

ASSIGNMENT-1 IOT

QUESTION: Make a smart home with tinkercad using 2 sensor, led, buzzer

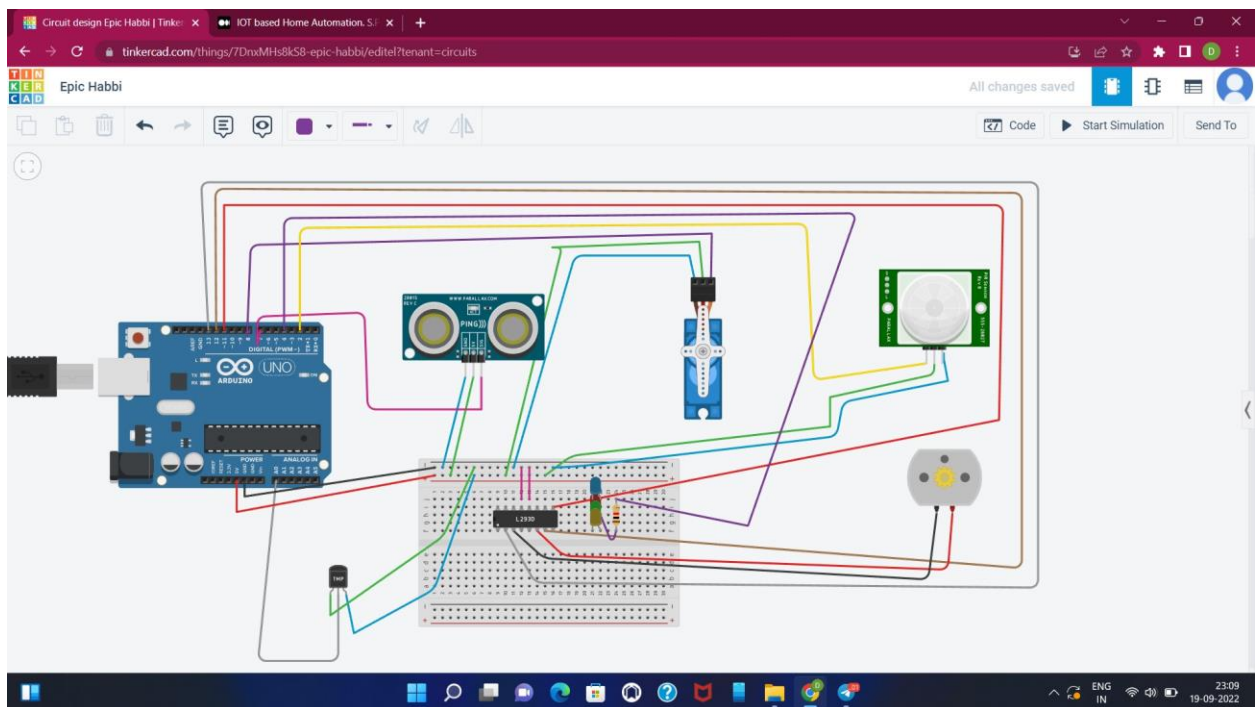
AIM: Design and Coding for IOT based Home Automation.

DESIGN TOOL: Tinkercad

Component used:

1. Arduino Uno R3
2. Ultrasonic Distance Sensor
3. Micro Servo
4. PIR Sensor
5. Breadboard (small)
6. 1 k Ω Resistor
7. Temperature Sensor
8. H-bridge Motor Driver
9. DC Motor
10. LED's

CIRCUIT DIAGRAM:



CODE:

```
#include<Servo.h>
const int pingPin = 7;
int servoPin = 8; Servo
servo1; void setup()
{
  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);  
}  
  
// PIR with LED starts int  
pir = digitalRead(2);  
  
if(pir == HIGH)  
{  
digitalWrite(4,HIGH); delay(1000);  
}  
else if(pir == LOW)  
{  
digitalWrite(4,LOW);  
}  
  
//temp with fan  
  
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;
}
```