

# ASSIGNMENT 1

## MAHENDRA ENGINEERING COLLEGE FOR WOMEN

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CLASS: 4 YEAR CSE

SUBJECT: IBM

REGISTER NO: 611419104009

### DESIGN PART



### CODING PART

```
#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();  
}  
}
```

