**Home Automation**

**#include<Servo.h>**

**Servo servol;**

**int sensorValue = 0;**

**int servoPin = 7;**

**int pingPin = 8;**

**int tmpPin = A0;**

**int pirPin = 2;**

**int PIR;**

**int flag = 0;**

**long duration, distance, temperature;**

**void setup()**

**{**

**servol.attach(servoPin);**

**pinMode(pirPin,INPUT);**

**pinMode(4, OUTPUT);**

**pinMode(3,OUTPUT);**

**pinMode(tmpPin,INPUT);**

**pinMode(5, OUTPUT);**

**digitalWrite(pirPin,LOW);**

**digitalWrite(3,HIGH);**

**pinMode(A1, INPUT);**

**pinMode(9, OUTPUT);**

**Serial.begin(9600);**

**}**

**void loop()**

**{**

**pinMode(pingPin, OUTPUT);**

**digitalWrite(pingPin, LOW);**

**delayMicroseconds(2);**

**digitalWrite(pingPin, HIGH);**

**delayMicroseconds(5);**

**digitalWrite(pingPin, LOW);**

**pinMode(pingPin, INPUT);**

**duration = pulseIn(pingPin, HIGH);**

**;**

**distance = duration / 27 / 2; //The distance is in cetimeters**

**// Proximity sensor to open door when person is less than 90 cm**

**// from the door sensor**

**servol.write(0);**

**if(distance < 90){**

**flag = 1;**

**servol.write(90);**

**delay(1000);**

**}**

**else{**

**servol.write(0);**

**}**

**//PIR sensor to sense if someone is in the room**

**//The LEDs remain on as long as the person is moving in the room**

**PIR = digitalRead(pirPin);**

**if(PIR == HIGH && flag == 1)**

**{**

**digitalWrite(4,HIGH);**

**delay(1000);**

**}**

**else if(PIR == LOW)**

**{**

**digitalWrite(4,LOW);**

**}**

**//Temperature sensor to sense the temperature**

**//The fan begins rotating if the temperature is above 20 degree**

**//Celsius and gradually increases as the temperature reaches**

**//40 degrees after which the fan reaches max speed**

**temperature = analogRead(tmpPin);**

**temperature = map(temperature, 20, 358, -40, 125);**

**if(flag == 1)**

**{**

**//Serial.println(speed\_decider(temperature));**

**analogWrite(5, speed\_decider(temperature));**

**}**

**//The photoresistor is used to measure the amount of sunlight**

**//After a certain sunlight below a certain amount enters**

**//The light bulb starts glowing**

**sensorValue = analogRead(A1);**

**Serial.println(sensorValue);**

**if(sensorValue < 850 && flag == 1){**

**digitalWrite(9, HIGH);**

**}**

**else{**

**digitalWrite(9, LOW);**

**}**

**delay(100);**

**}**

**int speed\_decider(int temp)**

**{**

**if(temp < 20 )**

**{**

**return 0;**

**}**

**else if(temp > 40)**

**{**

**return 255;**

**}**

**else**

**{**

**int z = map(temp, 20, 40, 0, 255);**

**Serial.println("Speed : ");**

**Serial.println(z);**

**return z;**

**}**

**}**