Assignment-1

Domain : _IOT

TOPIC : SMART HOME

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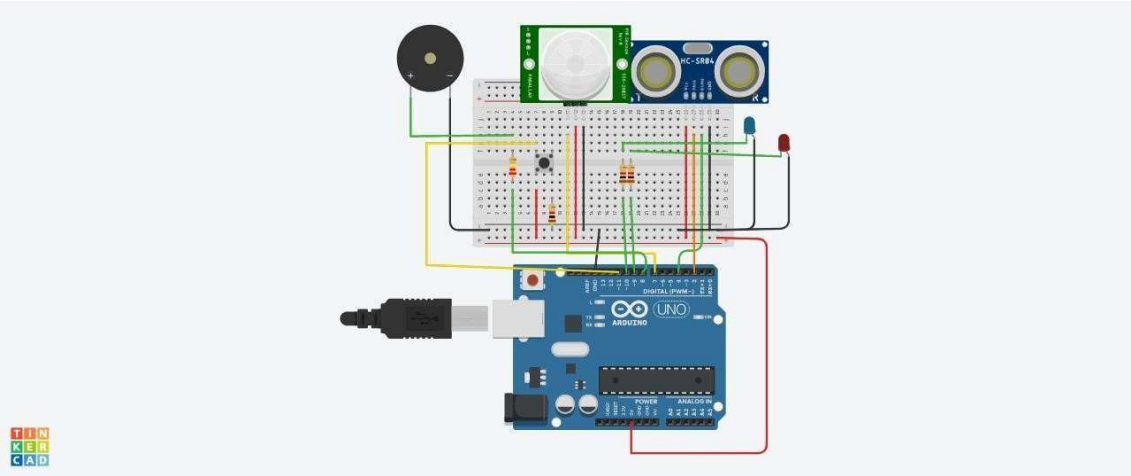
Smart Home:

Circuit:



Components:

Quantity	Components
1	Push Button
1	Red LED
1	Blue LED
1	PIEZO Buzzer
1	Ultrasonic Distance Sensor
2	PIR Sensor
2	Resistor (220,560,10K)

1	Arduino R3
1	Breadboard Small

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);   pinMode(button,
INPUT);    pinMode(trigPin, OUTPUT);
```

```
pinMode(redLED, OUTPUT);
pinMode(greenLED, OUTPUT);
pinMode(buzzerPin, OUTPUT);

  Serial.begin(9600); // initialize serial communication at 9600 bits per second }

void distance() {

  long durationInDigit;   long
distanceInInches;

  digitalWrite (trigPin, LOW); //set this to LOW to start with
delayMicroseconds(2); //delay in microseconds between different commands
digitalWrite (trigPin, HIGH); //here, the trig pin sends signals or vibrations to be
detected   delayMicroseconds(10);   digitalWrite (trigPin, LOW); //set the the trig
pin back to low

  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("Detecting...");     digitalWrite(greenLED, HIGH);
digitalWrite(redLED, LOW);     digitalWrite(buzzerPin, 0);     delay(500);
     }

}
```