**Assignment – 4**

**Write code and connections in wokwi for ultrasonic sensor. Whenever distance is** **less than 100cms send “alert” to ibm cloud and display in device recent events**

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| Team ID | PNT2022TMID40035 |
| Project Name | IOT-based smart crop protection system for agriculture |

# PROGRAM :

// ARDUINO PINS (TRIGGER PIN, ECHO

PIN) const int TRIG\_PIN = 7; const int ECHO\_PIN = 8;

// Anything over 400 cm (23200 us pulse) is "out of range" const unsigned int max\_dist = 23200;

void setup()

{

// The Trigger pin will tell the sensor to range find pinMode(TRIG\_PIN, OUTPUT);

digitalWrite(TRIG\_PIN, LOW);

//Set Echo pin as input to measure the time duration of pulse returning 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() {

unsigned long t1; unsigned long t2; unsigned long pulse\_width; float cm; float inches;

// Hold the trigger pin high for at least 10 us digitalWrite(TRIG\_PIN, HIGH);

delayMicroseconds(10);

digitalWrite(TRIG\_PIN, LOW); // Wait for pulse on echo pin while ( digitalRead(ECHO\_PIN) == 0 ); // Measure how long the echo pin was held high (pulse width) // Note: the micros() counter will overflow after ~70 min 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 //of sound in air at sea level (~340 m/s).

cm = pulse\_width / 58.0;

inches = pulse\_width / 148.0;

// Print out results

if ( pulse\_width > max\_dist ) {

**Serial**.println("Out of range");

} else {

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

**Serial**.print("Distance Measured in cm : ");

**Serial**.println(cm); if(cm<100){

// while(true){

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

// }

}

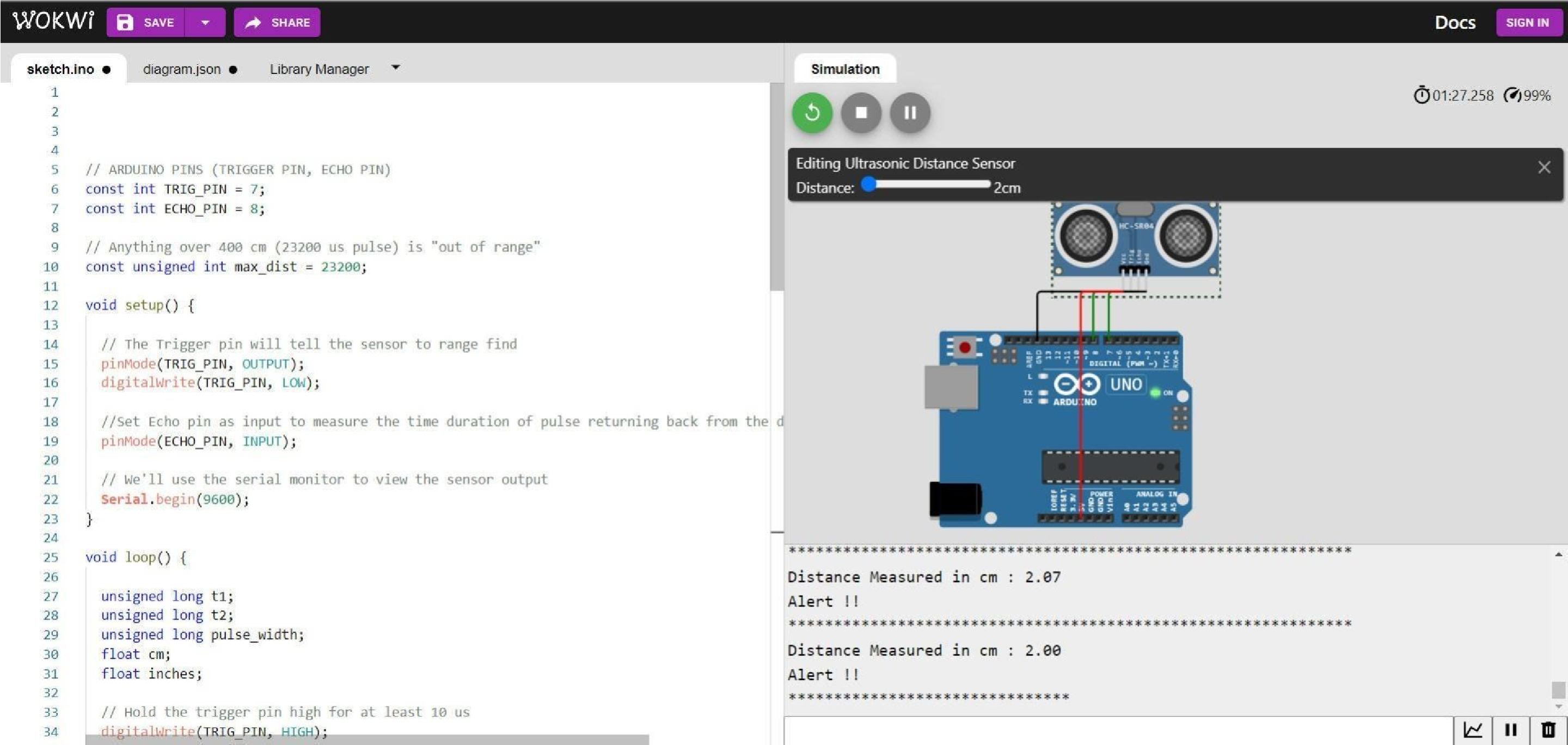
**Serial**.print("\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*");

