TEAM ID : PNT2022TMID45172

Assignment 4 :

Write code and connections in wokwi 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.

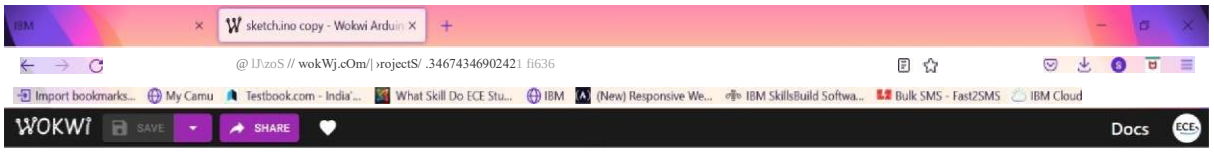
Program

```
//Pins
constintTRIG_PIN=7;
constintECHO_PIN=8;

//Anything over 400 cm (23200 us pulse) is "out of range"
constunsignedintMAX_DIST=23200;

void setup(){

  // The Trigger pin will tell the sensor to range find
  pinMode(TRIG_PIN,OUTPUT);
  digitalWrite(TRIG_PIN,LOW);
  //SetEchopinasinputtomeasurethedurationof
  //pulses coming back from the distance sensor
  pinMode(ECHO_PIN,INPUT);
  // We'll use the serial monitor to view the sensor output
  Serial.begin(9600);
}
void loop() {
  unsignedlongt1;
  unsignedlongt2;
  unsignedlongpulse_width; float
  cm;
  floatinches;

  // Hold the trigger pin high for at least 10 us
  digitalWrite(TRIG_PIN,HIGH); delayMicroseconds(10);
  digitalWrite(TRIG_PIN,LOW);

  //Waitforpulseonechopin
  while(digitalRead(ECHO_PIN)==0);

  // Measurehow longthe echo pinwas held high (pulsewidth)
  //Note:themicros()counterwilloverflowafter~70min t1=
  micros();
  while(digitalRead(ECHO_PIN)==1); t2=
  micros();
```

```
  pulse_width=t2-t1;
  // Calculate distance in centimeters and inches. The constants
  //are found in the datasheet, and calculated from the assumed speed
  //ofsoundinairatsealevel(-340m/s) cm=pulse_width/
  58 ;
  inches=pulse_width/148.0;
  //Printoutresults
  if (pulse_width>MAX_DIST){
    Serial.println("Outofrange");
    }
    else{
      Serial.println("******************************");
      Serial.print("TheMeasuredDistanceincm:");
      Serial.println(cm);

      if( cm < 100 ){
        //while(true){
          Serial.println("Alert!!");
          //}
    }
    Serial.print("**********************************");
    }
//wait at least 1000ms before next measurement
delay(1000);
}
```

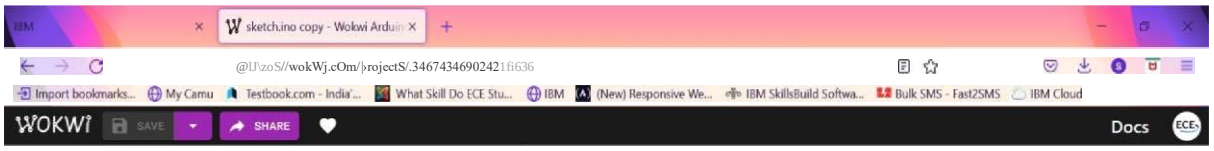
Output:

1. If the distance is less than 100 cms ,it alerts.

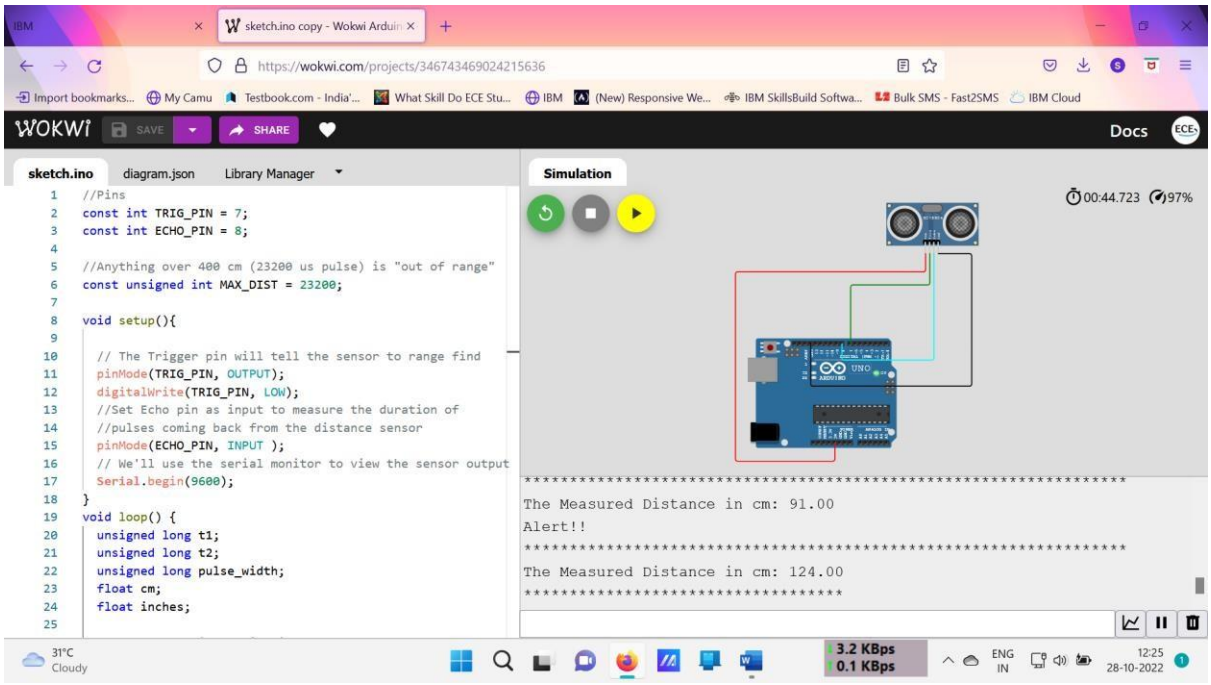


```
// The Trigger pin will tell the sensor to range find

//pulses coming back from the distance sensor
pinMode(ECHO_PIN, INPUT );

}
void loop() {
  unsigned long t1;
  unsigned long t2;
  unsigned long pulse_width;
  float cm;
```

```
Tne Mea en red Dr stance in etc: 2 68. 00
**********Out of range

TneMeasuredDistanceincm:197.00


TheMeasuredDistanceincm:2.00
Alert!!
```



```
// The Trigger pin will tell the sensor to range find
digitalWrite(TRIG_PIN, LOW);                                    ee

pinMode(ECHO_PIN, INPUT );


unsigned long t2;                          TheMeasuredDistanceincm:Z.00
unsigned long pulse_width;                 Alert!!
```



Link:
https://wokwi.com/projects/346743469024215636