Assignment – 4

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| Assignment Date | 28 October 2022 |
| Student Name | Indhumathi N |
| Student Roll Number | 712519104007 |
| Maximum Marks | 2 Marks |

Question-1:

Write code and connections in wokwi for ultrasonic sensor.Whenever distance is less than 100 cms

send “Alert” to ibm cloud and display in device recent events.

Solution:

// Pins

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 duration of

//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() {

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("The Measured Distance in cm : "); Serial.println(cm);

if(cm<100){

// while(true){ Serial.println("Alert!!");

// }

}

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

}

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

}



