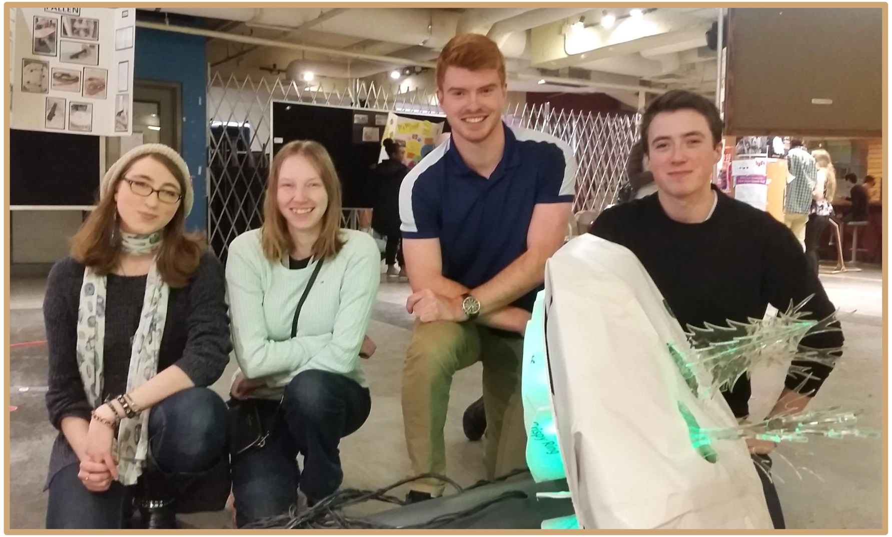
Group 10
“Fallen”

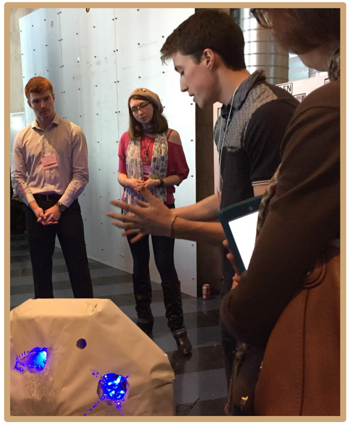
GNG1103 Presentation

Who We Are

Different areas of study

- Fine Arts
- Arts/Anthropology
- Civil Engineering
- Electrical Engineering





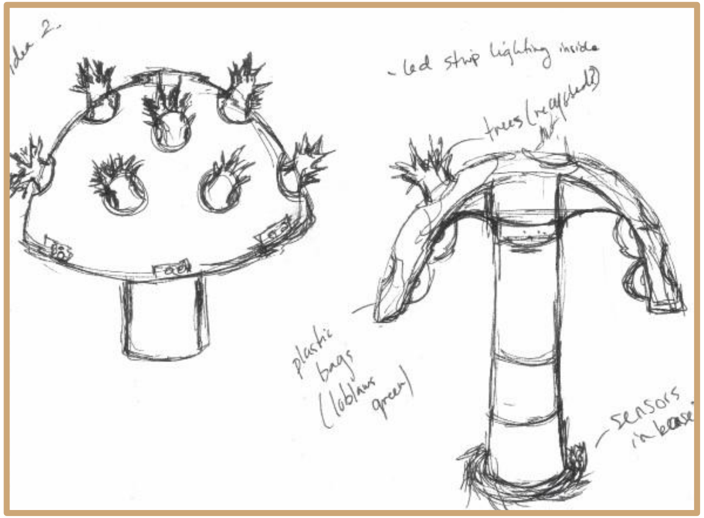
Task

Work as a team to develop a prototype of a public sculpture for an outdoor Art exhibition

- Interdepartmental cooperation
- Made of minimum 80% recycled materials
- Interactive/kinetic element (human interaction, wind, etc.)
- Budget of $100 CAD
- Weather-proof
- Transportability

