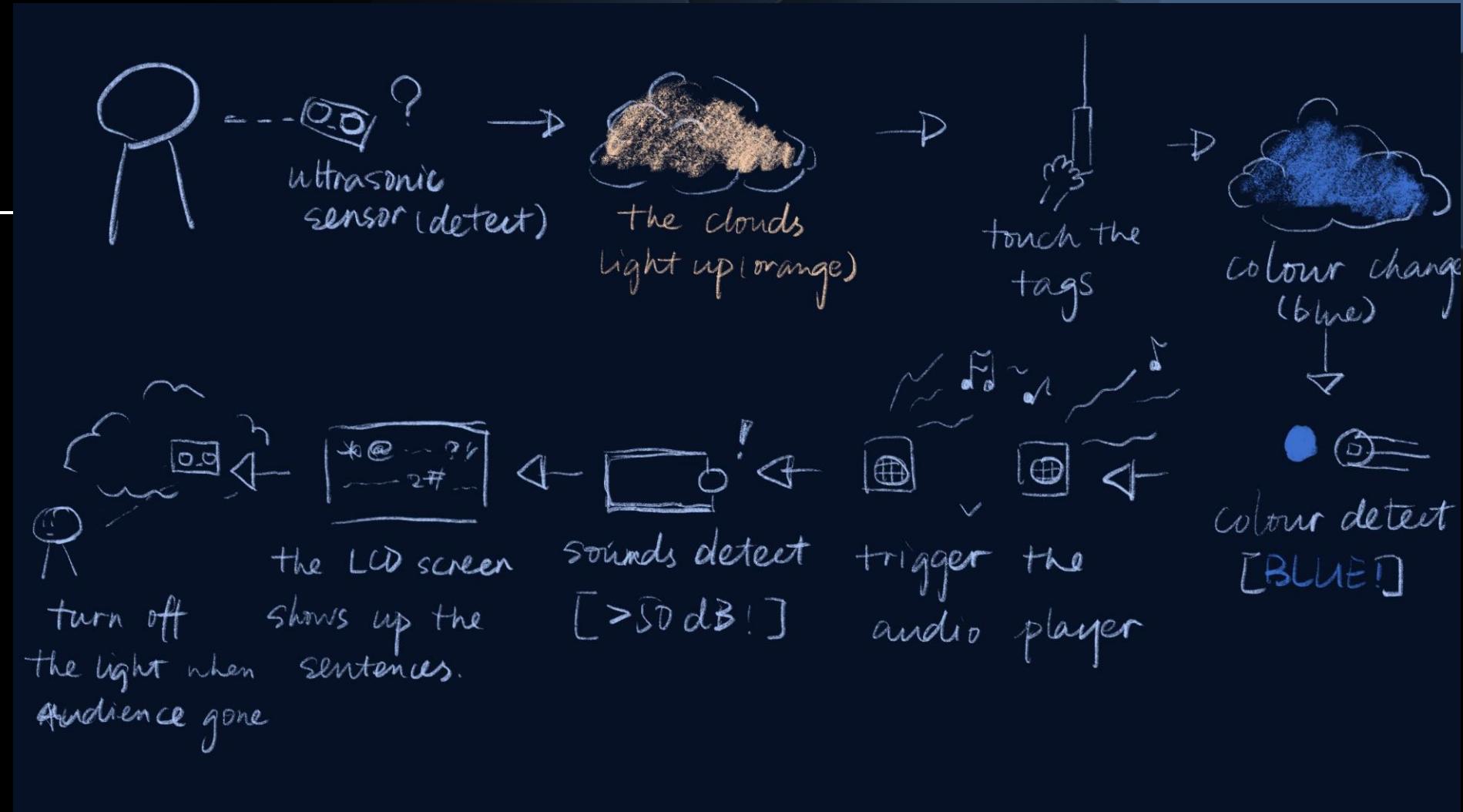


# What we need

Cotton - build the clouds  
Fish line – for dangling the clouds  
Box – container of all the boards and components  
Arduino board \*3 – it's really a big project (at least looks like)  
Ultrasonic sensor – to trigger the light (input 1)  
NeoPixels - Cool light  
- Warm light (output 1)  
Cooper tape – capacitive sensor (input 2)  
Colour detector – use lights' colour changes to trigger the audio player (input 3)  
SD Card adaptor, audio player – the mean talk that we found in internet (output 2)  
Sounds detector – use loud voice to trigger the lcd screen (input 4)  
LCD screen – simple output (output 3)  
Servos – create a simple vibration make it looks like raining (output4)

# The flow chart

- Due to the marking criteria and technical difficult, we cancel the project idea , blue teeth control and Wi-Fi remote control.



