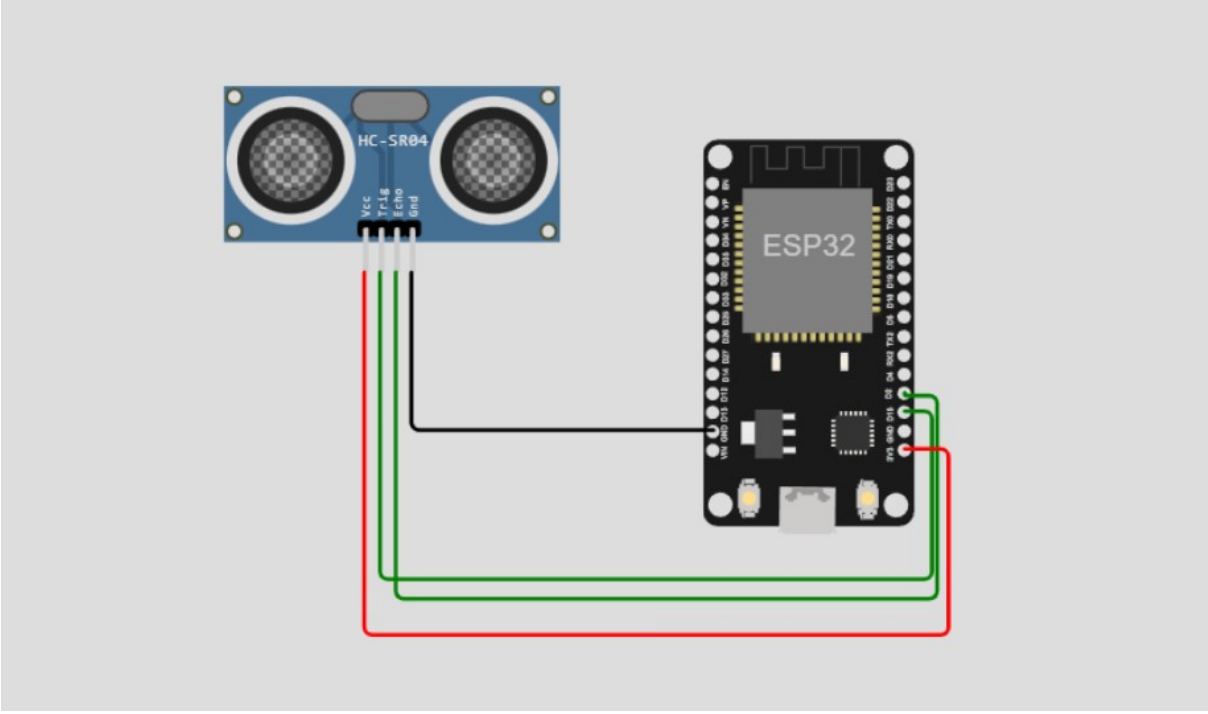
ASSIGNMENT IV

Write code and connections in wowki for the ultrasonic sensor. Whenever the distance is less than 100 cms send an “alert” to the IBM cloud and display in the device recent events.

CIRCUIT DIAGRAM:



PROGRAM:

```
const int TRIG = 12;

const int ECHO = 13;

const unsigned int MAX_DIST = 23200;

void setup() {

pinMode(TRIG, OUTPUT);

digitalWrite(TRIG, LOW);

pinMode(ECHO, INPUT ) ;

Serial.begin(9600);

}

void loop() {

unsigned long t1;

unsigned long t2;

unsigned long pulse_width;

float cm;

float inches;

digitalWrite(TRIG, HIGH);

delayMicroseconds(10);

digitalWrite(TRIG, LOW);

while (digitalRead( ECHO )==0 );
```

```
t1= micros ();

