

Sunbot

Prototyping

Presentation

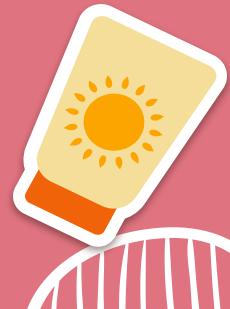
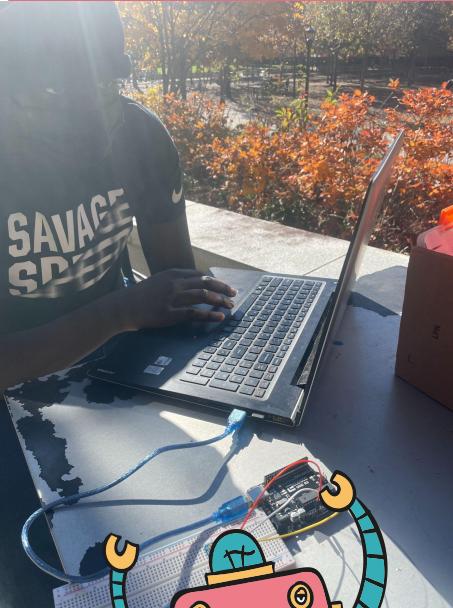
Matt, Ben, Vaishu, Nakai



UV Sensing

We realized, it's not that easy.

Calculations with nanowaves, voltage, and
location conditions determine UV, BUT



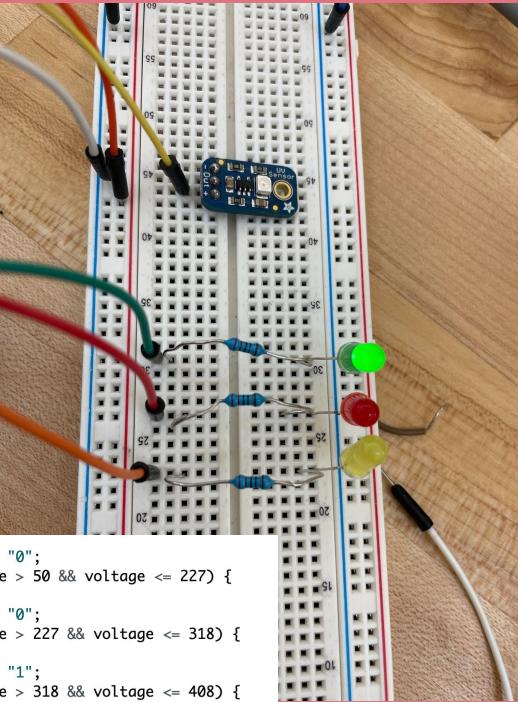
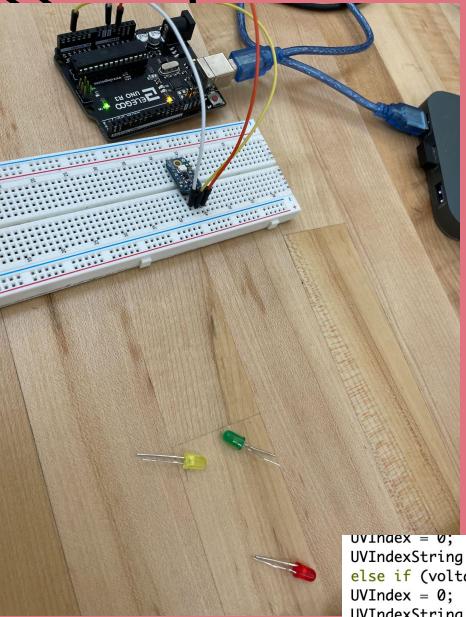
UV Sensing



