   IBM ASSIGNMENT -1

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Smart Home Automation System Using IoT:

Code:

const int PingPin=7;

const int buzzPin=4;

//set pin numbers

//const won't change

const int ledPin = 2; //the number of the LED pin

const int ldrPin = A1; //the number of the LDR pin

// Pin 13 has an LED connected on most Arduino boards.

// give it a name:

#define PIN\_LED\_1 9

#define PIN\_LED\_2 8

#define PIN\_LED\_3 6

#define PIN\_LED\_4 5

#define PIN\_LED\_5 3

#define PIN\_GAS A3

//Tempetature Sensor

const int delayBetweenReads = 5000;

const int sensorPin = A5;

void setup()

{

//initialize serial communication

Serial.begin(9600);

pinMode(buzzPin,OUTPUT);

pinMode(ledPin, OUTPUT); //initialize the LED pin as an output

pinMode(ldrPin, INPUT); //initialize the LDR pin as an input

pinMode(PIN\_LED\_1, OUTPUT);

pinMode(PIN\_LED\_2, OUTPUT);

pinMode(PIN\_LED\_3, OUTPUT);

pinMode(PIN\_LED\_4, OUTPUT);

pinMode(PIN\_LED\_5, OUTPUT);

pinMode(10 , INPUT ); // signal of pir sensor

pinMode (11 , OUTPUT ); // output for motion detection

}

void loop()

{

//establish variables for duration of Ping

// give a short low pulse beforehand to ensure a clean high pulse

long duration,cm;

pinMode(PingPin,OUTPUT);

digitalWrite(PingPin,LOW);

delayMicroseconds(2);

digitalWrite(PingPin,HIGH);

delayMicroseconds(5);

digitalWrite(PingPin,LOW);

pinMode(PingPin,INPUT);

duration = pulseIn(PingPin,HIGH);

cm=microsecondsToCentimeters(duration);

Serial.print("Distance: ");

Serial.print(cm);

Serial.print("cm");

delay(1000);

Serial.println();

if(cm < 100)

{

digitalWrite(buzzPin,HIGH);

}

else

{

digitalWrite(buzzPin,LOW);

}

int ldrStatus = analogRead(ldrPin);//read the status of the LDR value

Serial.print(ldrStatus);

//check if the LDR status is <= 300

//if it is, the LED is HIGH

if (ldrStatus <=300) {

digitalWrite(ledPin, HIGH);

//turn LED on

}

else {

digitalWrite(ledPin, LOW); //turn LED off

}

int value = map(analogRead(PIN\_GAS), 300, 750, 0, 100);

digitalWrite(PIN\_LED\_1, HIGH);

digitalWrite(PIN\_LED\_2, value >= 20 ? HIGH : LOW);

digitalWrite(PIN\_LED\_3, value >= 40 ? HIGH : LOW);

digitalWrite(PIN\_LED\_4, value >= 60 ? HIGH : LOW);

digitalWrite(PIN\_LED\_5, value >= 80 ? HIGH : LOW);

if (digitalRead(10) == HIGH) // check if PIR is triggered

{

digitalWrite(11,HIGH);

delay(100);

digitalWrite(11,LOW) ;

delay(100);

}

delay(100);

}

long microsecondsToCentimeters(long microseconds)

{

return microseconds/29/2;

}