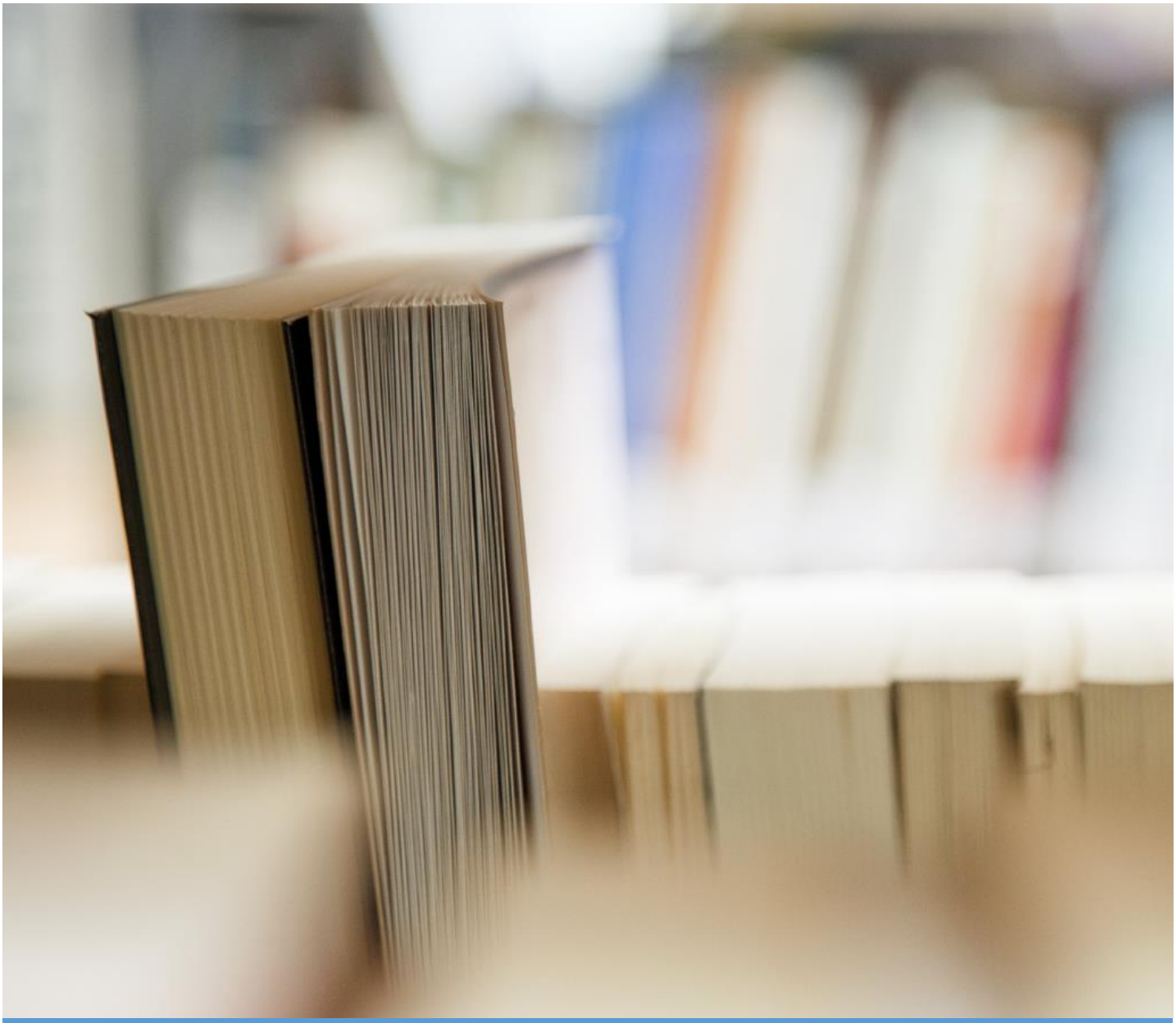


Internet of Things

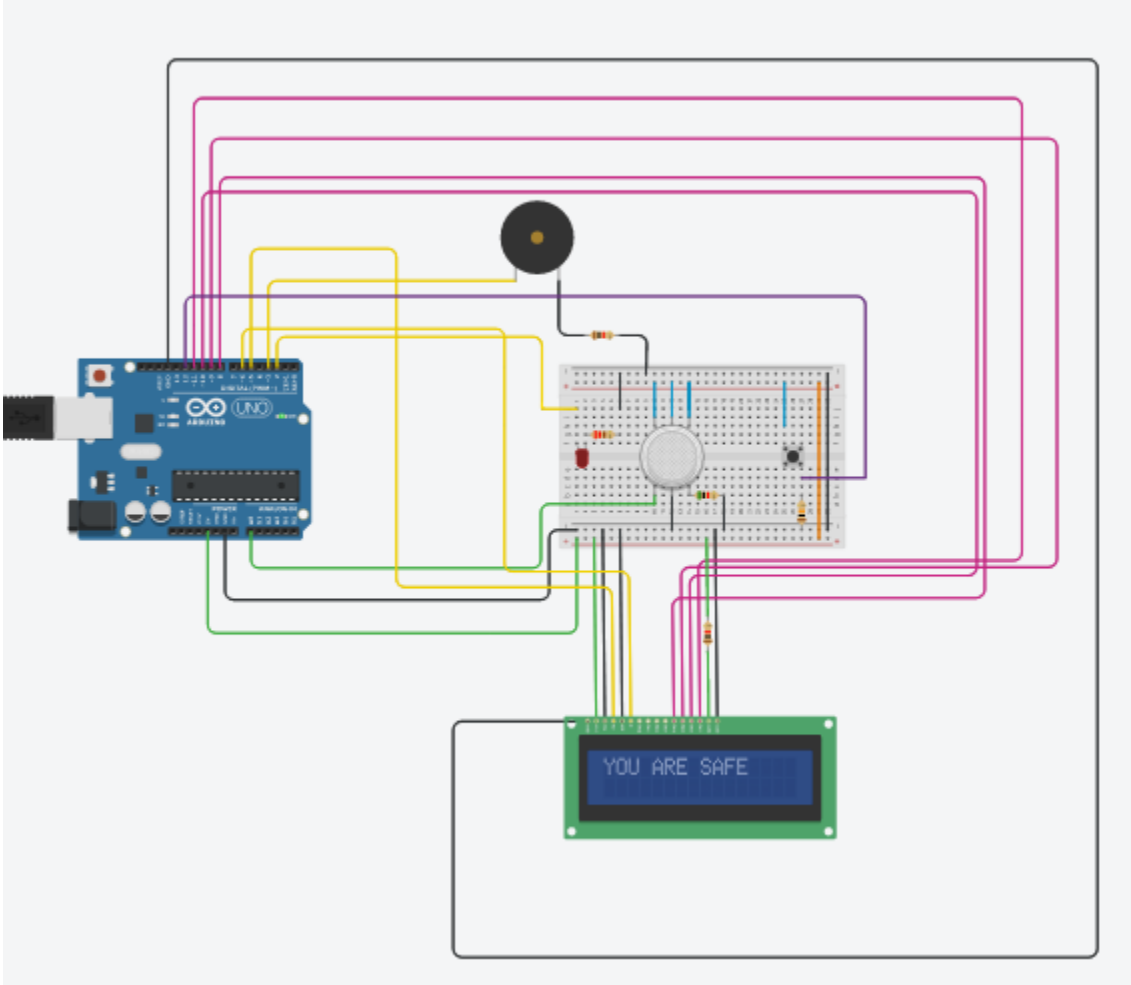
Smoke Detection System in TinkerCAD

Amantle Mashele

7/31/20

Internet of Things 281

Design in TinkerCad

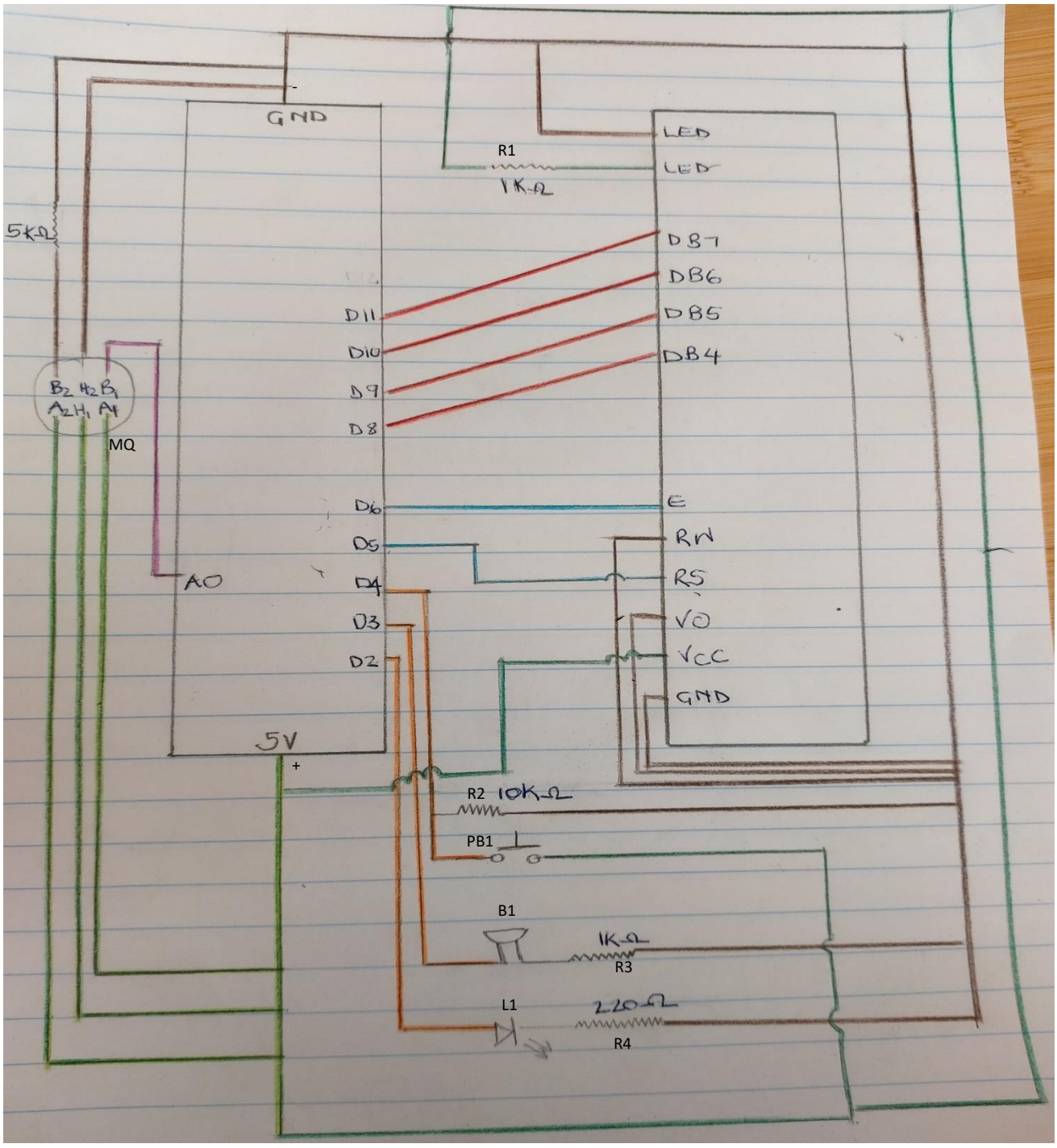


Arduino Sketch

```
#include <LiquidCrystal.h>
LiquidCrystal lcd(5,6,8,9,10,11);

int state =0;
int sensorThresh = 400;

void setup()
{
pinMode(2, OUTPUT);
pinMode(3,OUTPUT);
pinMode(4,INPUT);
pinMode(A0,INPUT);
Serial.begin(9600);
lcd.begin(16,2);
}

void loop()
{
  int analogValue = analogRead(A0);
  Serial.print(analogValue);
  state = digitalRead(2);
  if(analogValue>sensorThresh)
  {