Inspiration

- Symbiosis in nature
- Tragedy/loss
- Inverted relationships
- Disconcerting



Theme and Material Selection

- Effects of human interaction on nature
- Corruption
- Nature vs Culture
- Second life

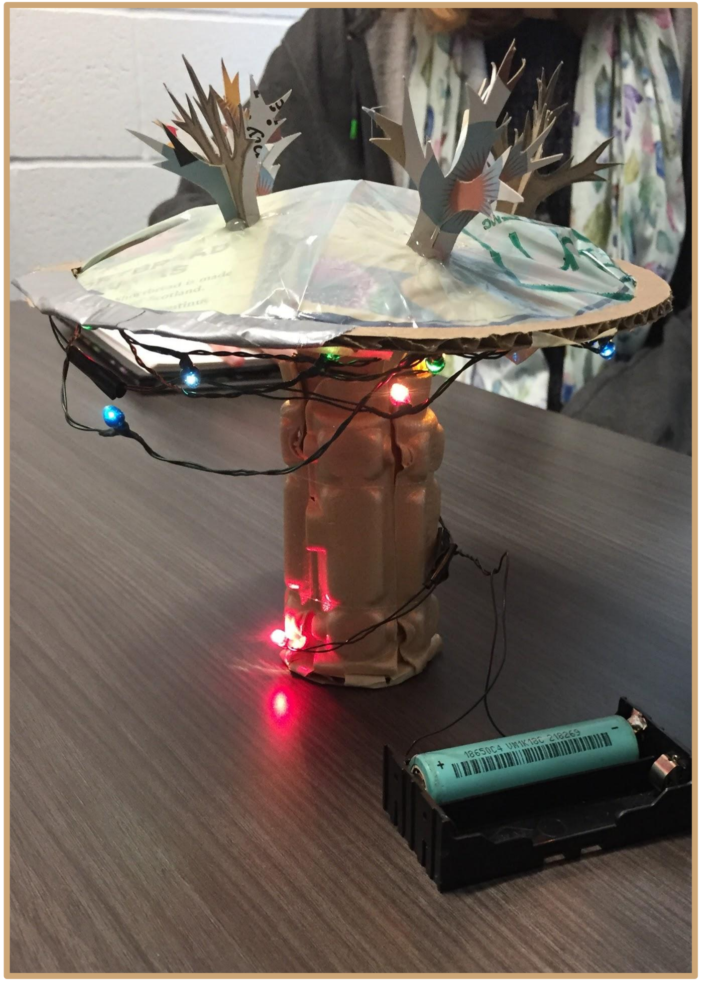
- Recycled
- Readily available
- Industrially manufactured
    - Culturally-specific
- Weather-proof

