

Assignment-1

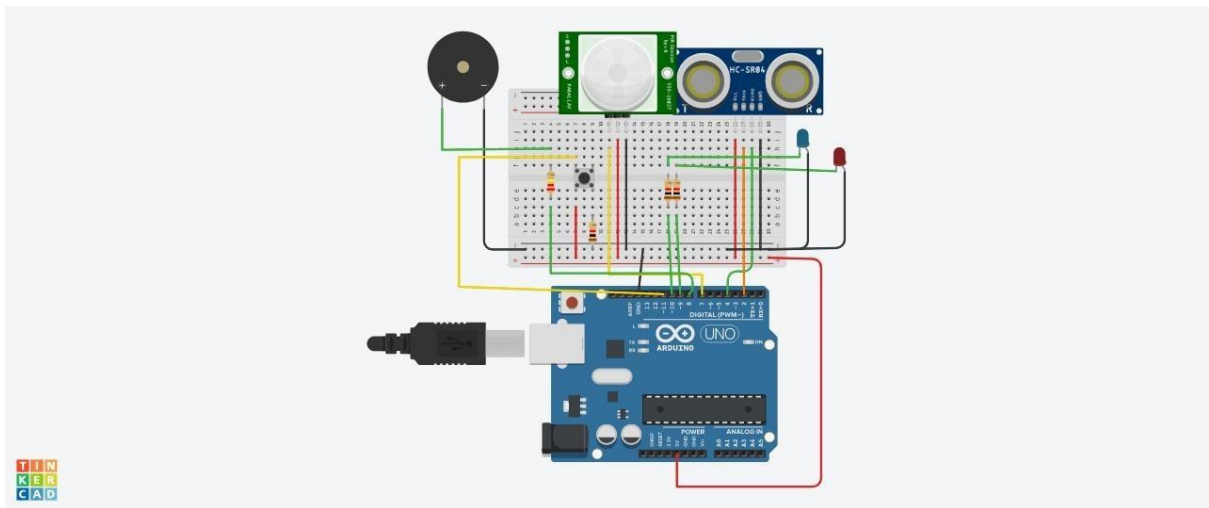
Domain :IOT
TOPIC :SMARTHOME
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SmartHome:

Circuit:



Components:

Quantity	Components
1	PushButton
1	RedLED
1	BlueLED
1	PIEZOBuzzer
1	UltrasonicDistanceSensor
2	PIR Sensor
2	Resistor(220,560,10K)
1	ArduinoR3

1	BreadboardSmall
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Code:

```

const int trigPin = 2; //the trig pin of the ultrasonic sensor; sends
signal const int echoPin = 4; //the echo pin of the ultrasonic sensor; detects signal

const int pirPin = 7; //the PIR sensor pin
int pirState = LOW; //basically means that the PIR sensor starts as low and detects no motion

const int buzzerPin = 8; //the buzzer has been connected to pin 8

const int redLED = 9; //the red LED; intensity can be controlled to change the colour emitted
int redBright = 0; //how bright the LED is int redFade = 5;
//how many points to fade the LED by

const int greenLED = 10; //the green LED; intensity can be controlled to change the colour emitted
int greenBright = 0; //how bright the LED is
int greenFade = 5; //how many points to fade the LED by

const int button = 13; //button to momentarily reset all the sensors back to normal

void setup(){

  pinMode(echoPin, INPUT);

```

```
pinMode(pirPin,INPUT);pinMod  
e(button,INPUT);
```

```
pinMode(trigPin,OUTPUT);pinM  
ode(redLED,OUTPUT);pinMode  
(greenLED,OUTPUT);pinMode(  
buzzerPin,OUTPUT);
```

```
Serial.begin(9600);//initializeserialcommunicationat9600bitspersecond  
}
```

```
voiddistance(){
```

```
longdurationInDigit;lon  
gdistanceInInches;
```

```
digitalWrite(trigPin, LOW); //setthis to LOW to start  
withdelayMicroseconds(2);//delayinmicrosecondsbetweendifferentcomm ands  
digitalWrite(trigPin,HIGH);//here,thetrigpinsendssignalsorvibrationstobedetected  
delayMicroseconds(10); digitalWrite(trigPin,LOW);//setthetrigpinbacktolow
```

```
durationInDigit=pulseIn(echoPin, HIGH);distanceInInches=durationInDigit/74/2;
```

```
Serial.println(distanceInInches);
```

```
if(distanceInInches> 15 && distanceInInches< 30)
{digitalWrite(greenLED,
HIGH);digitalWrite(redLED,LOW);
}
```

```
if (distanceInInches< 10)
{digitalWrite(redLED,HIGH);digitalWrite(greenLED,LOW);
}
```

```
if(distanceInInches> 10 && distanceInInches<
15){digitalWrite(redLED,
LOW);digitalWrite(greenLED,LOW);
}
```

```
if (distanceInInches< 5)
{digitalWrite(redLED,HIGH);tone(8,250,2000);
digitalWrite(greenLED,0);
}
```

```
if(distanceInInches> 5 && distanceInInches<
10){digitalWrite(redLED,HIGH);digitalWrite(buzzerPin,0);
digitalWrite(greenLED,0);
}
```

```

    if(distanceInInches>30||distanceInInches<0){ Serial.println("Distance Incalculable");
    }

    delay(500);

}

void reset(){
    if
    (digitalRead(button),HIGH);digitalWrite(pirState,LOW);digitalWrite(redLED,LOW);digitalWrite(greenLED,HIGH);digitalWrite(buzzerPin,0);
    //digitalWrite(echoPin,0);
}

void loop(){

    distance();

    int pirState=digitalRead(pirPin);

    if
    (pirState==1){ Serial.println("Motion Detected!!!");digitalWrite(greenLED,LOW);digitalWrite(redLED,HIGH);

```

```
    digitalWrite(buzzerPin,1);delay (500);  
}  
  
if  
  (pirState==0){Serial.println("D  
    etecting...");digitalWrite(green  
    LED,HIGH);digitalWrite(redLE  
    D,LOW);digitalWrite(buzzerPin,  
    0);delay(500);  
  }  
  
}
```