

MAHENDRA INSTITUTE OF TECHNOLOGY  
(Autonomous)

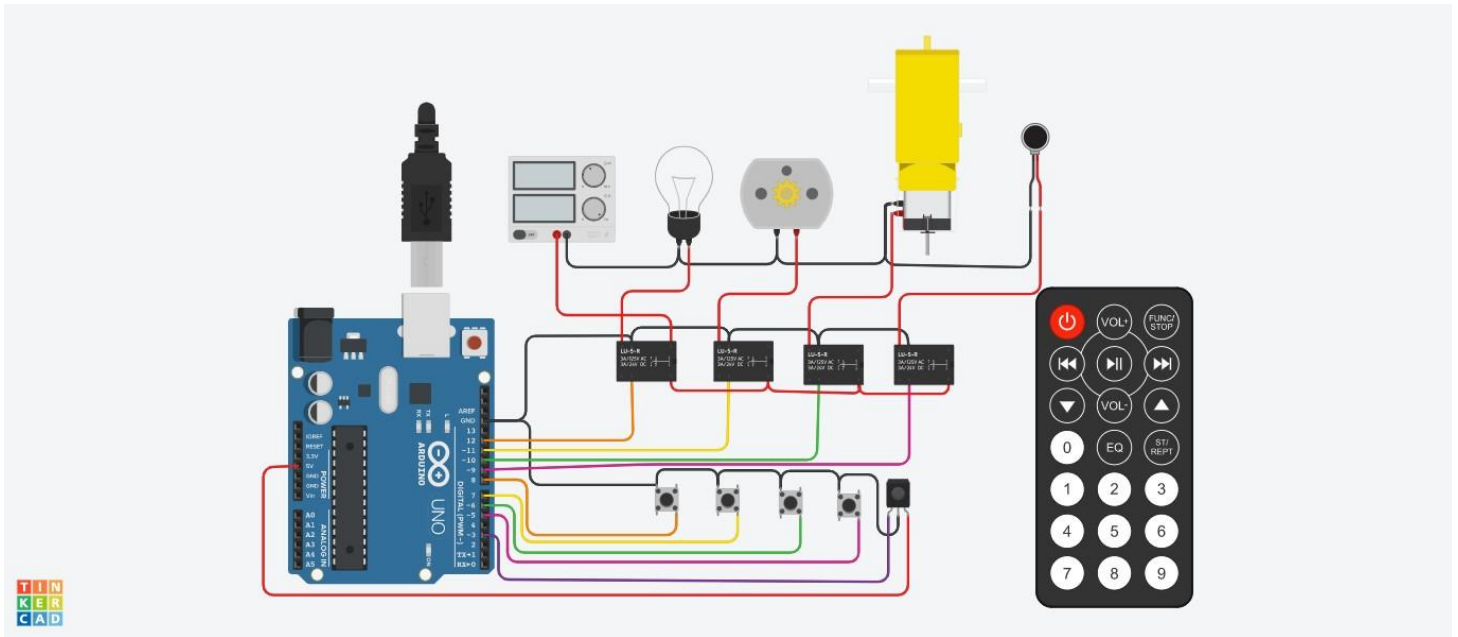
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CLASS:4 YEAR ECE

SUBJECT:IBM

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## 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();
```

```
}
```

```
}
```