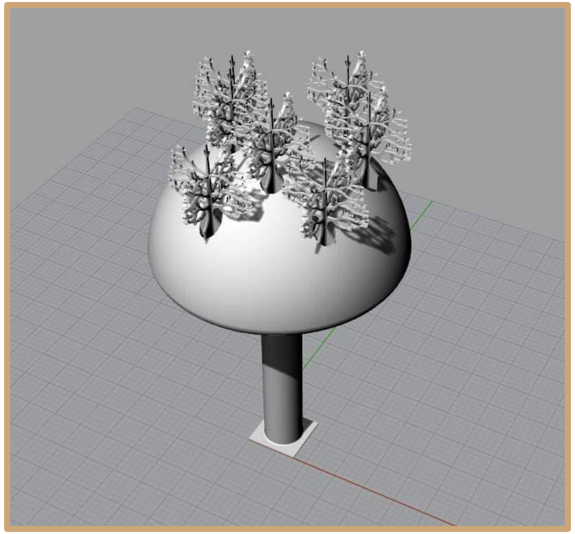
POUTINE MENU POUTINE

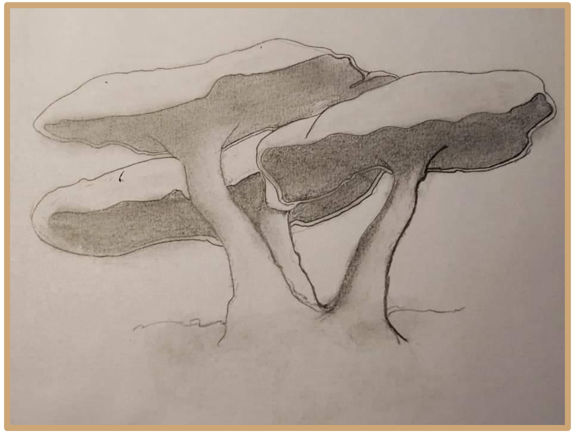
CAFÉ NOSTALGICA

Prototype I

- Small scale
- Upright
- Recycled materials

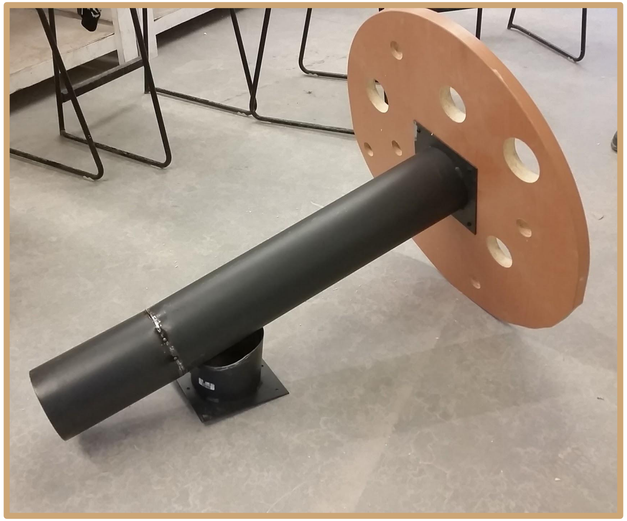


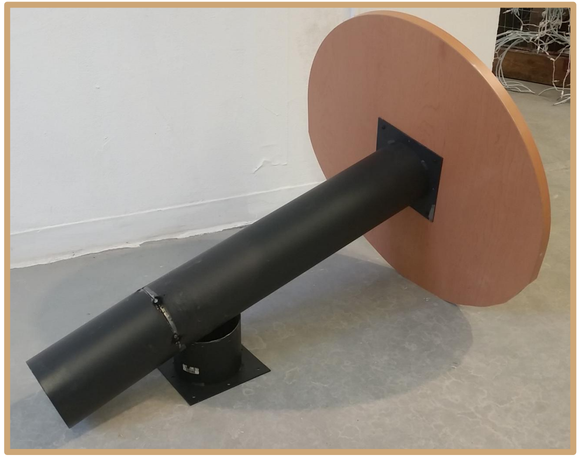


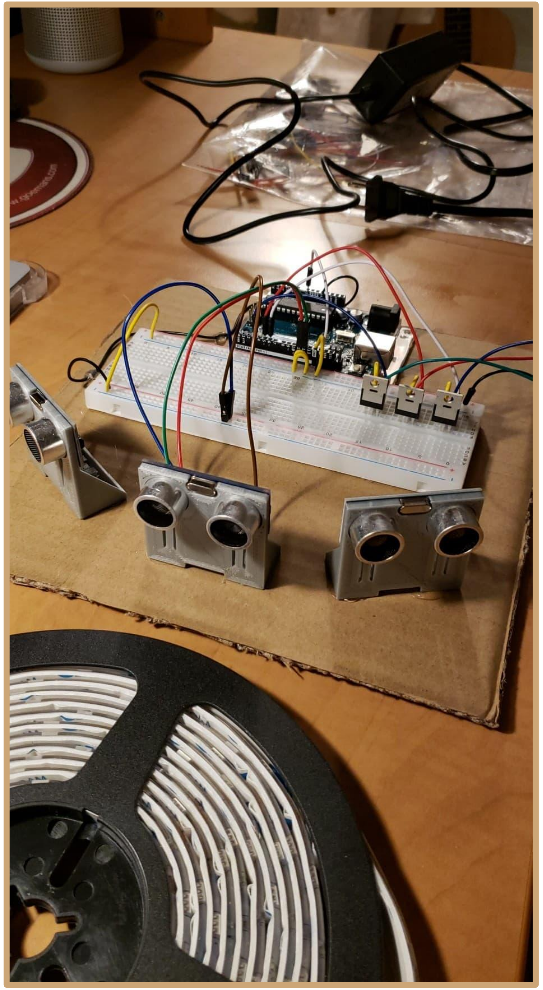


Prototype II

- Large scale
- Structural components
- Electrical components
- Design modifications

