**Assignment -1**

Arduino Uno Programming

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| Assignment Date | 20 September 2022 |
| Student Name | Mr. Thilak K |
| Student Roll Number | 2019504599 |
| Maximum Marks | 2 Marks |

**Question-1:**

Design and Program a simple Home automation circuit using Arduino Uno board along with a Buzzer, LED, switch.

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| **Solution:** |
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|  |
|  | int sensorValue = 0; |
|  |  | int greenled = 6; |
|  |  | int redled = 8; |
|  |  | int buzzer\_pin = 11; |
|  |  | int sen1Value = 0; |
|  |  | int A; |
|  |  |  |
|  |  | long readUltrasonicDistance(int triggerPin, int echoPin) |
|  |  | { |
|  |  | pinMode(triggerPin, OUTPUT); |
|  |  | digitalWrite(triggerPin, LOW); |
|  |  | delayMicroseconds(2); |
|  |  | digitalWrite(triggerPin, HIGH); |
|  |  | delayMicroseconds(10); |
|  |  | digitalWrite(triggerPin, LOW); |
|  |  | pinMode(echoPin,INPUT); |
|  |  | return pulseIn(echoPin,HIGH); |
|  |  | } |
|  |  | void setup() |
|  |  | { |
|  |  | Serial.begin (9600); |
|  |  | pinMode(11, OUTPUT); |
|  |  | pinMode(6, OUTPUT); |
|  |  | pinMode(8, OUTPUT); |
|  |  | pinMode(4, INPUT); |
|  |  | pinMode(12, OUTPUT); |
|  |  | pinMode(13, OUTPUT); |
|  |  | pinMode(A1, INPUT); |
|  |  | } |
|  |  |  |
|  |  | void loop() |
|  |  | { |
|  |  | //-----Gas Sensor-----// |
|  |  | //---------------------------------- |
|  |  | int sensorValue = analogRead(A0); |
|  |  | Serial.println(sensorValue); |
|  |  |  |
|  |  | if(sensorValue > 100) |
|  |  | { |
|  |  | digitalWrite (buzzer\_pin, HIGH); |
|  |  | digitalWrite (redled, HIGH); |
|  |  | } |
|  |  | else |
|  |  | { |
|  |  | digitalWrite (buzzer\_pin, LOW); |
|  |  | digitalWrite (redled, LOW); |
|  |  | } |
|  |  | delay(1000); |
|  |  |  |
|  |  | //-------------------------------------------- |
|  |  | //---------UltrasonicDistance----------// |
|  |  | //-------------------------------------------- |
|  |  | sen1Value = 0.01723\*readUltrasonicDistance(3,2); |
|  |  |  |
|  |  | if(sen1Value<10) |
|  |  | { |
|  |  | Serial.print(" ||Door Open! ; Distance = "); |
|  |  | Serial.print(sen1Value); |
|  |  | digitalWrite (buzzer\_pin, HIGH); |
|  |  | digitalWrite (greenled, HIGH); |
|  |  | } |
|  |  | else |
|  |  | { |
|  |  | Serial.print(" ||Door Closed! ; Distance = "); |
|  |  | Serial.print(sen1Value); |
|  |  | digitalWrite (buzzer\_pin, LOW); |
|  |  | digitalWrite (greenled, LOW); |
|  |  | } |
|  |  | delay(1000); |
|  |  |  |
|  |  | //--------------------------------------------------- |
|  |  | //-------------PIR sensor-----------------// |
|  |  | //---------------------------------------------------- |
|  |  | if (digitalRead(4)==1) |
|  |  | { |
|  |  | digitalWrite(12,HIGH); |
|  |  | delay(1000); |
|  |  | } |
|  |  | else |
|  |  | { |
|  |  | digitalWrite(12,LOW); |
|  |  | delay(100); |
|  |  | } |
|  |  | //------------------------------------------------- |
|  |  | //--------------Temp Sensor-----------------// |
|  |  | //-------------------------------------------------- |
|  |  | A = analogRead(A1); |
|  |  | Serial.println(A); |
|  |  | delay(1000); |
|  |  |  |
|  |  | if(A >= 180) |
|  |  | { |
|  |  | digitalWrite(13, 1); |
|  |  | } |
|  |  | else |
|  |  | { |
|  |  | digitalWrite(13, 0); |
|  |  | } |
|  |  |  |
|  |  | } |