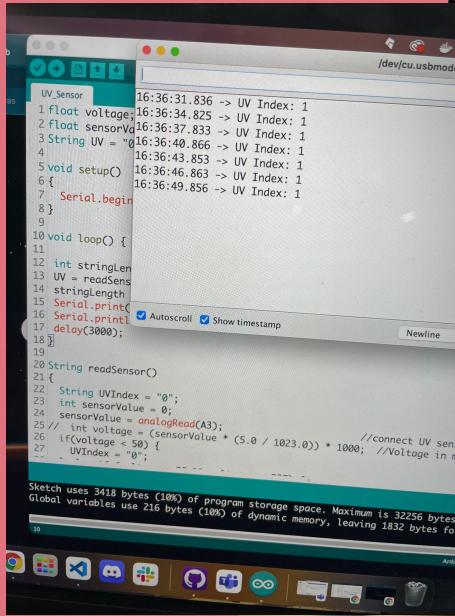
```
senso 13:59:29.722 -> sensor voltage = 0.91 V
oat 13:59:29.756 -> UV Index = 9.06
oat 13:59:30.695 -> sensor reading = 242.00
13:59:30.728 -> sensor voltage = 0.78 V
rid 13:59:30.766 -> UV Index = 7.80
13:59:31.709 -> sensor reading = 241.00
Ser 13:59:31.744 -> sensor voltage = 0.78 V
13:59:31.744 -> UV Index = 7.77
13:59:32.709 -> sensor reading = 240.00
rid 13:59:32.744 -> sensor voltage = 0.77 V
13:59:32.744 -> UV Index = 7.73
sen 13:59:33.705 -> sensor reading = 280.00
sen 13:59:33.739 -> sensor voltage = 0.90 V
Ser 13:59:33.772 -> UV Index = 9.02
Ser
Ser     Autoscroll     Show timestamp
Ser
Serial.print(sensorVoltage);
Serial.println(" V");
Serial.print("UV Index = ");
Serial.print(sensorVoltage / .1);
Serial.println("");
delay(1000);

uploading...
n uses 3728 bytes (11%) of program storage space. Maximum is 32256 bytes
L variables use 258 bytes (12%) of dynamic memory, leaving 1790 bytes
```





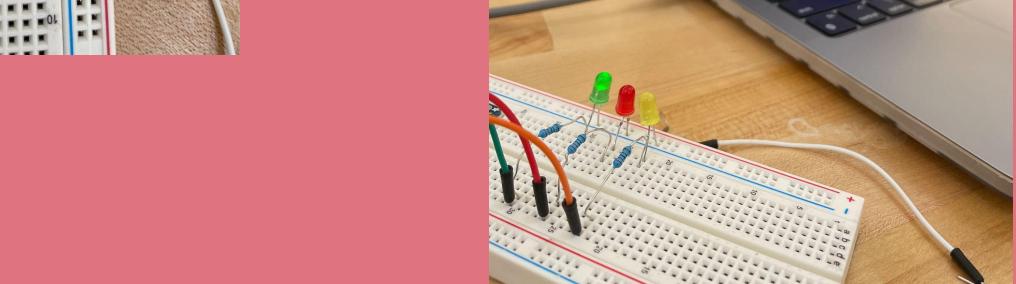
```
UVIndex = 0;
UVIndexString = "0";
else if (voltage > 50 && voltage <= 227) {
UVIndex = 0;
UVIndexString = "0";
else if (voltage > 227 && voltage <= 318) {
UVIndex = 1;
UVIndexString = "1";
else if (voltage > 318 && voltage <= 408) {
UVIndex = 2;
UVIndexString = "2";
else if (voltage > 408 && voltage <= 503) {
UVIndex = 3 ;
UVIndexString = "3";
else if (voltage > 503 && voltage <= 606) {
UVIndex = 4;
UVIndexString = "4";
else if (voltage > 606 && voltage <= 696) {
UVIndex = 5;
UVIndexString = "5";
else if (voltage > 696 && voltage <= 705) {
UVIndex = 6;
UVIndexString = "6";
```



