

## Assignment - 01

### Home Automation via tinkercad

Assignment Date	10 September 2022
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Maximum Marks	2 Marks

#### Question 1:

Make a smart home in tinkercad, using two or more sensors, Buzzer in single code and circuit.

#### Solution:

##### Code:

```
char degree = 176;
int trigger_pin = 2; //ultrasonic trigger pin
int echo_pin = 3;    //ultrasonic echo pin
int buzzer_pin = 10; //buzzer connection pin
int time;
int distance;
int pinTemp = A0; //temperature pin
int motor = 13; //motor connection pin
int motorspeed = 17550;
void setup()
{
    Serial.begin (9600);
    pinMode (trigger_pin, OUTPUT); //ultrasonic part
    pinMode (echo_pin, INPUT);
    pinMode (buzzer_pin, OUTPUT);
```

```

pinMode (motor, OUTPUT); //temperature part
pinMode (pinTemp, INPUT);
pinMode (11, OUTPUT);
pinMode (9, OUTPUT);
digitalWrite(motor, HIGH);
}
void loop()
{
    digitalWrite (trigger_pin, HIGH); //ultrasonic part start
    delayMicroseconds (10);
    digitalWrite (trigger_pin, LOW);
    time = pulseIn (echo_pin, HIGH);
    distance = (time * 0.034) / 2;
    if (distance <= 10)
    {
        Serial.println(" Door Open");
        Serial.print (" Distance = ");
        Serial.println(distance);
        digitalWrite(buzzer_pin, HIGH);
        delay(500);
    }
    else
    {
        Serial.println(" Door Close ");
        Serial.print (" Distance= ");
        Serial.println(distance);
        digitalWrite (buzzer_pin, LOW);
        delay (500);
    } //ultrasonic part ends
    float tmp = analogRead(A0); //motor part
    float voltage = (tmp * 5.0)/1024;
    float milliVolt = voltage * 1000;
    float tmpCel = (milliVolt-500)/10;
    if(tmpCel > 20)
    {
        digitalWrite(11, HIGH);
        digitalWrite(9, LOW);
        Serial.print(" Temperature: ");
        Serial.print(tmpCel);
        Serial.println(degree);
    }
}

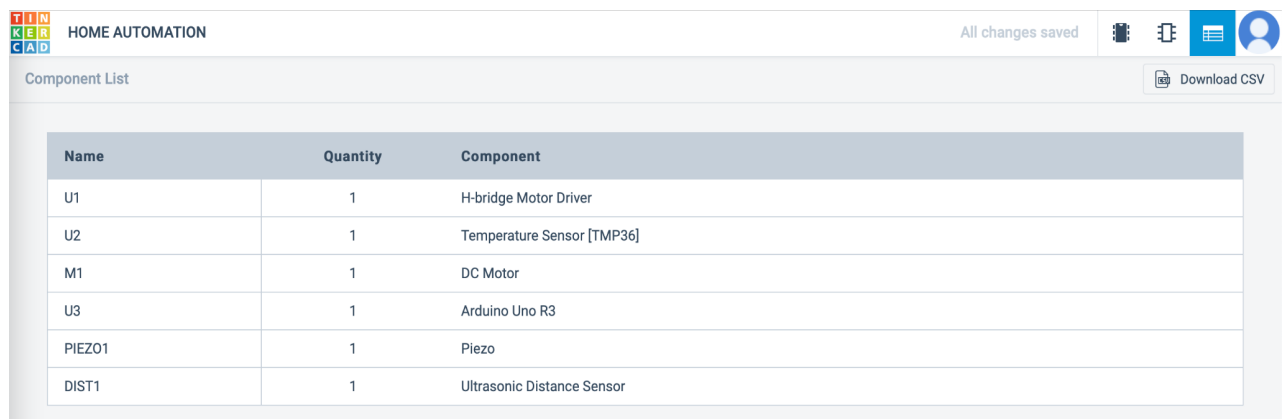
```

```

        Serial.println(" Fan is ON now");
        delay(500);
    }
else
{
    digitalWrite(11, LOW);
    digitalWrite(9, LOW);
    Serial.print(" Temperature: ");
    Serial.print(tmpCel);
    Serial.println(degree);
    Serial.println(" Fan is Off now");
    delay(500);
} //motor part ends
}

```

## Tinkercad platform used components screenshot:



The screenshot shows the Tinkercad web interface. At the top, the 'HOME AUTOMATION' project title is visible. Below it, the 'Component List' tab is active, displaying a table of components used in the project. The table has three columns: 'Name', 'Quantity', and 'Component'. The components listed are: U1 (H-bridge Motor Driver), U2 (Temperature Sensor [TMP36]), M1 (DC Motor), U3 (Arduino Uno R3), PIEZO1 (Piezo), and DIST1 (Ultrasonic Distance Sensor). Each component has a quantity of 1. In the top right corner of the interface, there are icons for 'All changes saved', a circuit board, a list, and a user profile. A 'Download CSV' button is also present in the top right of the component list area.

Name	Quantity	Component
U1	1	H-bridge Motor Driver
U2	1	Temperature Sensor [TMP36]
M1	1	DC Motor
U3	1	Arduino Uno R3
PIEZ01	1	Piezo
DIST1	1	Ultrasonic Distance Sensor

Tinkercad platform execution screenshot:

