Equilibrium Design Presentation

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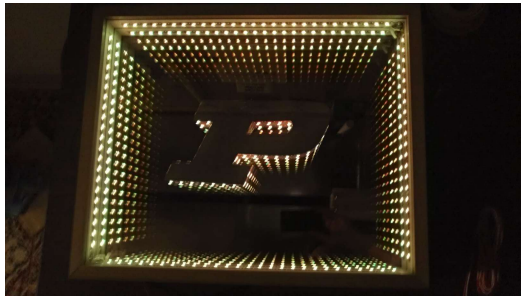
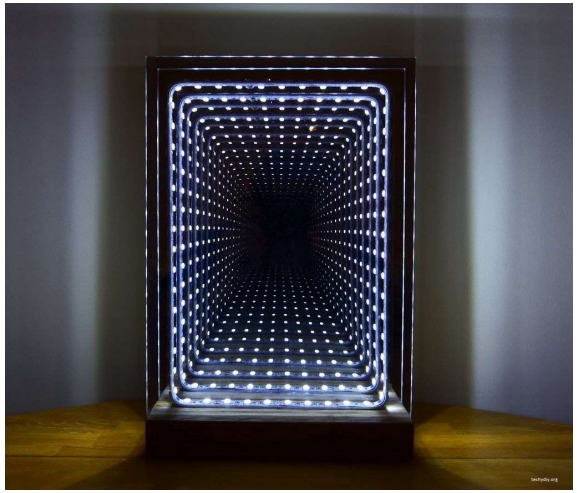
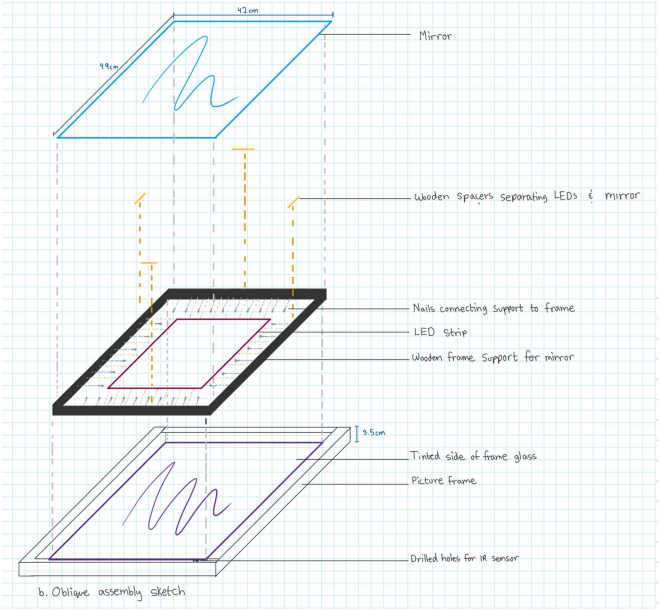
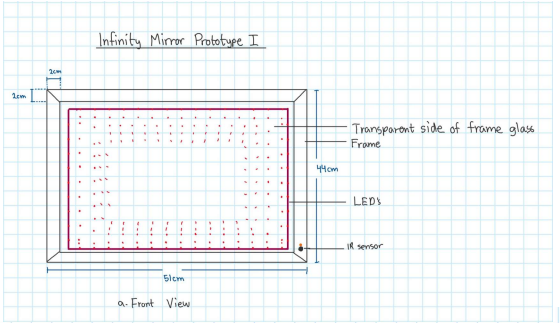
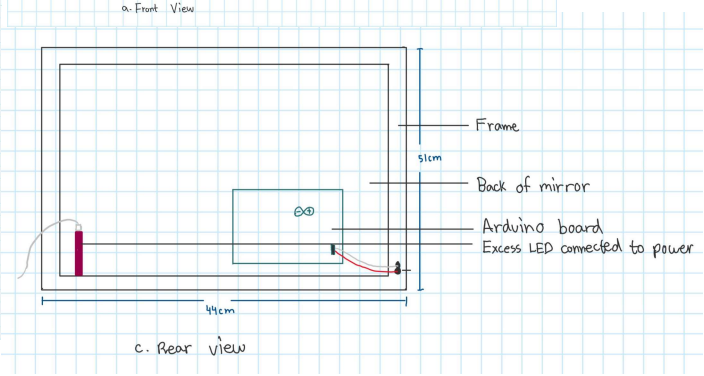




What is our design

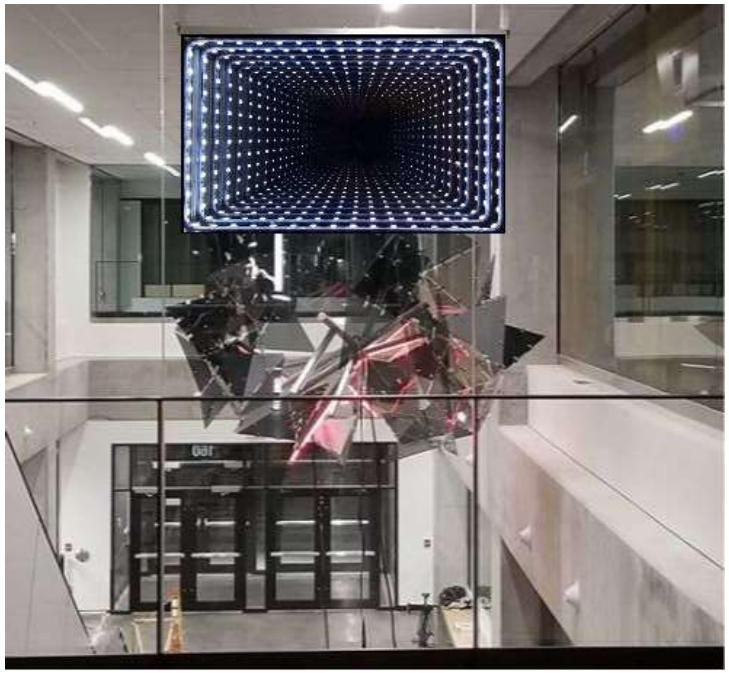






An Infinity mirror

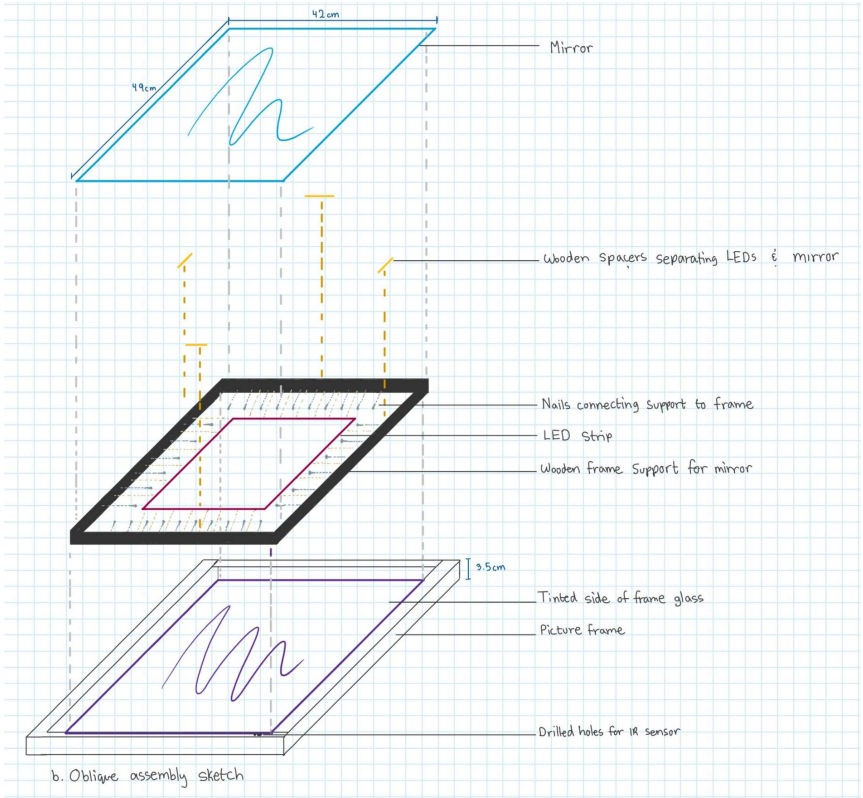
How to incorporate

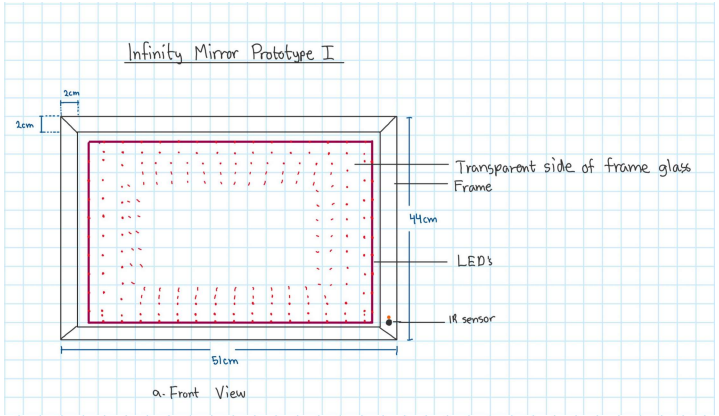


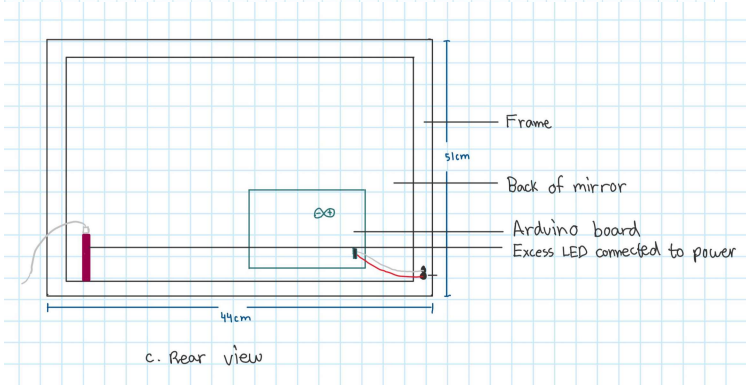
- Infinity mirror frame

- IR sensor implementation

Prototype I

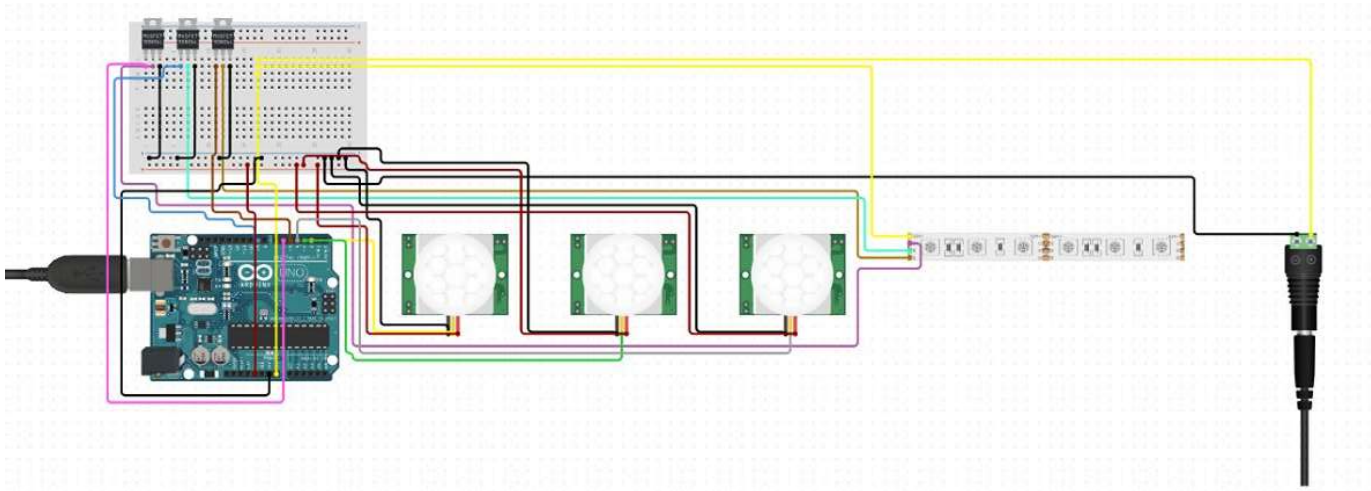

42cm
49cm
Mirror
Wooden spacers separating LEDs & mirror
Nails connecting support to frame
LED Strip
Wooden frame Support for mirror
9.5cm
Tinted side of frame glass
Picture frame
Drilled holes for IR sensor
b. Oblique assembly sketch


