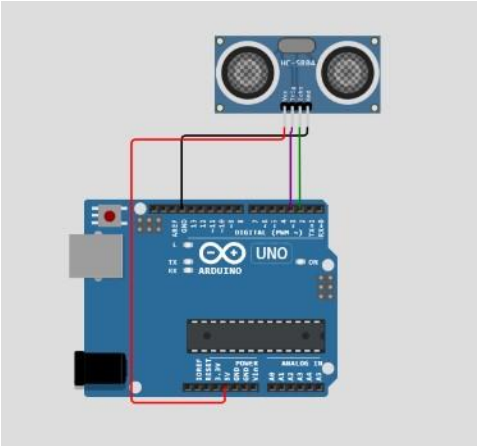
Assignment 4

Name	Kanisha R
Date	07 November 2022
Team ID	PNT2022TMID12941
Title	Signs with smart connectivity for better road safety

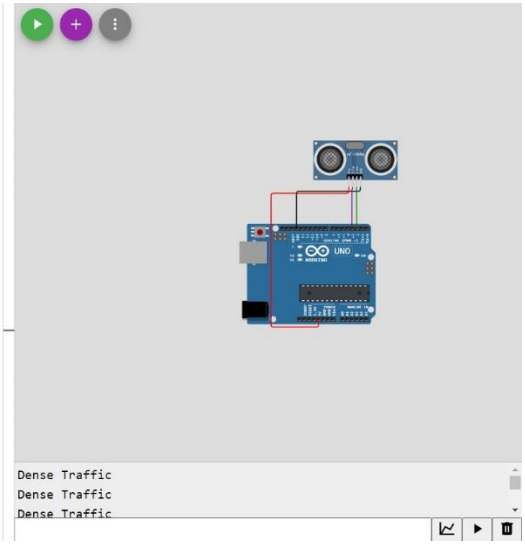
Simulation in wowki website:

Simulation circuit:

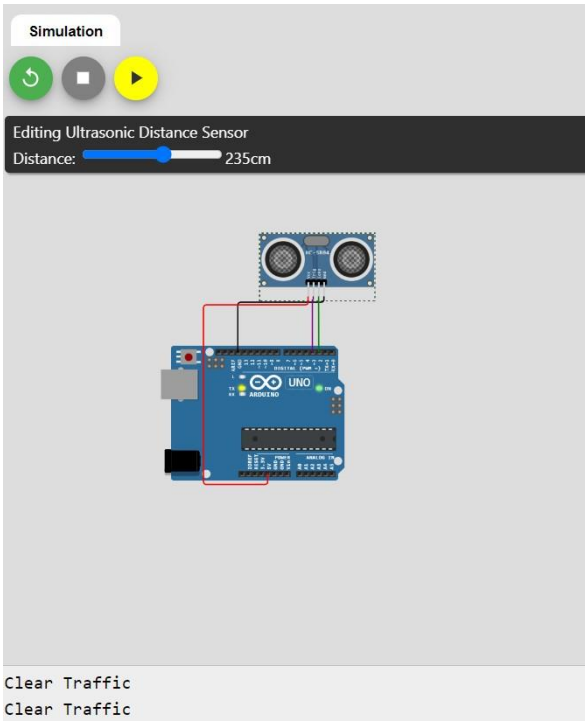


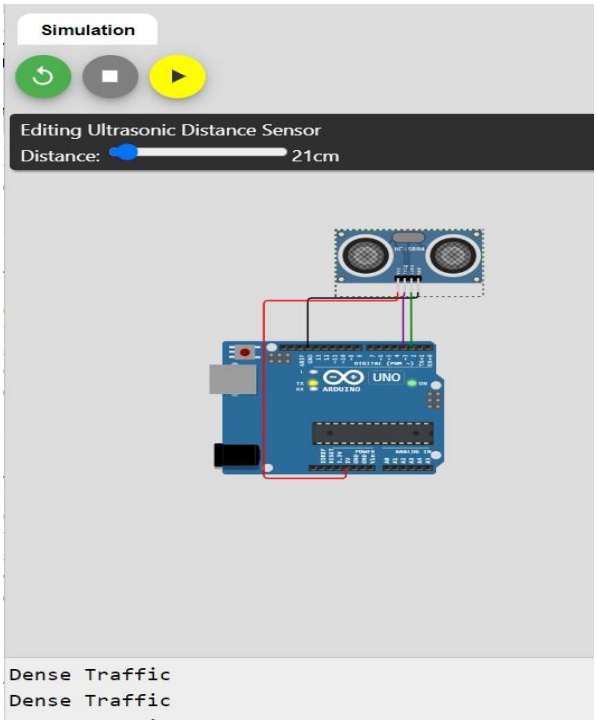
Simulation window:

```
#include <WiFi.h>
#include<PubSubClient.h>
void callback(char* subscribetopic,byte* payload, usigned int payloadLength);
//IBM credentials//
#define ORG "ne15x6"
#define DEVICE_TYPE "MP"
#define DEVICE_ID "0331"
#define TOKEN "03082000"
String data3;
char server[] = ORG ".messaging.internetofthings.ibmcloud.com";
char publishTopic[] = "iot-2/evt/Data/fmt/json";
char subscribetopic[] = "iot-2/cmd/test/fmt/String";
char authMethod[] = "use-token-auth";
char token[] = TOKEN;
char clientId[] = "d:" ORG ":" DEVICE_TYPE ":" DEVICE_ID;
WiFiClient wifiClient;
PubSubClient client(server, 1883, callback ,wifiClient);
//Main code//
#define ECHO_PIN 2
#define TRIG_PIN 3

void setup() {
  Serial.begin(115200);
  pinMode(TRIG_PIN, OUTPUT);
  pinMode(ECHO_PIN, INPUT);
}

float readDistanceCM() {
  digitalWrite(TRIG_PIN, LOW);
  delayMicroseconds(2);
  digitalWrite(TRIG_PIN, HIGH);
  delayMicroseconds(10);
  digitalWrite(TRIG_PIN, LOW);
  int duration = pulseIn(ECHO_PIN, HIGH);
  return duration * 0.034 / 2;
```

