ASSIGNMENT – 1

BUILD A SMART HOME IN THINKERCAD

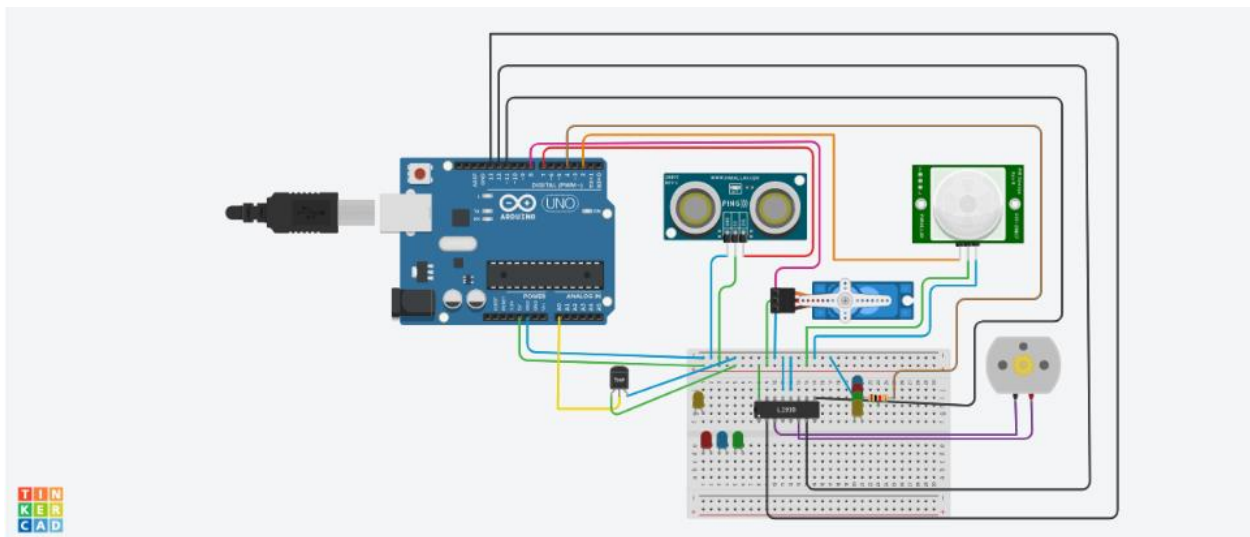| Assignment Date	26 September 2022
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Student Roll Number	815119106042
Maximum Marks	2Marks

QUESTION -1:

Build a smart home in thinkercad

Use atleast 2 sensor, led, buzzer in a circuit. Stimulate in a single code.

Solution:

CIRCUIT:

CODE:

```
#include<Servo.h>
            const int pingPin = 7;
            int servoPin = 8;
            Servo servo1;
```

```arduino
void setup() {
  // initialize serial communication:
  Serial.begin(9600);
  servo1.attach(servoPin);
  pinMode(2,INPUT);
  pinMode(4,OUTPUT);
  pinMode(11,OUTPUT);
  pinMode(12,OUTPUT);
  pinMode(13,OUTPUT);
  pinMode(A0,INPUT);
  digitalWrite(2,LOW);
  digitalWrite(11,HIGH);
}
void loop() {
  long duration, inches, cm;
  pinMode(pingPin, OUTPUT);
  digitalWrite(pingPin, LOW);
  delayMicroseconds(2);
  digitalWrite(pingPin, HIGH);
  delayMicroseconds(5);
  digitalWrite(pingPin, LOW);
  pinMode(pingPin, INPUT);
  duration = pulseIn(pingPin, HIGH);
  // convert the time into a distance
  inches = microsecondsToInches(duration);
  cm = microsecondsToCentimeters(duration);
  Serial.print(inches);
  Serial.print("in, ");
  Serial.print(cm);
  Serial.print("cm");
  Serial.println();
  delay(100);
  servo1.write(0);
  if(cm < 40)
  {
    servo1.write(90);
    delay(2000);
  }
  else
  {
    servo1.write(0);
  }
  int pir = digitalRead(2);
```

```
      if(pir == HIGH)
      {
        digitalWrite(4,HIGH);
        delay(1000);
      }
      else if(pir == LOW)
      {
        digitalWrite(4,LOW);
      }
      float value=analogRead(A0);
      float temperature=value*0.48;
      Serial.println("temperature");
      Serial.println(temperature);
      if(temperature > 20)
      {
        digitalWrite(12,HIGH);
        digitalWrite(13,LOW);
      }
      else
      {
        digitalWrite(12,LOW);
        digitalWrite(13,LOW);
      }
   }
   long microsecondsToInches(long microseconds) {
      return microseconds / 74 / 2;
   }
   long microsecondsToCentimeters(long microseconds) {
      return microseconds / 29 / 2;
   }
```

OUTPUT:

All changes saved

Simulator time: 00:00:03

Code   Stop Simulation   Send To

1 (Arduino Uno R3)

```
54      }
55    else
56    {
57      servo1.write(0);
58    }
59
60
61    int pir = digitalRead(2);
62
63    if(pir == HIGH)
```

Serial Monitor

```
73.44
59in, 151cm
temperature
73.44
59in, 152cm
temperature
73.44
59in, 151cm
temperature
73.44
59in, 151cm
temperature
73.44
59in, 152cm
temperatu
```