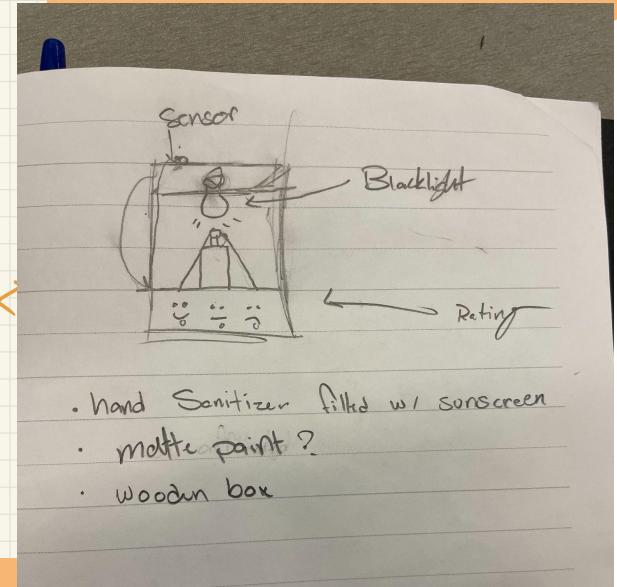
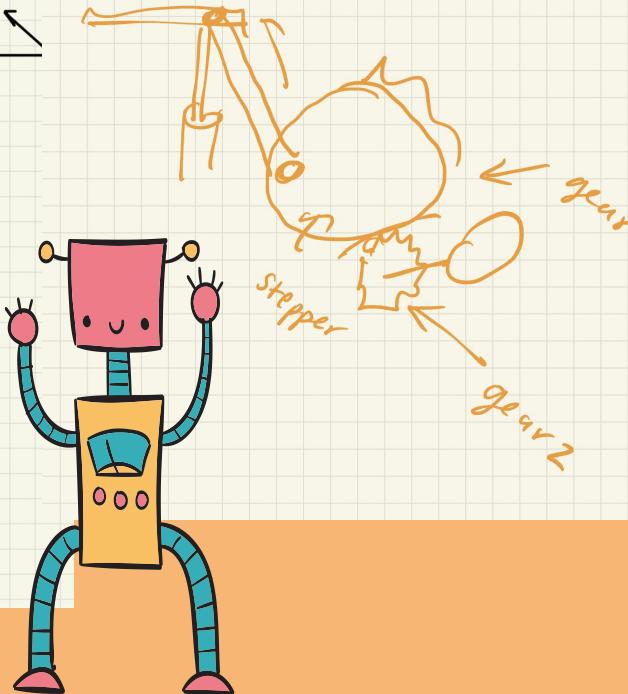
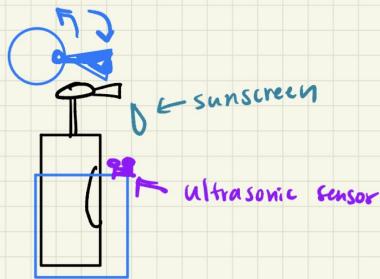
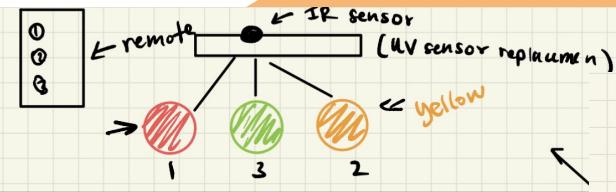
The Arduino IDE serial monitor window shows the output of the code. It displays a series of lines starting with the timestamp '16:36:31.836' followed by '-> UV Index: 1'. This pattern repeats for each of the six conditions defined in the code, indicating that the sensor value is being converted into a UV index value of 1 across the specified range.

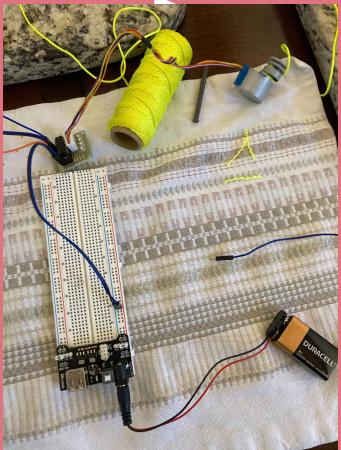
```
UV_Sensor
1 float voltage;16:36:31.836 -> UV Index: 1
2 float sensorV;16:36:32.833 -> UV Index: 1
3 String UV = "1";16:36:40.866 -> UV Index: 1
4 int sensorValue = analogRead(A3);16:36:43.853 -> UV Index: 1
5 void setup() {16:36:46.863 -> UV Index: 1
6 Serial.begin(9600);16:36:49.856 -> UV Index: 1
7 }
8 }
9
10 void loop() {
11
12 int stringLen;
13 UV = readSens();
14 stringLength;
15 Serial.print(UV);
16 Serial.print(" ");
17 delay(3000);
18 }
19
20 String readSensor() {
21
22 String UVIndex = "0";
23 int sensorValue = 0;
24 sensorValue = analogRead(A3);
25 // int voltage = (sensorValue * (5.0 / 1023.0)) * 1000; //Voltage in mV
26 if(voltage < 50) {
27 UVIndex = "0";
28 }
```

Sketch uses 3418 bytes (10%) of program storage space. Maximum is 32256 bytes.
Global variables use 216 bytes (1%) of dynamic memory, leaving 1832 bytes for