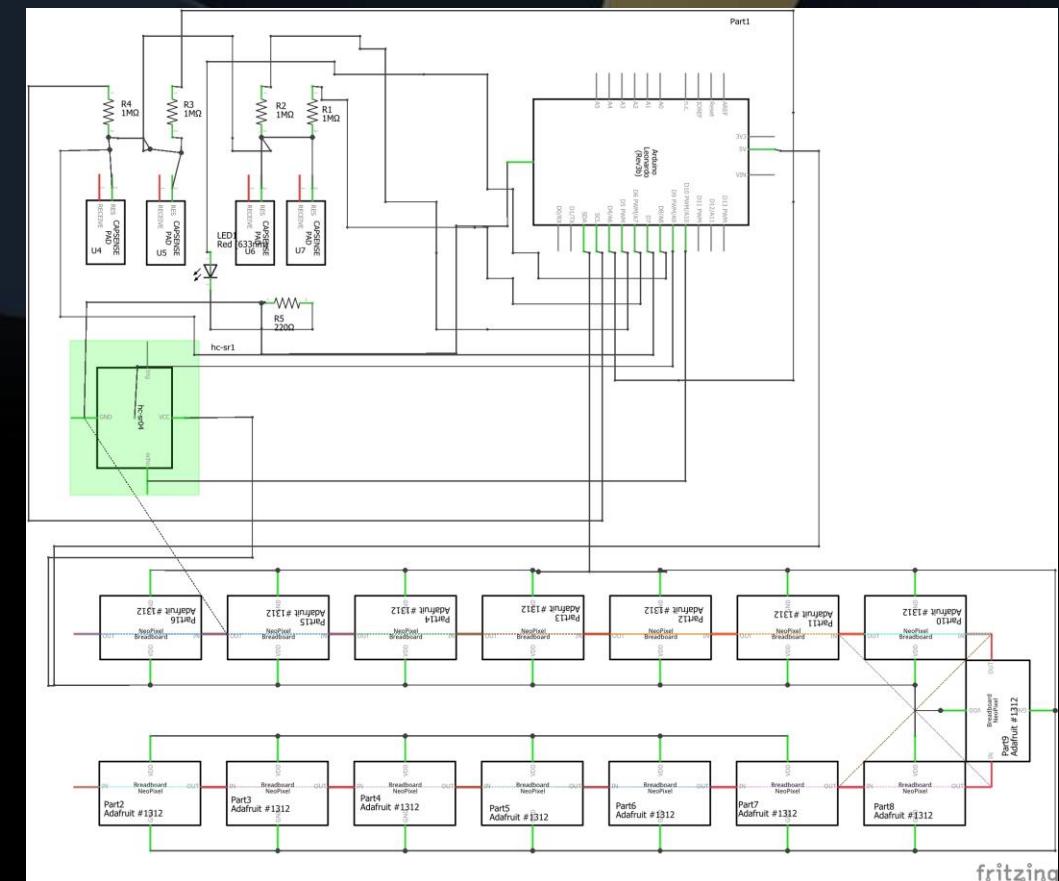
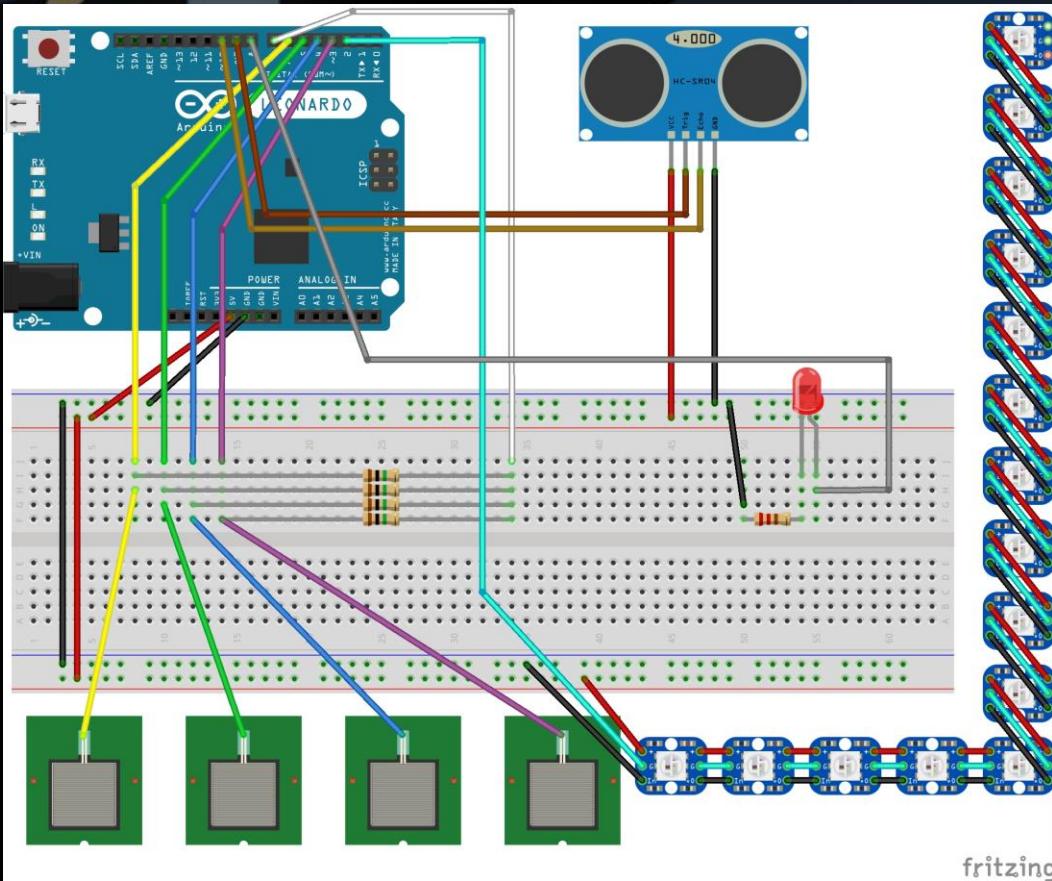