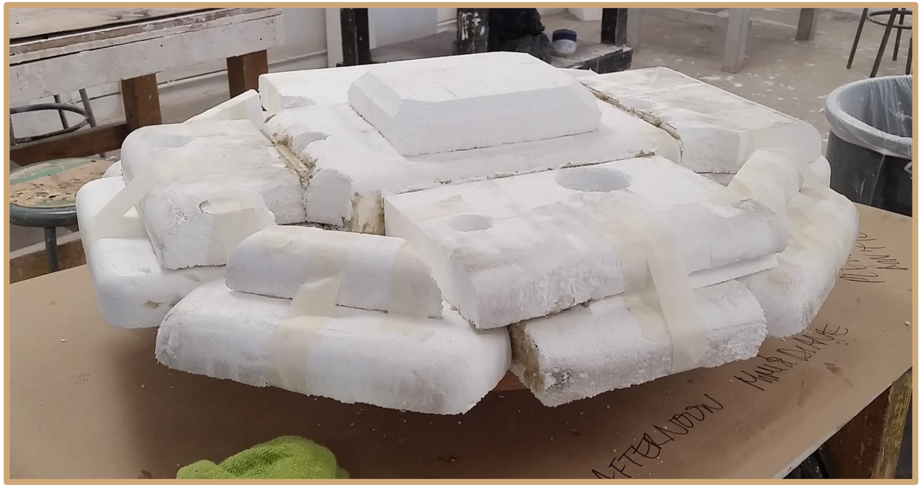


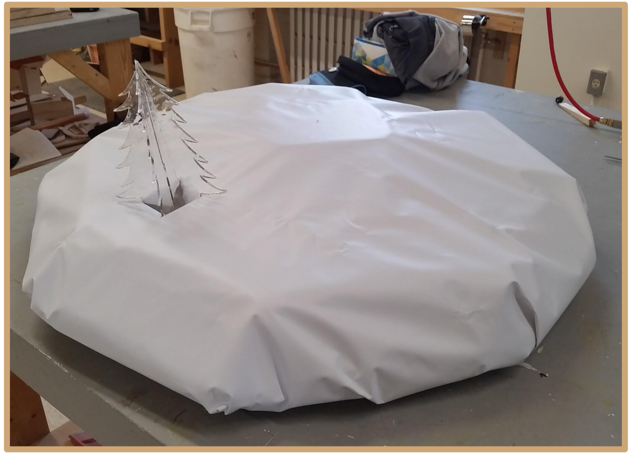


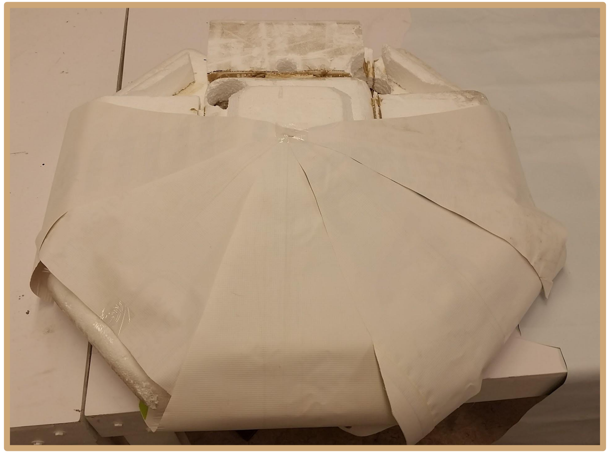


Prototype III

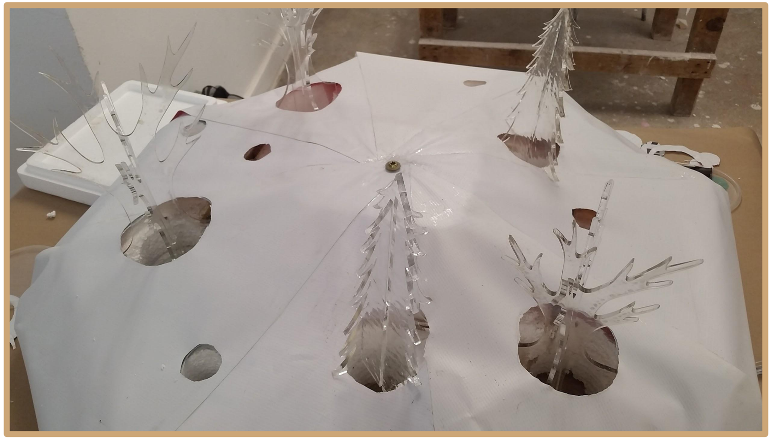
- Weather-proofing
- Design and material modifications
- Aesthetic components

