

ASSIGNMENT – 1

Tinkercad Programming

Assignment Date	19 September 2022
Student Name	Mr. L. Kesavan
Student Roll Number	610819106024
Maximum Marks	2 Marks

Question-1:

Make a smart home with 2-3 sensors, LED, Buzzer. in single code and connections. submit it in the platform.

Solution:

```
#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);
  }
}

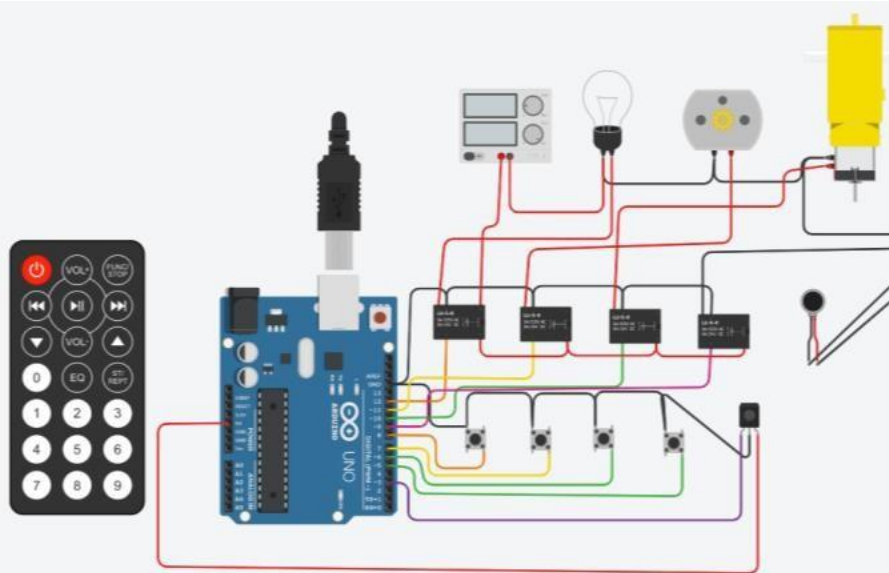
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```

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();
}
}

```



```

1 #include <SPI.h>
2 #include <Wire.h>
3
4 #include <IRremote.h>
5
6 const int relay_1 = 12;
7 const int relay_2 = 11;
8 const int relay_3 = 10;
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10
11
12 const int mswitch_1 = 8;
13 const int mswitch_2 = 7;
14 const int mswitch_3 = 6;
15 const int mswitch_4 = 5;
16
17 int RECV_PIN = 3;
18
19 IRrecv irrecv(RECV_PIN);
20 decode_results results;
21
22
23 int toggleState_1 = 0;
24 int toggleState_2 = 0;
25 int toggleState_3 = 0;
26 int toggleState_4 = 0;
27
28 void setup() {
29
30   Serial.begin(9600);
31   irrecv.enableIRIn();
32
33   pinMode(relay_1, OUTPUT);
34   pinMode(relay_2, OUTPUT);
35   pinMode(relay_3, OUTPUT);
36   pinMode(relay_4, OUTPUT);
37   pinMode(mswitch_1, INPUT);
38   pinMode(mswitch_2, INPUT);
39   pinMode(mswitch_3, INPUT);
40   pinMode(mswitch_4, INPUT);
41 }
42
43 void loop() {
44   if (irrecv.decode(&results)) {
45     Serial.println(results.value);
46     if (results.value == 1) {
47       digitalWrite(relay_1, HIGH);
48       digitalWrite(relay_2, LOW);
49       digitalWrite(relay_3, LOW);
50       digitalWrite(relay_4, LOW);
51     }
52     if (results.value == 2) {
53       digitalWrite(relay_1, LOW);
54       digitalWrite(relay_2, HIGH);
55       digitalWrite(relay_3, LOW);
56       digitalWrite(relay_4, LOW);
57     }
58     if (results.value == 3) {
59       digitalWrite(relay_1, LOW);
60       digitalWrite(relay_2, LOW);
61       digitalWrite(relay_3, HIGH);
62       digitalWrite(relay_4, LOW);
63     }
64     if (results.value == 4) {
65       digitalWrite(relay_1, LOW);
66       digitalWrite(relay_2, LOW);
67       digitalWrite(relay_3, LOW);
68       digitalWrite(relay_4, HIGH);
69     }
70     if (results.value == 5) {
71       digitalWrite(relay_1, HIGH);
72       digitalWrite(relay_2, HIGH);
73       digitalWrite(relay_3, HIGH);
74       digitalWrite(relay_4, HIGH);
75     }
76     if (results.value == 6) {
77       digitalWrite(relay_1, LOW);
78       digitalWrite(relay_2, LOW);
79       digitalWrite(relay_3, LOW);
80       digitalWrite(relay_4, LOW);
81     }
82   }
83 }

```

Serial Monitor