# Start making!

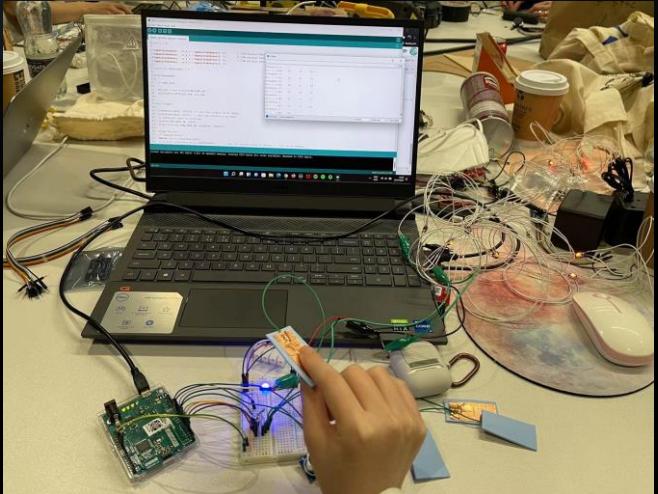
---

- In the following section we meet plenty of difficulties and different issues that cause us a lot of trouble.
- We have to give up some interesting ideas in order to make it work smoothly. Those ideas will be the part that could improve next time.

# The circuit diagram of part1



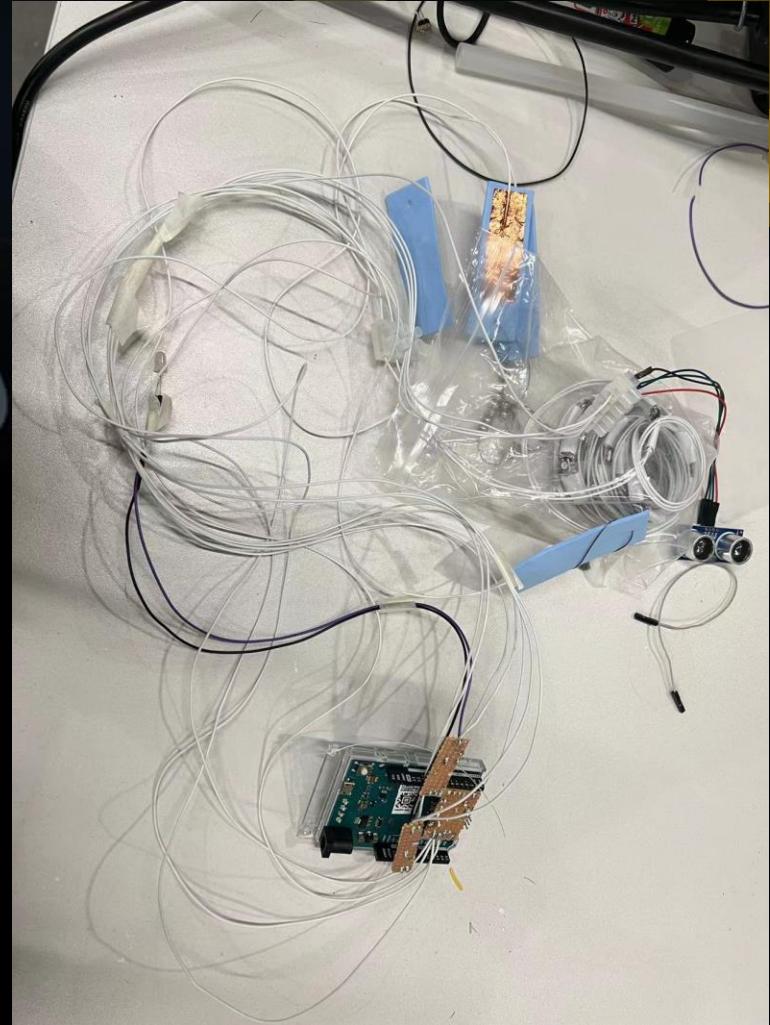
# Building the first part – detect people, light up and light changes



< Building circuit and soldering neo pixels. Colour will change from orange to blue.