while (digitalRead(ECHO) == 1);

t2= micros ();

pulse_width = t2-t1;

cm=pulse_width / 58 ;

inches = pulse_width/148.0;

if (pulse_width >MAX_DIST){

Serial.println("OUT OF RANGE");

} else {

Serial.println("********************************");

Serial.print("THE MEASURED DISTANCE IN CM: ");

Serial.println(cm);

if( cm < 100 ){

Serial.println("ALERT!!");

}

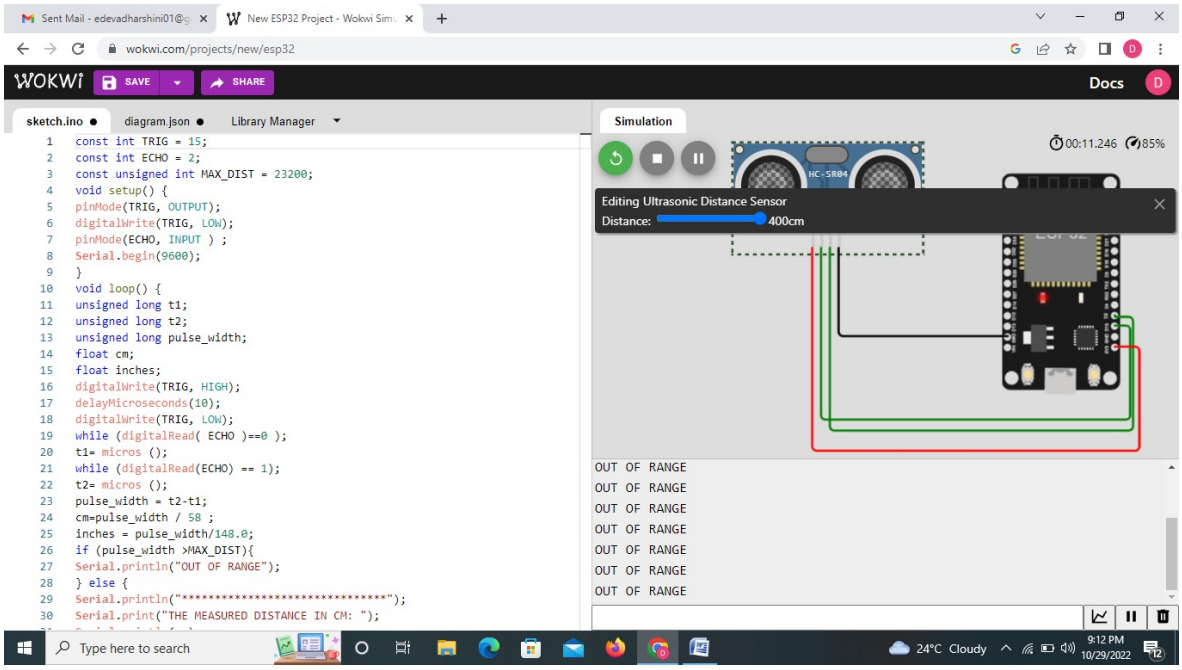
Serial.print("************************************");

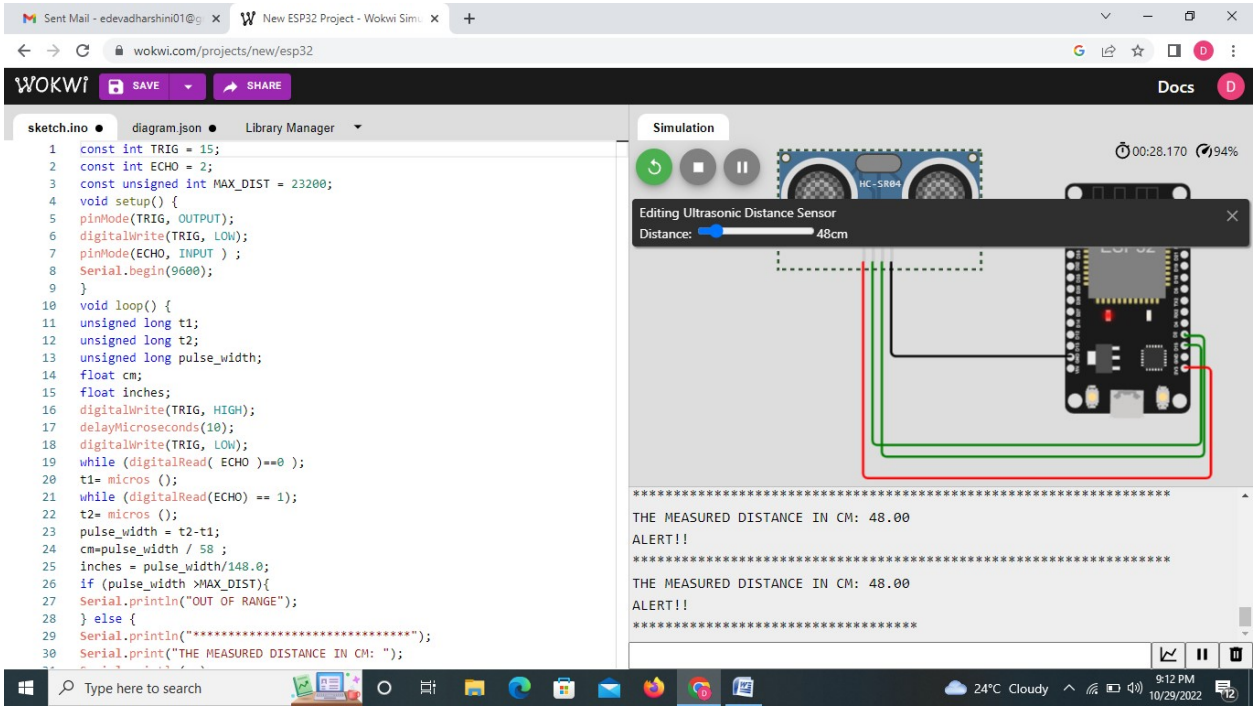
}

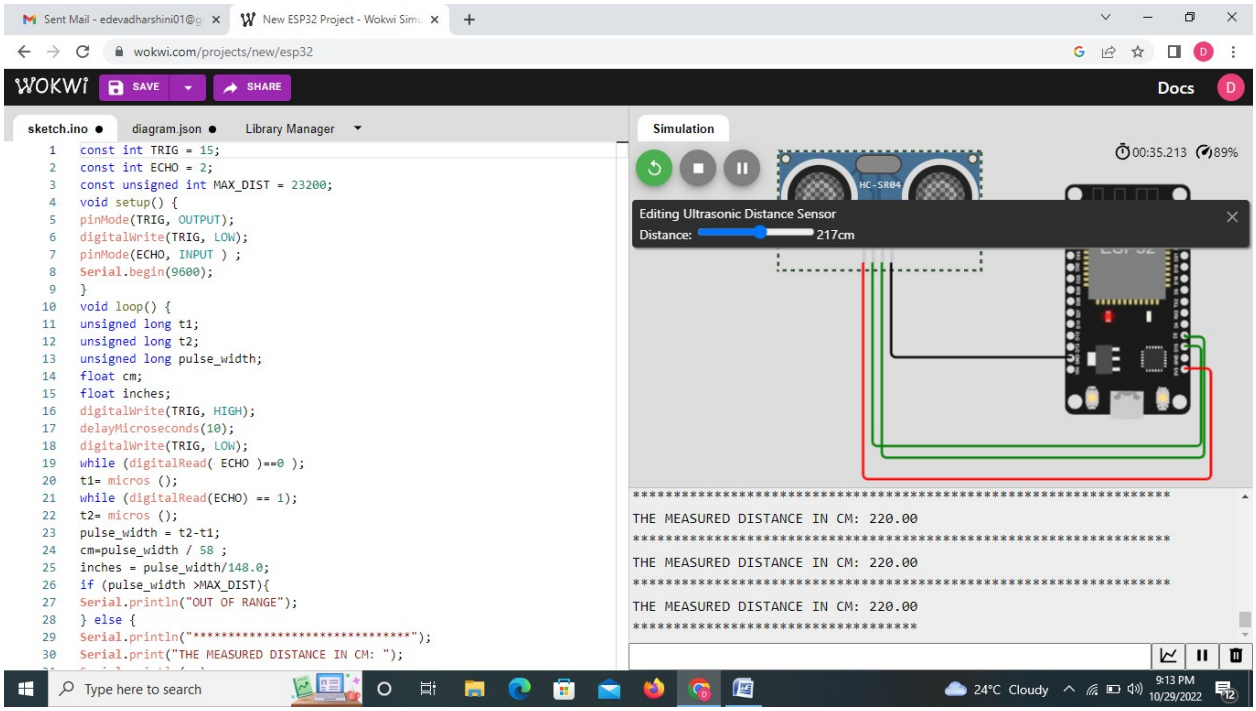
delay(1000);

}
```

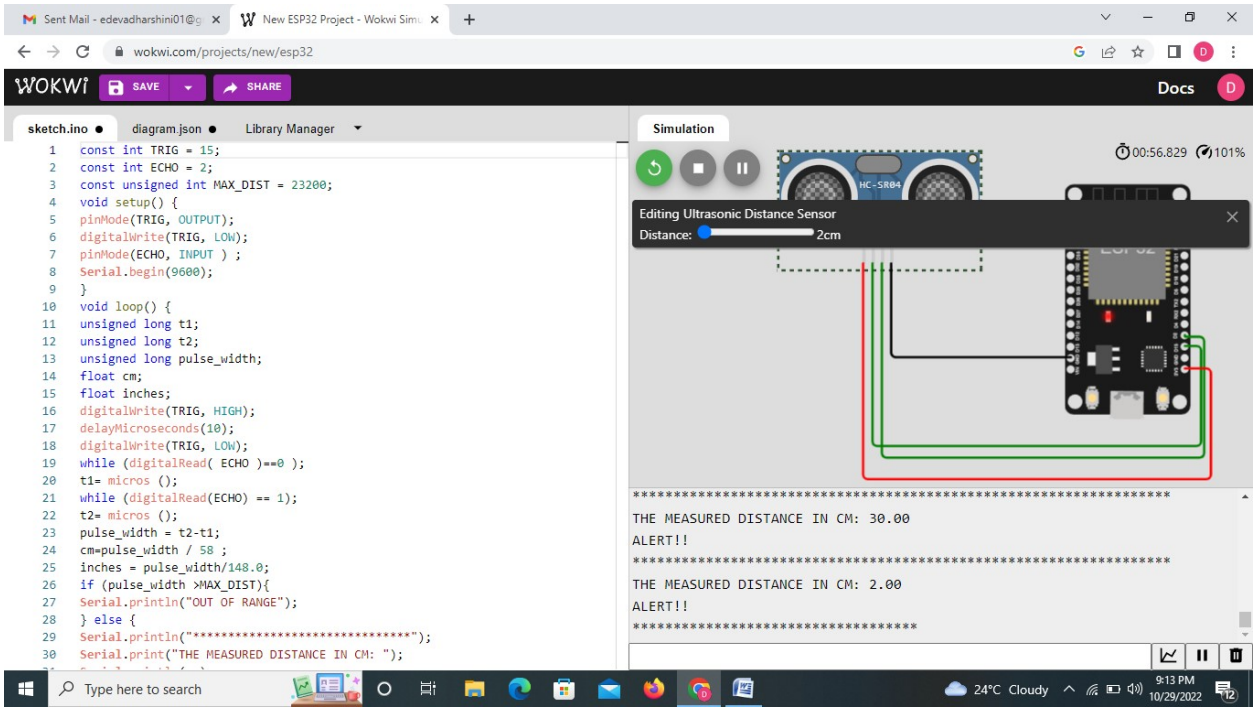
OUTPUTS:


wokwi.com/projects/new/esp32
WOKWI
SAVE
SHARE
Docs
sketch.ino
diagram.json
Library Manager
Simulation
00:11.246