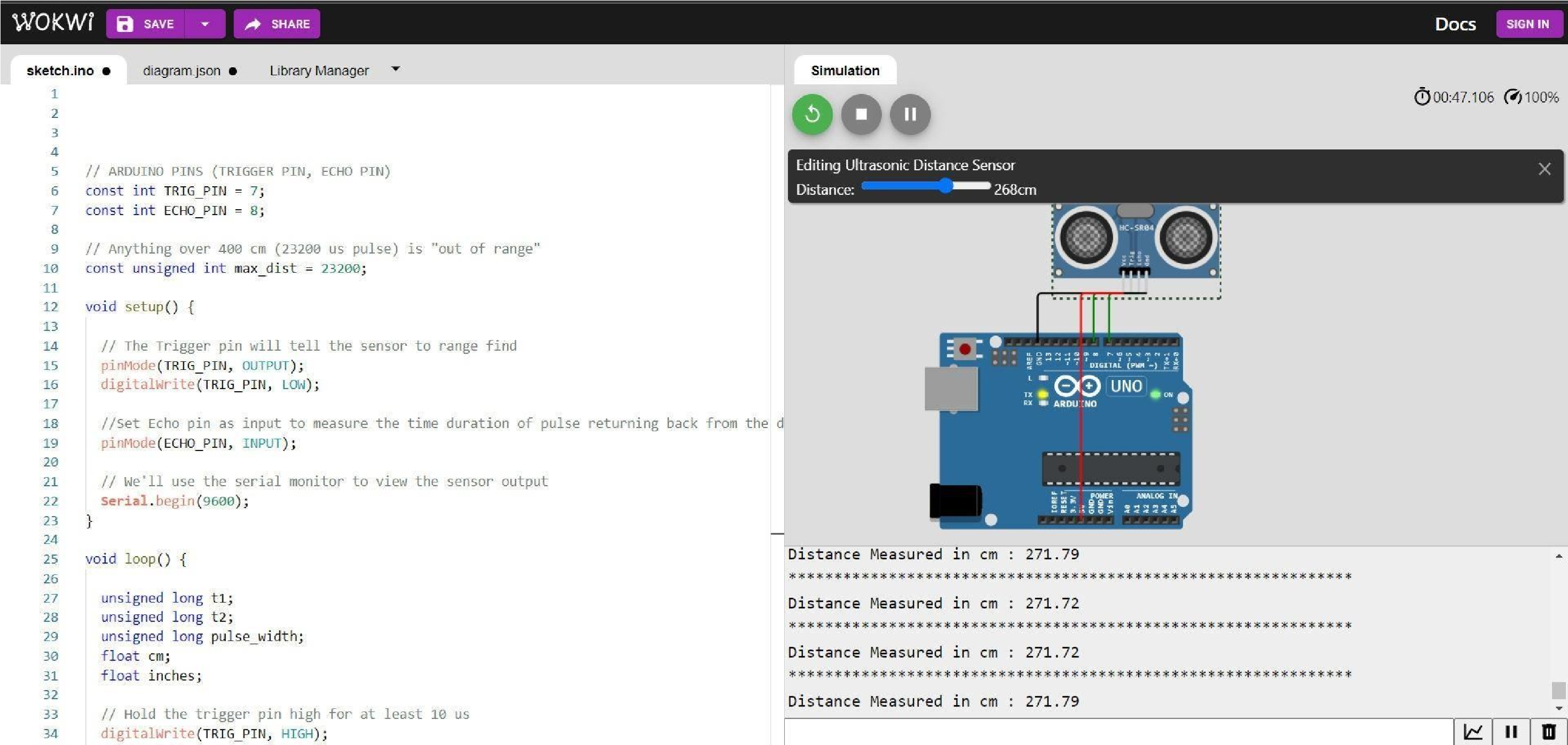
}

// Wait at least 1000ms before next measurement delay(1000);

}

# OUTPUT :





**Project Link :** https://wokwi.com/projects/346290927428436563