> Final piece of part one after soldering all the parts together.



```
if (safetyDistance <= 500 && (total1 < 300 || total2 < 300 || total3 < 300 || total4 < 300)) {  
  
    for (int i = 0; i < strip.numPixels(); i++) {  
        // starting at i, draw the orange color cloud}  
    void orange(uint16_t i, uint16_t wait) ;  
    strip.setPixelColor(i, 200, 70, 0); // orange  
    strip.show();  
}  
//delay(200);  
//strip.clear();  
//strip.show();  
digitalWrite(ledPin, HIGH);  
  
delay(100);
```

< using if statement to give certain conditions to trigger the neo pixels change color to orange

```
else if (safetyDistance <= 500 && (total1 >= 300 || total2 >= 300 || total3 >= 300 || total4 >= 300)) {  
    for (int i = 0; i < strip.numPixels(); i++) {  
        void blue(uint16_t i, uint16_t wait) ;  
        strip.setPixelColor(i , 50, 0, 150); // blue  
        strip.show();
```

< changing to blue

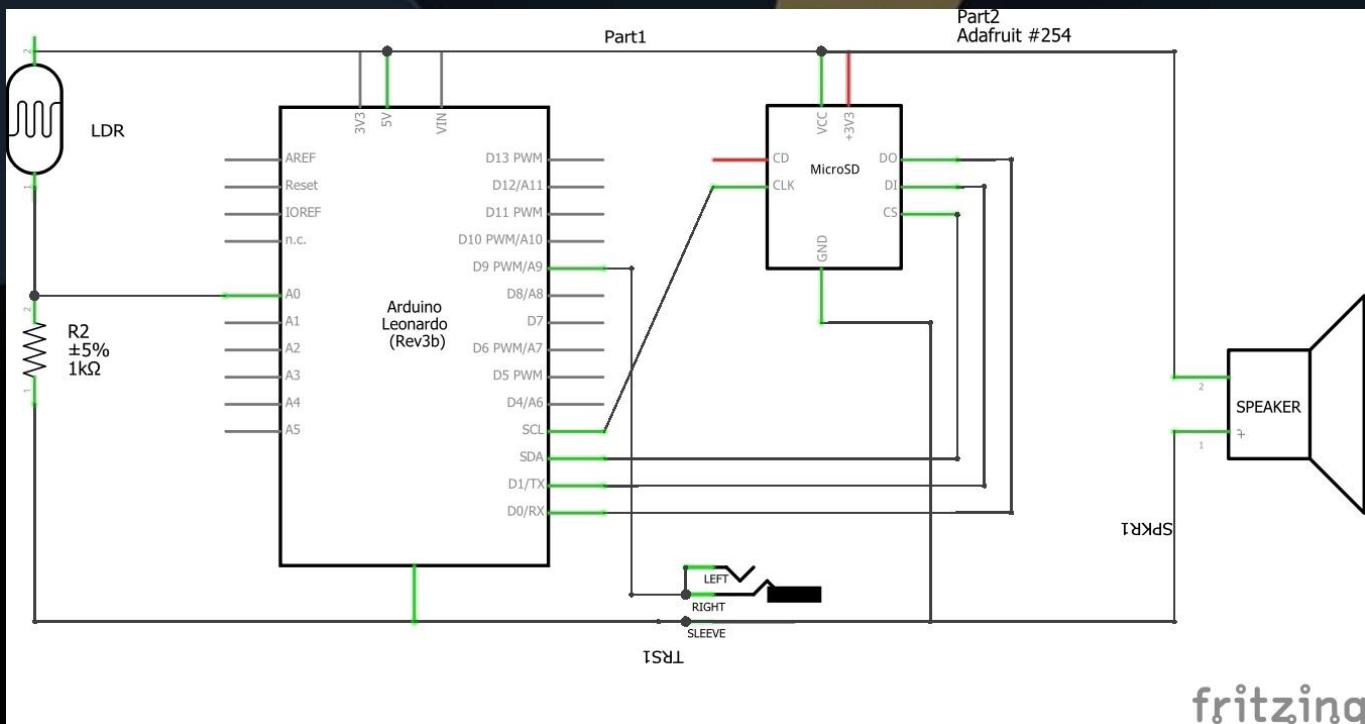
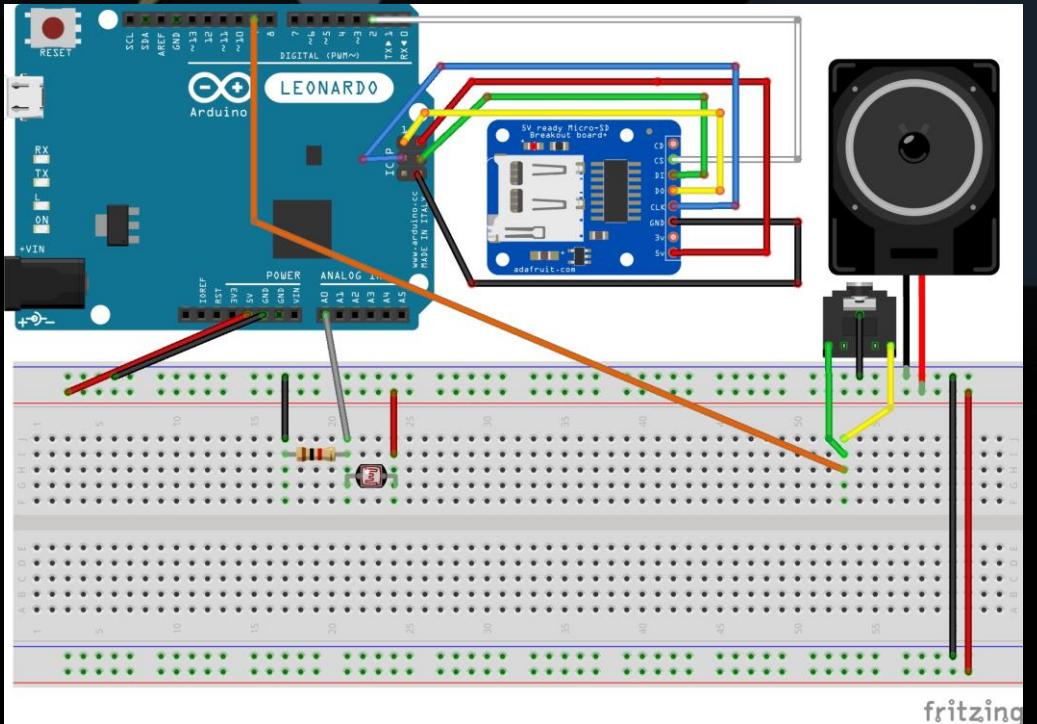
# Coding part for part 1

```
else if (safetyDistance > 500) {  
    for (int i = 0; i < strip.numPixels() - 1; i++) {  
        void off(uint16_t i, uint16_t wait) ;  
        strip.setPixelColor(i , 0, 0, 0); // off  
        strip.clear();  
        strip.show();
```

