

# Tinkercad Wiring Schematic:

<https://www.tinkercad.com/things/gyXx0J9pBrg-start-simulating/editel?lessonid=EHD2303J3YPUS5Z&projectid=OIYJ88OJ3OPN3EA&collectionid=OIYJ88OJ3OPN3EA&sharecode=U1yPKdv6X8IWU2IpXrxK0juAu8JAYiBsJCjSO0L3v1I>

## Code for the Arduino:

```
/*
 * Project: Covid Mask Reminder System (CMRS)
 * This is the code designed to make the sonar, leds, buzzer, and lcd display work
 * used in project 3 (Covid Mask Reminder System) of Engineering 199 at WCU.
 * Programed by: Brandon Pitman, Phillip Roberson, and Dalton Whitaker
 * 11/18/2020
 */

int trigPin = 9;           //Set the int trigPin to be 9
int echoPin = 10;         //Set the int echoPin to be 10
int maxDistance = 91;     //Set the max distance for the hand sensor to be 3 feet.
int LEDs = 6;             //Set the leds to be pin 6
int Buzzer = 7;           // Set the buzzer to be pin 7
float duration, distance; //We will use these to calc distance
int rs = 12, en = 11, d4 = 5, d5 = 4, d6 = 3, d7 = 2; //set the used lcd pins as variables

#include <LiquidCrystal.h> //include the lcd library
LiquidCrystal lcd(rs, en, d4, d5, d6, d7); //initialize the lcd screen to use those variables

void setup()
{
  Serial.begin(9600); // This sets the serial ports data rate to 9600 bps
  pinMode(trigPin , OUTPUT); // Set pin 9 to an OUTPUT
  pinMode(echoPin , INPUT); // Set pin 10 to an INPUT
  pinMode(LEDs, OUTPUT); // set pin 6 to an OUTPUT
  pinMode(Buzzer, OUTPUT); //set pin 7to an OUTPUT
  lcd.begin(16, 2); //start the lcd screen to have 16,2 matrix of spaces
}

void loop()
{
```

```
digitalWrite(trigPin,LOW); // Set the trigger pin on the sonar to 0V
delayMicroseconds(2);    //Delay two microseconds
digitalWrite(trigPin,HIGH); //Set the trigger pin on the sonar to 5V
delayMicroseconds(10);   // Delay 10 microseconds
digitalWrite(trigPin,LOW); //Set the trigger pin on the sonar to 0V
```

```
duration = pulseIn(echoPin, HIGH); //Make the duration equal to the time it took to register the
echo
```

```
distance = (duration*.0343)/2; //Calculate the distance in cm
```

```
Serial.print("Distance: "); //Print distance in the serial printer
Serial.println(distance); // Print the value for the variable distance in the serial printer
delay(100); // Wait 100 ms
```

```
if (distance <= maxDistance) //if the distance is less than the max distance
```

```
{
```

```
  lcd.setCursor(0,0); //set the lcd to start printing at 0,0 of the matrix
```

```
  lcd.print("Mask is required inside"); //print the message starting at 0,0
```

```
  lcd.setCursor(4, 1); //set the lcd to start printing at 4,1 of the matrix
```

```
  lcd.print("INSIDE!"); //print the message starting at 4,1
```

```
  digitalWrite(LEDs, HIGH); //turn the leds on
```

```
  digitalWrite(Buzzer, HIGH); //turn the buzzer on
```

```
  delay(100); //delay half a second
```

```
  digitalWrite(Buzzer, LOW); //turn the buzzer off
```

```
  delay(100); //delay half a second
```

```
  digitalWrite(Buzzer, HIGH); //turn the buzzer on
```

```
  delay(100); //delay half a second
```

```
  digitalWrite(Buzzer, LOW); //turn the buzzer off
```

```
  delay(100);
```

```
  digitalWrite(Buzzer, HIGH); //turn the buzzer on
```

```
  delay(100); //delay half a second
```

```
  digitalWrite(Buzzer, LOW); //turn the buzzer off
```

```
  delay(100); //delay half a second
```

```
  digitalWrite(Buzzer, HIGH); //turn the buzzer on
```

```
  delay(100); //delay half a second
```

```
  digitalWrite(Buzzer, LOW);
```

```
  delay(100); //delay for five seconds
```

```
  digitalWrite(Buzzer, HIGH); //turn the buzzer on
```

```
  delay(100); //delay half a second
```

```
digitalWrite(Buzzer, LOW);
delay(5000);
digitalWrite(LEDs, LOW);    //turn the leds off
lcd.clear();                //clear the lcd's screen
}
else                          //else the distance is greater than the max distance
{
digitalWrite(Buzzer, LOW);    //keep the buzzer off
digitalWrite(LEDs, LOW);    //keep the leds off
lcd.clear();                //keep the lcd screen off
}
}
```