Initial motor sketches



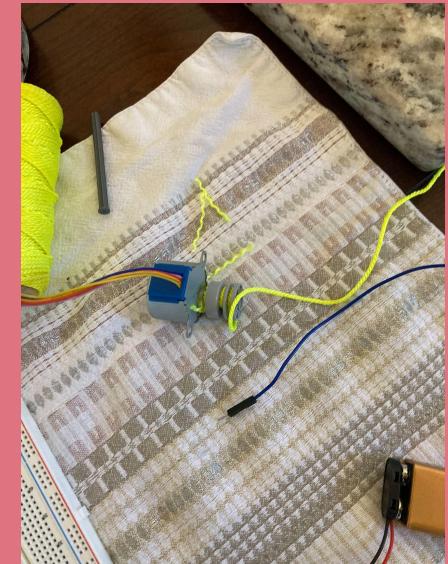


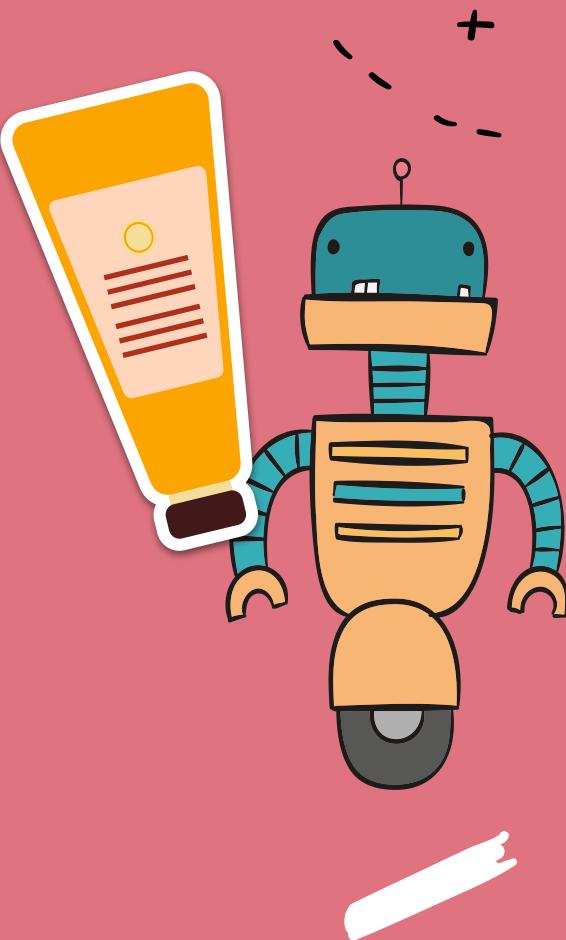
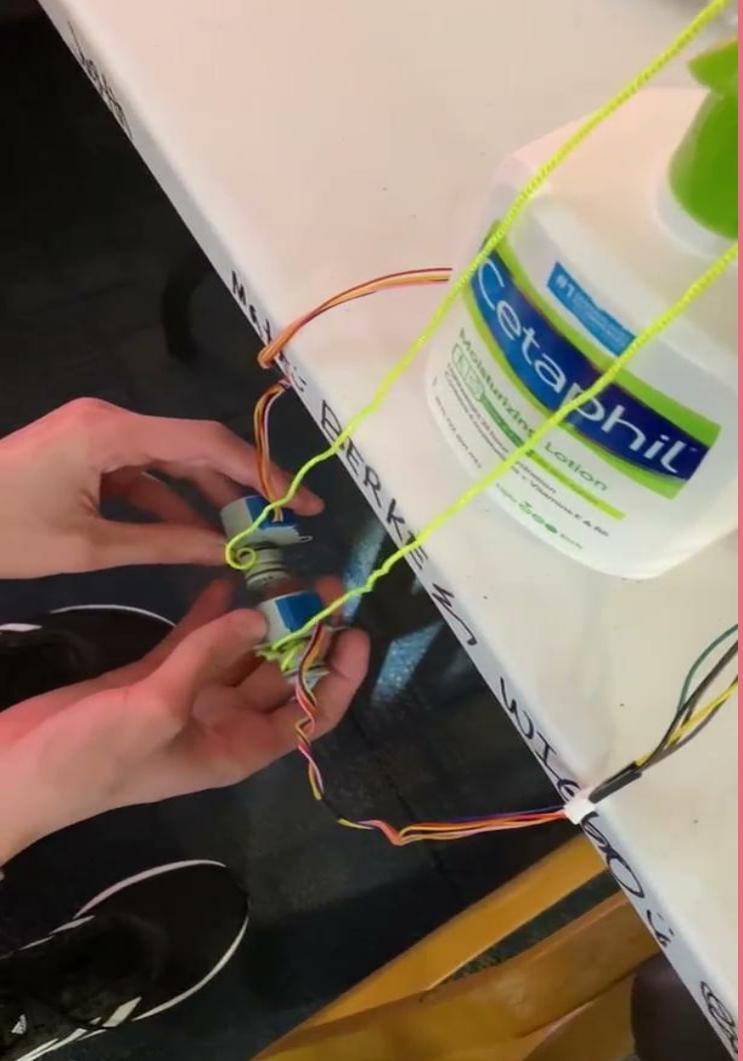
Motor Problems