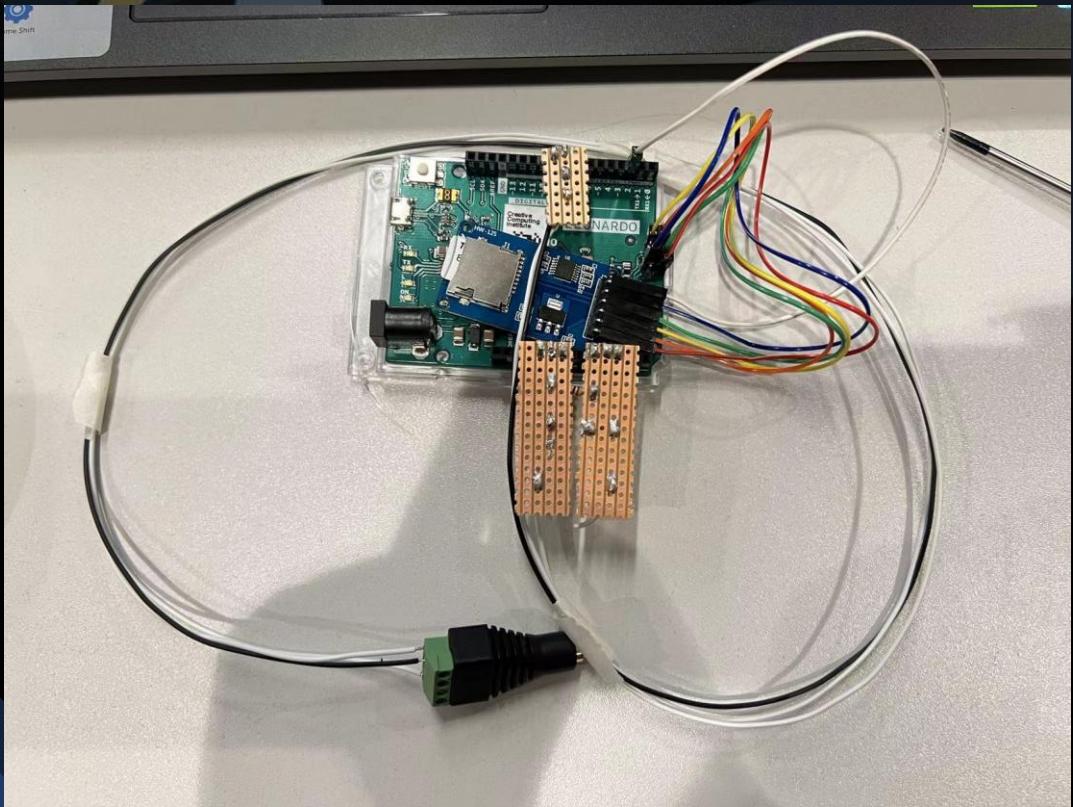
<https://youtu.be/CeLCvPRUskl>

^ turn off the light

# The circuit diagram of part2



# Building the second part – detect light change and play the audio



< after  
soldering,  
final piece



^ we didn't choose colour detector  
since it will take much longer time than  
the ldr sensor. We change it into ldr in  
order to give a smoother experience

< using if statement to  
check the statement of  
the ldr sensor

```
//check if the LDR status is <= 300
//if it is, the audio player will start playing

if (ldrStatus > 300) {

    if (!isPlaying) {
        startPlaying = true;
    }
    //digitalWrite(ledPin, HIGH);           //turn LED on
    Serial.println("-----");
    //delay(2000);
}
```