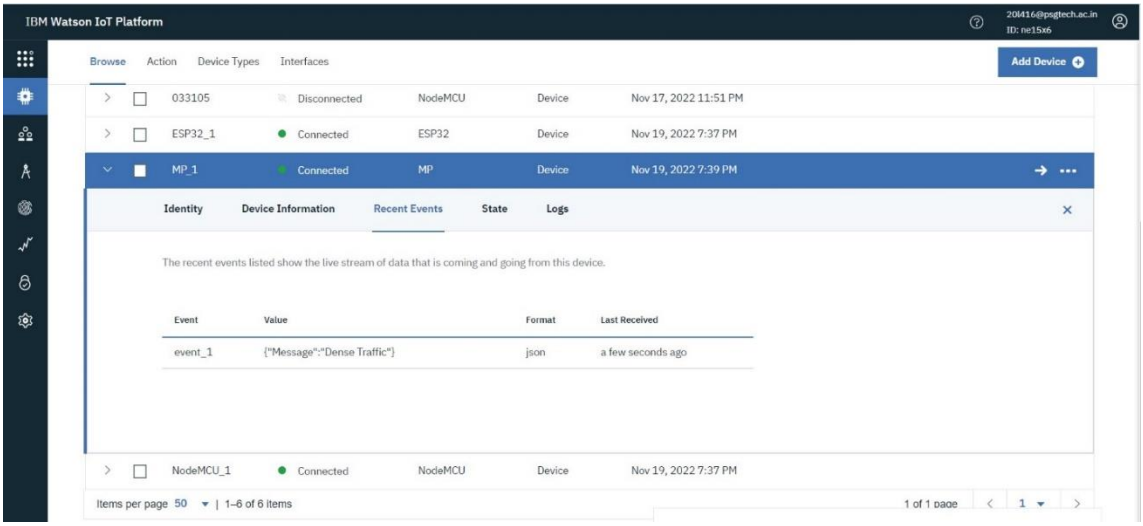


Output at wowki simulation tool:





Interfacing with IBM Watson IOT Platform:



C++ Code for wowki simulation:

```
#include <WiFi.h>
#include<PubSubClient.h>
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//IBM credentials//
#define ORG "ne15x6"
```

```
#define DEVICE_TYPE "MP"
#define DEVICE_ID "0331"
#define TOKEN "03082000"
String data3;
char server[] = ORG ".messaging.internetofthings.ibmcloud.com";
char publishTopic[] = "iot-2/evt/Data/fmt/json";
char subscribetopic[] = "iot-2/cmd/test/fmt/String";
char authMethod[] = "use-token-auth";
char token[] = TOKEN;
char clientId[] = "d:" ORG ":" DEVICE_TYPE ":" DEVICE_ID;
WiFiClient wifiClient;
PubSubClient client(server, 1883, callback ,wifiClient);
//Main code//
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void setup() {
  Serial.begin(115200);
  pinMode(TRIG_PIN, OUTPUT);
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}

float readDistanceCM() {
  digitalWrite(TRIG_PIN, LOW);
  delayMicroseconds(2);
  digitalWrite(TRIG_PIN, HIGH);
  delayMicroseconds(10);
  digitalWrite(TRIG_PIN, LOW);
  int duration = pulseIn(ECHO_PIN, HIGH);
  return duration * 0.034 / 2;
}

void loop()
{
  float distance = readDistanceCM();
  if(distance<25)
  {
    Serial.println("Dense Traffic");
  }
  else
  {
    Serial.println("Clear Traffic");
  }
  delay(100);
}
```