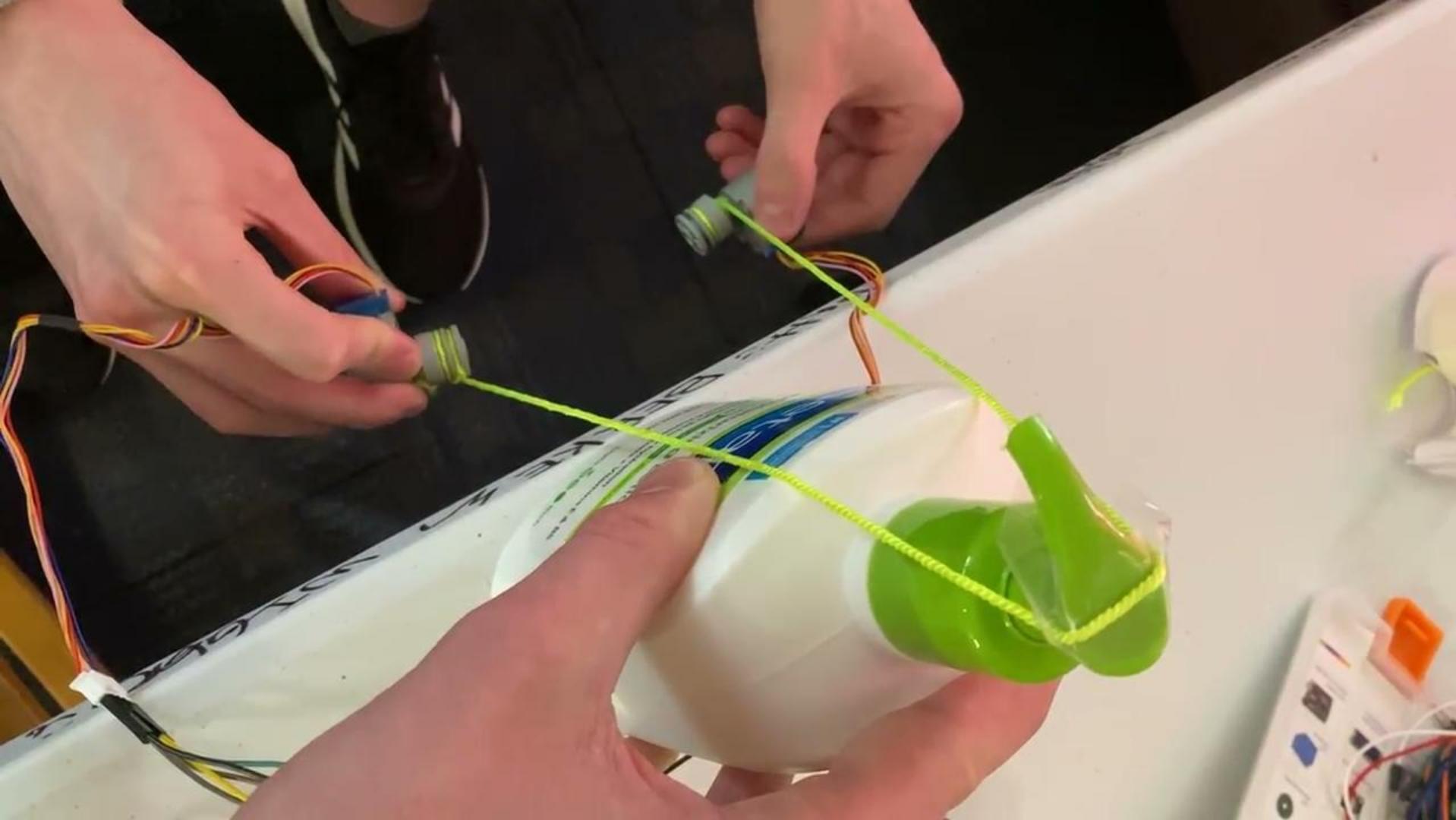
Spring/ Push down bottles are ALSO harder than it seems.

Our pulley systems with motors are not strong enough to pump the bottle

Solution: water pump?