> if the ldr is  
dark, start  
start a four-  
selection  
random play

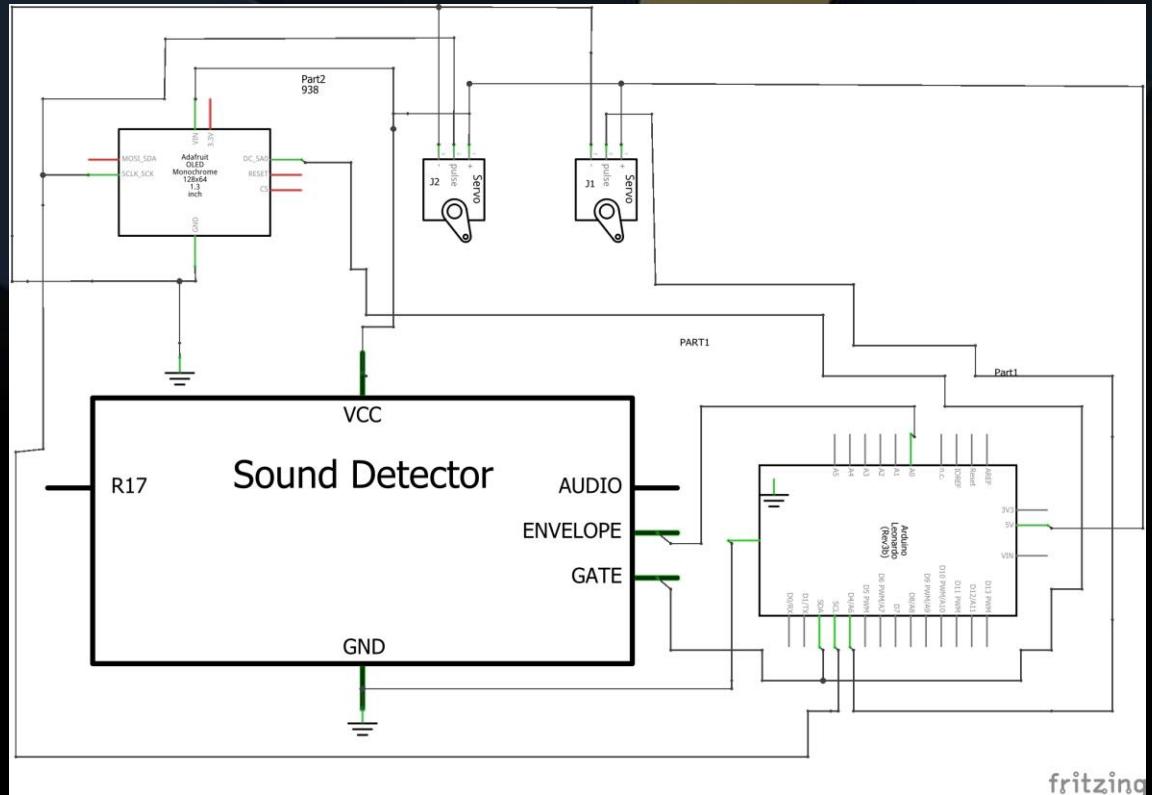
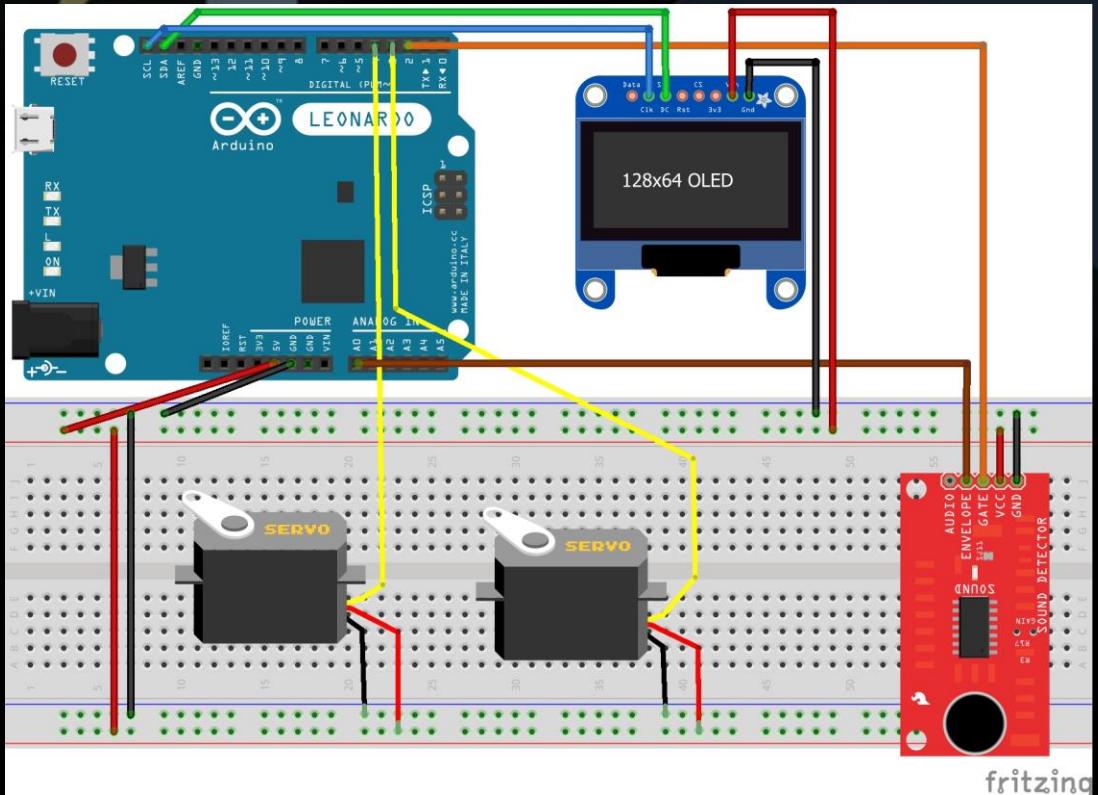
```
else if (ldrStatus <= 300) {
    //that means the ldr is dark
    if (isPlaying) {
        //digitalWrite(ledPin, LOW);           //turn LED off
        Serial.println("LDR is dark, start palying");
        tmrpcm.stopPlayback();
        isPlaying = false;
    }
}

if (startPlaying && !isPlaying) {
    //tmrpcm.play("1.wav")   //just for testing if the audio player works
    int i;
    i = random(3);      //make it paly random songs
    if (i == 0) {
        tmrpcm.play("1.wav");
    }
    if (i == 1) {
        tmrpcm.play("2.wav");
    }
    if (i == 2) {
        tmrpcm.play("3.wav");
    }
    if (i == 3) {
        tmrpcm.play("4.wav");
    }
    //list all possiblities
    startPlaying = false;
    isPlaying = true;
```

