

**Assignment -1**  
Smart home automation

Assignment Date	16 September 2022
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Maximum Marks	2 Marks

**Question-1:**

Write a program in Thinkercard Make a smart home automation , using 2+ sensors , LED , Buzzer in a single code and circuit .

**Program:**

```
#include <SPI.h>
#include <Wire.h>
#include <IRremote.h>

const int relay_1 = 12;
const int relay_2 = 11;
const int relay_3 = 10;
const int relay_4 = 9;

const int mswitch_1 = 8;
const int mswitch_2 = 7;
const int mswitch_3 = 6;
const int mswitch_4 = 5;

int RECV_PIN = 3;

IRrecv irrecv(RECV_PIN);
decode_results results;

int toggleState_1 = 0;
int toggleState_2 = 0;
int toggleState_3 = 0;
int toggleState_4 = 0;

void setup()
{

  Serial.begin(9600);
  irrecv.enableIRIn();

  pinMode(relay_1, OUTPUT);
```

```
pinMode(relay_2, OUTPUT);
pinMode(relay_3, OUTPUT);
pinMode(relay_4, OUTPUT);
```

```
pinMode(mswitch_1, INPUT_PULLUP);
pinMode(mswitch_2, INPUT_PULLUP);
pinMode(mswitch_3, INPUT_PULLUP);
pinMode(mswitch_4, INPUT_PULLUP);
}
```

```
void relayOnOff(int relay)
{
```

```
    switch(relay)
```

```
    {
```

```
        case 1:
```

```
            if(toggleState_1 == 0){
```

```
                digitalWrite(relay_1, HIGH); // turn on relay 1
```

```
                toggleState_1 = 1;
```

```
            }
```

```
            else{
```

```
                digitalWrite(relay_1, LOW); // turn off relay 1
```

```
                toggleState_1 = 0;
```

```
            }
```

```
            delay(100);
```

```
        break;
```

```
        case 2:
```

```
            if(toggleState_2 == 0){
```

```
                digitalWrite(relay_2, HIGH); // turn on relay 2
```

```
                toggleState_2 = 1;
```

```
            }
```

```
            else{
```

```
                digitalWrite(relay_2, LOW); // turn off relay 2
```

```
                toggleState_2 = 0;
```

```
            }
```

```
            delay(100);
```

```
        break;
```

```
        case 3:
```

```
            if(toggleState_3 == 0){
```

```
                digitalWrite(relay_3, HIGH); // turn on relay 3
```

```
                toggleState_3 = 1;
```

```
            }else{
```

```
                digitalWrite(relay_3, LOW); // turn off relay 3
```

```
                toggleState_3 = 0;
```

```
            }
```

```
            delay(100);
```

```

        break;
    case 4:
        if(toggleState_4 == 0){
            digitalWrite(relay_4, HIGH); // turn on relay 4
            toggleState_4 = 1;
        }
        else{
            digitalWrite(relay_4, LOW); // turn off relay 4
            toggleState_4 = 0;
        }
        delay(100);
        break;

    default : break;
}

}

void loop() {

    if (digitalRead(mswitch_1) == LOW){
        delay(200);
        relayOnOff(1);
    }
    else if (digitalRead(mswitch_2) == LOW){
        delay(200);
        relayOnOff(2);
    }
    else if (digitalRead(mswitch_3) == LOW){
        delay(200);
        relayOnOff(3);
    }
    else if (digitalRead(mswitch_4) == LOW){
        delay(200);
        relayOnOff(4);
    }
}

if (irrecv.decode(&results)) {
    switch(results.value){
        case 0xFD08F7:
            relayOnOff(1);
            break;
        case 0xFD8877:
            relayOnOff(2);
            break;
        case 0xFD48B7:

```

```

        relayOnOff(3);
    break;
    case 0xFD28D7:
        relayOnOff(4);
    break;
    default : break;
}
irrecv.resume();
}
}

```