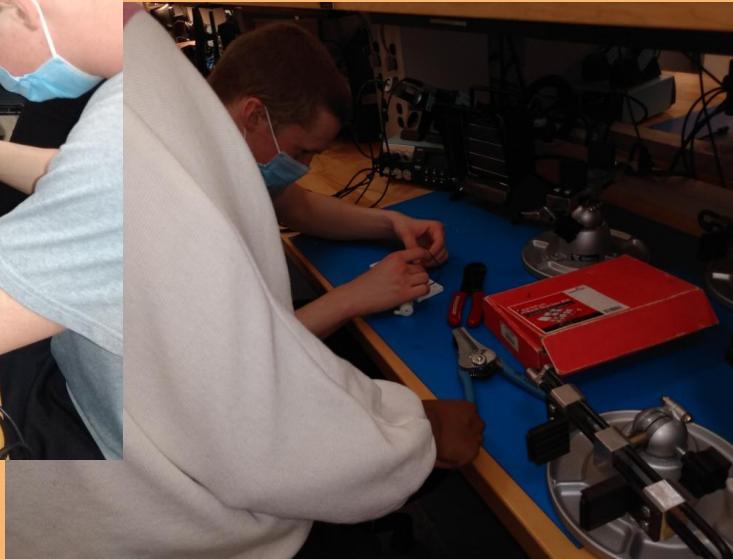


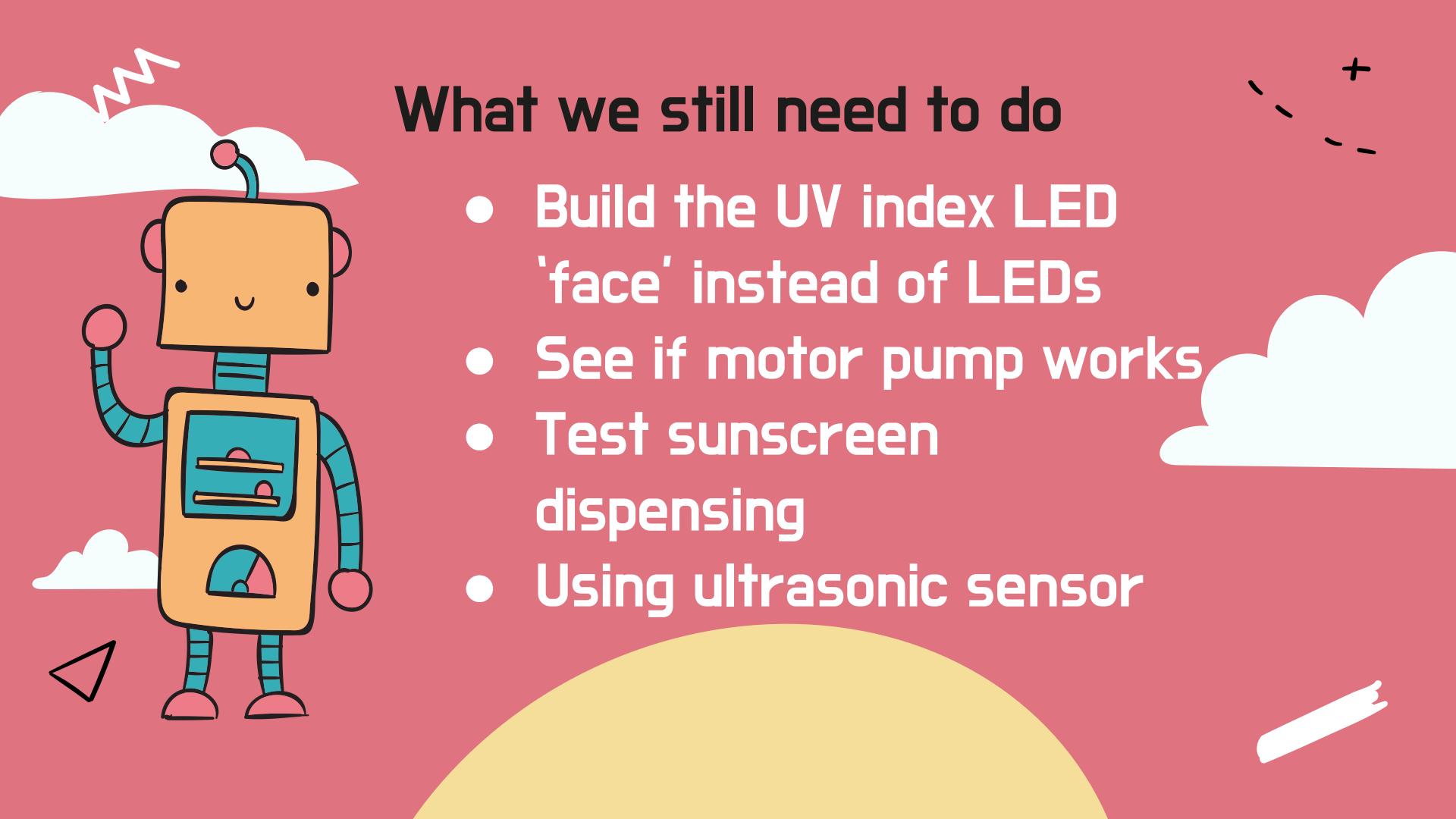




THANK YOU CLARA

Soldering the water pump- we have two models of pumps, but we are initially starting with Clara's mini water pump





What we still need to do

- Build the UV index LED 'face' instead of LEDs
- See if motor pump works
- Test sunscreen dispensing
- Using ultrasonic sensor