    digitalWrite(2,HIGH);
    tone(3,1000,10000);
    lcd.clear();
    lcd.setCursor(0,1);
    lcd.print("DANGER ALERT");
    delay(500);
    lcd.clear();
    lcd.setCursor(0,1);
    lcd.print("EXIT NOW");
    delay(500);
  }
  if(analogValue<sensorThresh || state == HIGH)
  {
    digitalWrite(2,LOW);
    noTone(3);
    lcd.clear();
    lcd.setCursor(0,0);
    lcd.print("YOU ARE SAFE");
    delay(1500);
    lcd.clear();
```

```
    lcd.setCursor(0,1);
    lcd.print("NO WORRIES");
    delay(1500);
  }

}
```

Circuit schematic



System Description

Resistors: 220ohm Resistor, 10kilo ohm Resistor, 5kilo ohm Resistor, 2 x 1kilo ohm Resistor

Component	Role
Arduino Uno R3	An open source microcontroller that uses an ATmega328 microchip, a 16 MHz resonator, a USB connection, a power jack, an in-circuit system programming (ICSP) header, and a reset button.
16x2 LCD	Displays warning messages
MQ2 Gas Sensor	Connects to the analog pin and detects H2, LPG, CH4, CO, Alcohol, Smoke or Propane. Highly sensitive and leads to fast response time. Connected to the Arduino Uno through the Analog pin.
Normally Open Pushbutton	Open(low) until it is pressed, connected to the Arduino Uno R3 through a digital pin, pulled down by a 10Kilo ohm resistor
Red LED	Grounded a 220ohm resistor, connected to the Arduino by a digital pin