Infinity Mirror Prototype I
2cm
2cm
Transparent side of frame glass
Frame
44cm
LEDs
IR sensor
51cm
a. Front View


Frame
51cm
Back of mirror
Arduino board
Excess LED connected to power
44cm
c. Rear view

```
// Include Libraries
#include "Arduino.h"
#include "RCRLed.h"
#include "PIR.h"


// Pin Definitions
#define LEDSTRIPRCR_PIN_SIGR  5
#define LEDSTRIPRCR_PIN_SIGB  9
#define LEDSTRIPRCR_PIN_SIGG  6
#define PIR_1_PIN_SIG 2
#define PIR_2_PIN_SIG 3
#define PIR_3_PIN_SIG 4


// Global variables and defines
#define LedStripRCR_TYPE COMMON_CATHODE
// object initialization
RCRLed LedStripRCR(LEDSTRIPRCR_PIN_SIGR,LEDSTRIPRCR_PIN_SIGG,LEDSTRIPRCR_PIN_SIGB,LedStripRCR_TYPE);
PIR pir_1(PIR_1_PIN_SIG);
PIR pir_2(PIR_2_PIN_SIG);
PIR pir_3(PIR_3_PIN_SIG);


// define vars for testing menu
const int timeout = 10000;       //define timeout of 10 sec
char menuOption = 0;
long time0;

void setup()
{
    // Setup Serial which is useful for debugging
    // Use the Serial Monitor to view printed messages
    Serial.begin(9600);
    while (!Serial) ; // wait for serial port to connect. Needed for native USB
    Serial.println("start");

    LedStripRCR.turnOff();              // Start with  LED Strip RCB turned off
    menuOption = menu();

}

void loop()
{


    if(menuOption == '1') {
    // LED RCB Strip - Race (1a) - Test Code
    // The LED Strip RCB will turn PURPLE for 500ms(half a second) and turn off
    LedStripRCR.setRCB(160, 3, 255);
    delay(500);
    LedStripRCR.turnOff();
    delay(500);
    }
    else if(menuOption == '2') {
    // Infrared PIR Motion Sensor Module #1 - Test Code
    bool pir_1Val = pir_1.read();
    Serial.print(F("Val: ")); Serial.println(pir_1Val);

    }
    else if(menuOption == '3') {
    // Infrared PIR Motion Sensor Module #2 - Test Code
    bool pir_2Val = pir_2.read();
    Serial.print(F("Val: ")); Serial.println(pir_2Val);

    }
    else if(menuOption == '4') {
    // Infrared PIR Motion Sensor Module #3 - Test Code
    bool pir_3Val = pir_3.read();
    Serial.print(F("Val: ")); Serial.println(pir_3Val);

    }

    if (millis() - time0 > timeout)
    {
        menuOption = menu();
    }

}



// Menu function for selecting the components to be tested
// Follow serial monitor for instructions
char menu()
{

    Serial.println(F("\nWhich component would you like to test?"));
    Serial.println(F("(1) LED RCB Strip - Race (1a)"));
    Serial.println(F("(2) Infrared PIR Motion Sensor Module #1"));
    Serial.println(F("(3) Infrared PIR Motion Sensor Module #2"));
    Serial.println(F("(4) Infrared PIR Motion Sensor Module #3"));
    Serial.println(F("(menu) send anything else or press on board reset button\n"));
    while (!Serial.available());

    // Read data from serial monitor if received
    while (Serial.available())
    {
        char c = Serial.read();
        if (isAlphaNumeric(c))
        {

          if(c == '1')
            Serial.println(F("Now Testing LED RCB Strip - Race (1a)"));
        else if(c == '2')
            Serial.println(F("Now Testing Infrared PIR Motion Sensor Module #1"));
        else if(c == '3')
            Serial.println(F("Now Testing Infrared PIR Motion Sensor Module #2"));
        else if(c == '4')
            Serial.println(F("Now Testing Infrared PIR Motion Sensor Module #3"));
            else
            {
                Serial.println(F("Illegal input!"));
                return 0;
            }
            time0 = millis();
            return c;
        }
    }
}
```

Prototype II



Why implement the solution?

- Implement to fix fundamental design
- Stays within budget
- Make a more green design

Clients and Users?

- People who are engineering enthusiasts

- Artists

- University Students