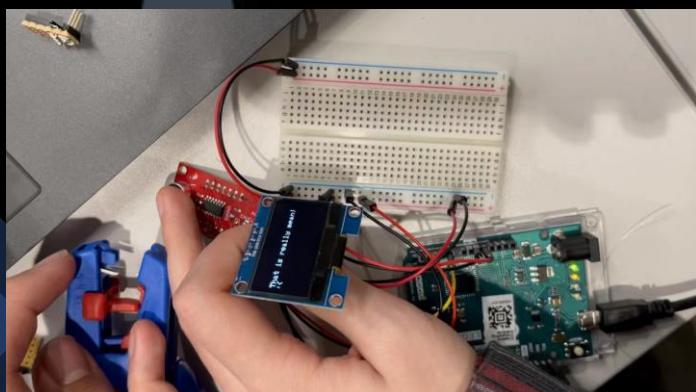
## Coding part for part2

<https://youtu.be/XsKvYcICj5g>

# The circuit diagram of part3

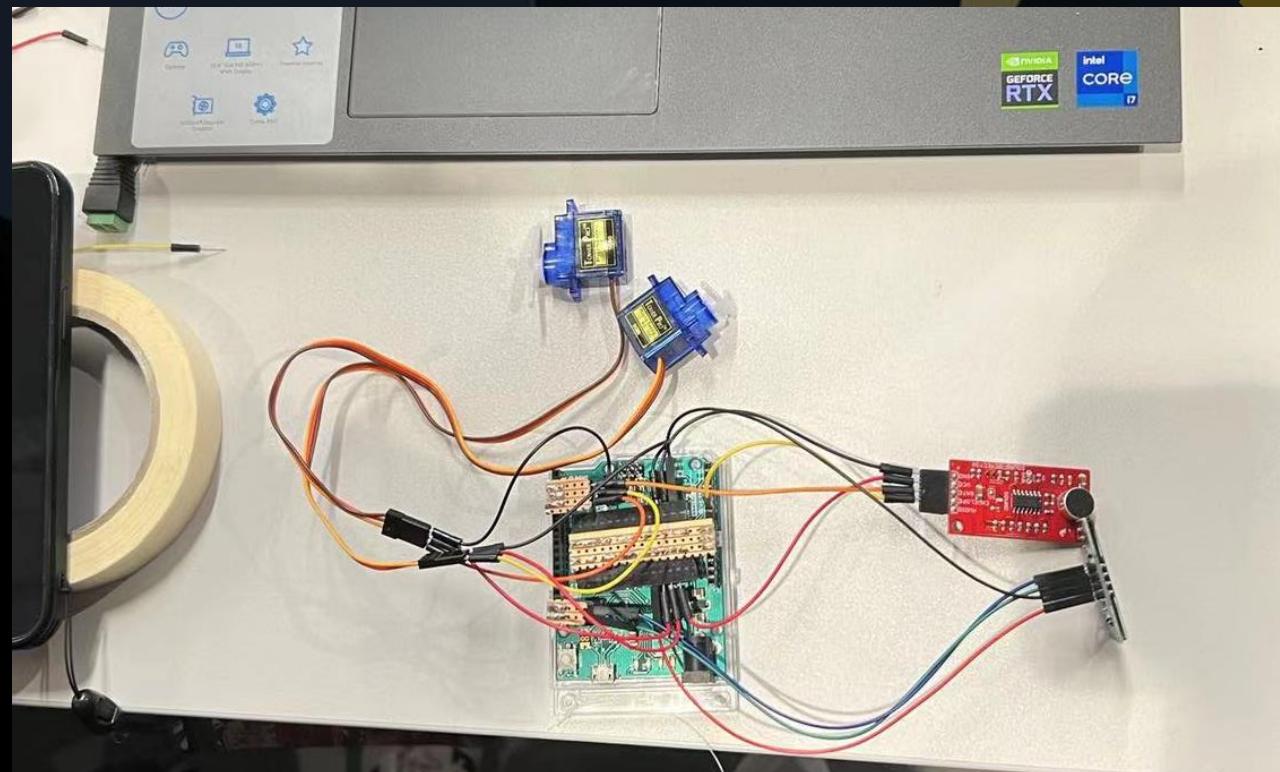


# Building the third part – detect sound change and display the screen



< it will change  
from ☺ to ☹

> after soldering



```
// Convert envelope value into a message
Serial.print("Status: ");
if (value <= 30){
Serial.println("Quiet.");
display.clearDisplay();
display.setTextSize(1);
display.setTextColor(WHITE);
display.setCursor(1, 20);
display.print("Nice to meet you! :) ");
display.display();
}
else if [value > 30]{
Serial.println("Loud.");
display.clearDisplay();
display.setTextSize(1);
display.setTextColor(WHITE);
display.setCursor(1, 20);
display.print("That is really mean! :(");
display.display();
}
```

< using if statement to give certain conditions when should the oled screen to show the words

> make the servos changing position smoothly

```
int j = 0;
for (j = 0; j <= 180; j++) { // go
// in steps of 1 degree
servo1.write(j);
servo2.write(j); // tell servo to
delay(15); // move
}
for (j = 180; j >= 0; j -= 1) { // go
servo1.write(j);
servo2.write(j); // tell servo to
delay(15); // move
}
```

# Coding part for part3

<https://youtu.be/XSxs61xT0vo>

# Building the outfit of the cloud



# Testing and filming



- Our cloud it's quite heavy and big, it's not easy to find a place for hanging on such a big stuff. So, we hang it on the blinders. We were shouting the whole time because we were afraid it falling: come on, come on, come on, it feels like it is going to fall!

# Final outcome!

- Final video:  
<https://youtu.be/V0CIulouTtQ>
- More code and video please go check:  
[https://git.arts.ac.uk/guo16473758/msc\\_cc\\_21\\_pcomp\\_term1\\_final](https://git.arts.ac.uk/guo16473758/msc_cc_21_pcomp_term1_final)





Thanks for watching!