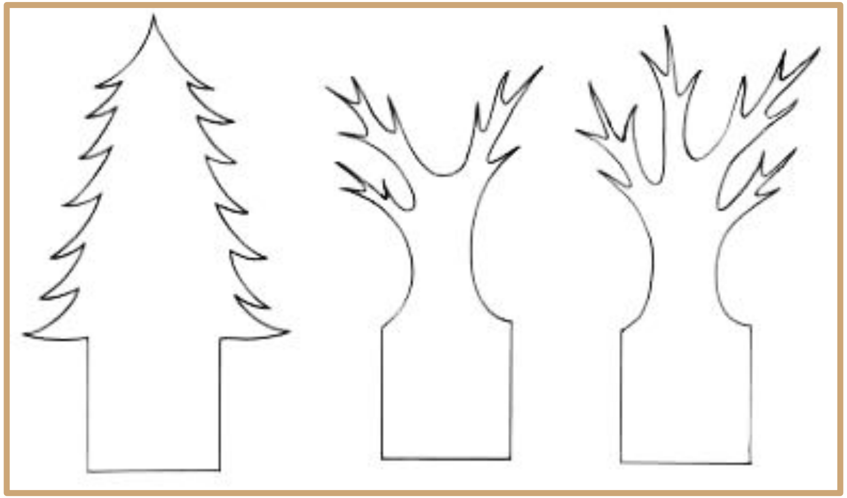






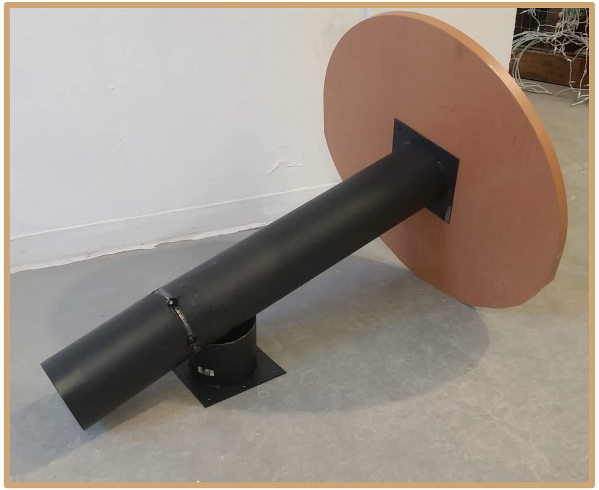
Prototype III





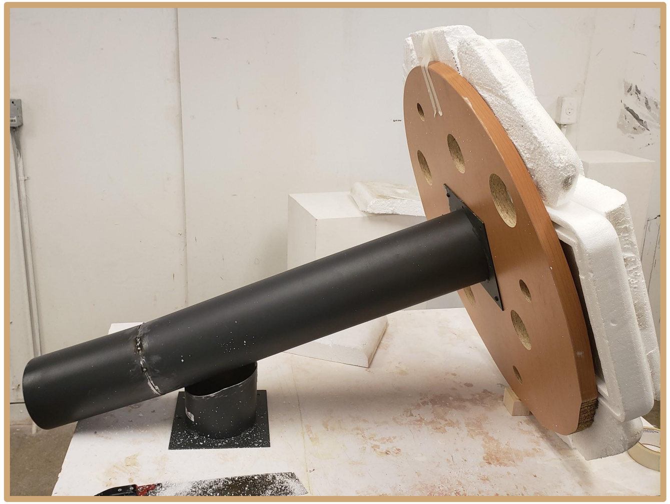
Structural Components

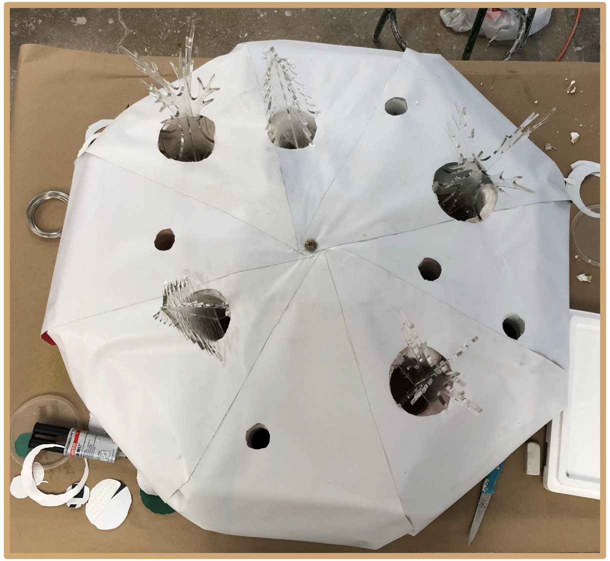
- Repurposed tables
- Recycled styrofoam
- Repurposed canvas



Structural Integrity

- Sturdy frame
- Three anchor points
- Holes to allow air flow
- Weather proof canvas





Electrical Systems & Programming Prototypes

Components:

- Arduino Microcontroller
- Breadboard
- NPN transistors (IRLB8721) × 3
- RGB LED strip (5m)
- Ultrasonic sensors (HC-SR04) × 3
- 3D-printed sensor supports

Fig. 1: transistor

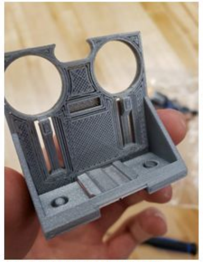


Fig. 2: 3D printed support

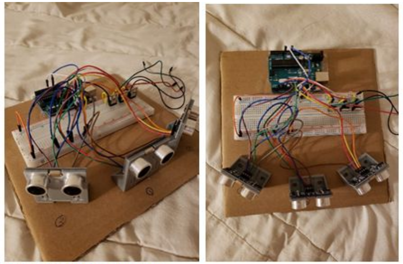
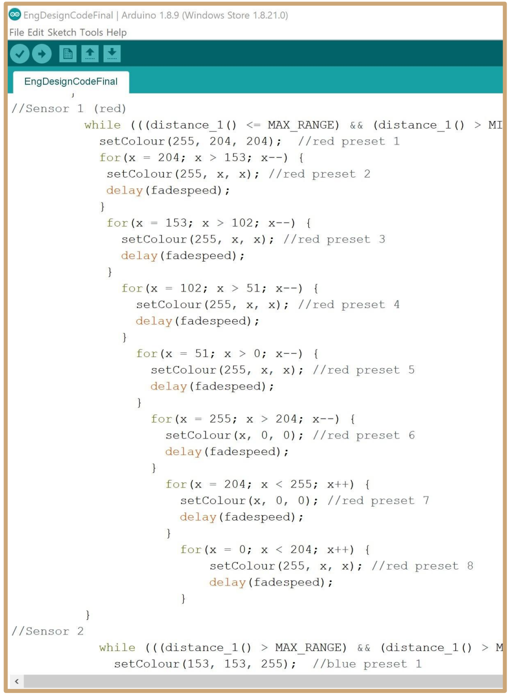


Fig. 3: Complete Prototype

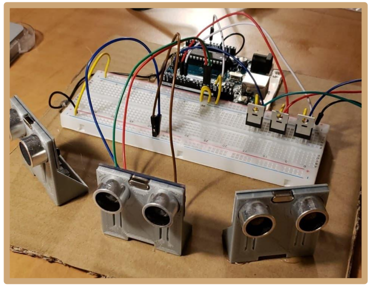
Fig. 4: RGB LED Strip

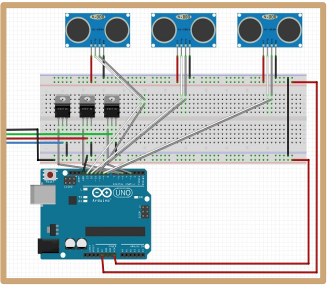

EngDesignCodeFinal | Arduino 1.8.9 (Windows Store 1.8.21.0)
File Edit Sketch Tools Help
EngDesignCodeFinal

```
//Sensor 1 (red)
          while (((distance_1() <= MAX_RANGE) && (distance_1() > MI
            setColour(255, 204, 204);  //red preset 1
            for(x = 204; x > 153; x--) {
             setColour(255, x, x); //red preset 2
             delay(fadespeed);
            }
             for(x = 153; x > 102; x--) {
               setColour(255, x, x); //red preset 3
               delay(fadespeed);
             }
               for(x = 102; x > 51; x--) {
                 setColour(255, x, x); //red preset 4
                 delay(fadespeed);
               }
                 for(x = 51; x > 0; x--) {
                   setColour(255, x, x); //red preset 5
                   delay(fadespeed);
                 }
                   for(x = 255; x > 204; x--) {
                     setColour(x, 0, 0); //red preset 6
                     delay(fadespeed);
                   }
                     for(x = 204; x < 255; x++) {
                       setColour(x, 0, 0); //red preset 7
                       delay(fadespeed);
                     }
                       for(x = 0; x < 204; x++) {
                           setColour(255, x, x); //red preset 8
                           delay(fadespeed);
                       }
          }
//Sensor 2
            while (((distance_1() > MAX_RANGE) && (distance_1() > M
              setColour(153, 153, 255);  //blue preset 1
```

Fig. 5: Code example

Prototype II





- Simple
- Efficient
- Allowed for easy problem solving with circuits and sensors

Prototype III

- Expansion of prototype II
- Secured circuit for easy access and quick fixes

Next step:

- Solderable breadboard to make connections permanent
- Weatherproof circuit and sensors

Cost

Items:	Cost:
LED Light Strip	$26.99
Ultrasonic Sensors	$13.99
8” Structural Wood Screw	$3.30
QuickCure5 Epoxy	$32.21
Transistors	$4.00
Breadboard jumper cables	$2.00
22AWG hook-up wire	$1.50

Total: **$84.00**

Final Prototype