85%
HC-SR04
Editing Ultrasonic Distance Sensor
Distance:
400cm
OUT OF RANGE
OUT OF RANGE
OUT OF RANGE
OUT OF RANGE
OUT OF RANGE
OUT OF RANGE
OUT OF RANGE
Type here to search
24°C Cloudy
9:12 PM
10/29/2022


wokwi.com/projects/new/esp32
WOKWI
SAVE
SHARE
Docs
sketch.ino
diagram.json
Library Manager
Simulation
00:28.170
94%
HC-SR04
Editing Ultrasonic Distance Sensor
Distance:
48cm
THE MEASURED DISTANCE IN CM: 48.00
ALERT!!
THE MEASURED DISTANCE IN CM: 48.00
ALERT!!
Type here to search
24°C Cloudy
9:12 PM
10/29/2022




```
const int TRIG = 15;
const int ECHO = 2;
const unsigned int MAX_DIST = 23200;
void setup() {
pinMode(TRIG, OUTPUT);
digitalWrite(TRIG, LOW);
pinMode(ECHO, INPUT ) ;
Serial.begin(9600);
}
void loop() {
unsigned long t1;
unsigned long t2;
unsigned long pulse_width;
float cm;
float inches;
digitalWrite(TRIG, HIGH);
delayMicroseconds(10);
digitalWrite(TRIG, LOW);
while (digitalRead( ECHO )==0 );
t1= micros ();
while (digitalRead(ECHO) == 1);
t2= micros ();
pulse_width = t2-t1;
cm=pulse_width / 58 ;
inches = pulse_width/148.0;
if (pulse_width >MAX_DIST){
Serial.println("OUT OF RANGE");
} else {
Serial.println("*******************************");
Serial.print("THE MEASURED DISTANCE IN CM: ");
```




```
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void setup() {
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WOWKI SHARE LINK:

https://wokwi.com/projects/346868465723769428

CLOUD IMAGE: