Assignment-1

Domain :IOT

TOPIC :SMARTHOME

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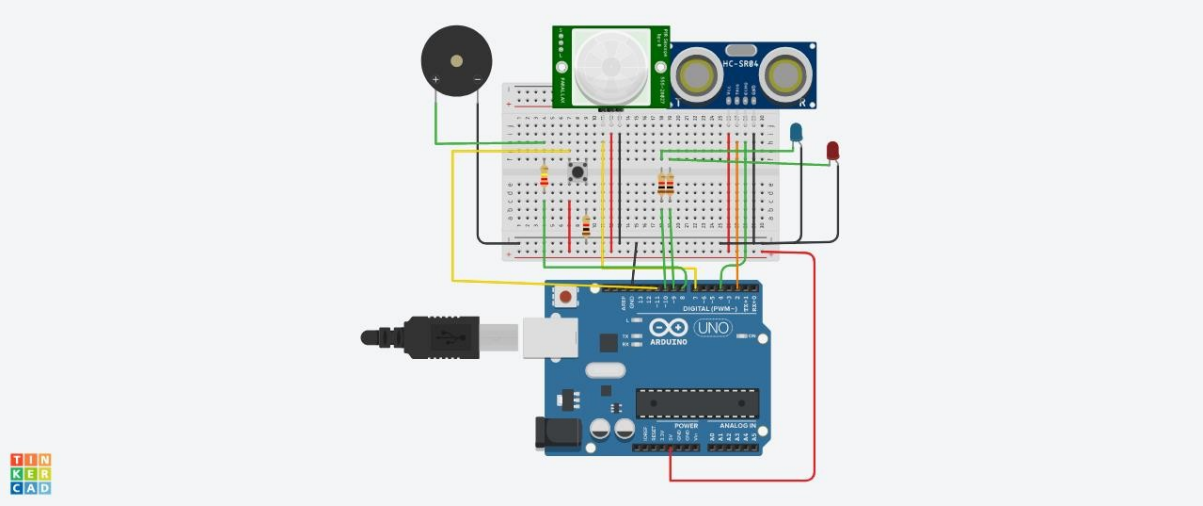
SmartHome:

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

Code:

```
const inttrigPin = 2; //thetrig pin of theultrasonic sensor; sends

signalconstintechoPin=4;//theechopinoftheultrasonicsensor;detectssi

gnal


constintpirPin=7;//thePIRsensorpin

intpirState=LOW;//basicallymeansthatthePIRsensorstartsaslowandde
tectsnomotion


constintbuzzerPin=8;//thebuzzerhasbeenconnectedtopin8


constintredLED=9;//theredLED;intensitycanbecontrolledtochangethecolour
emitted

intredBright=0;      //howbrighttheLEDis

intredFade=5;      //howmanypointstofadetheLEDby


constintgreenLED=10;//thegreenLED;intensitycanbecontrolledtochangethe
colouremitted

intgreenBright=0;      //howbrighttheLEDis

intgreenFade=5;      //howmanypointstofadetheLEDby


constintbutton=13;//buttontomomentarilyresetallthesensorsbacktono
rmal


voidsetup(){


  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,thetrigpinsendssignalsorvibrationstobed
etected
  delayMicroseconds(10);
  digitalWrite(trigPin,LOW);//setthethetrigpinbacktolow

  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(gre
  enLED,LOW);
}

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

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

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

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

  delay(500);

}

voidreset(){
  if
   (digitalRead(button),HIGH);digi
   talWrite(pirState,LOW);digital
   Write(redLED,LOW);digitalWrit
   e(greenLED,HIGH);digitalWrite(
   buzzerPin,0);
   //digitalWrite(echoPin,0);
}

voidloop(){

  distance();

  intpirState=digitalRead(pirPin);

  if
    (pirState==1){Serial.println("Motio
    nDetected!!!");digitalWrite(greenLE
    D,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);
      }

}
```