Assignment-1

Domain : AI

TOPIC : SMART HOME

NAME : ABISHEK N

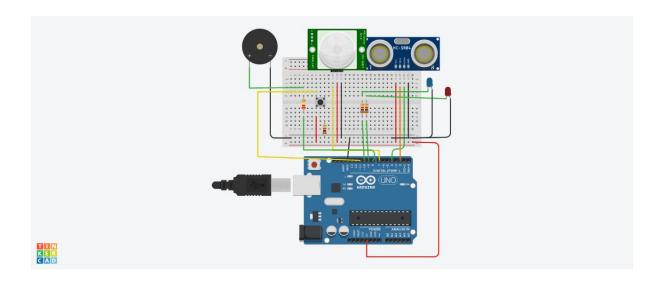
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COLLEGE : SRI SHAKTHI INSTITUTE OF ENGINEERING AND

TECHNOLOGY

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 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);
    }
}
```