ASSIGNMENT 1

MAHENDRA ENGINEERING COLLEGE FOR WOMAN

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CLASS: 4 YEAR CSE

SUBJECT: IBM

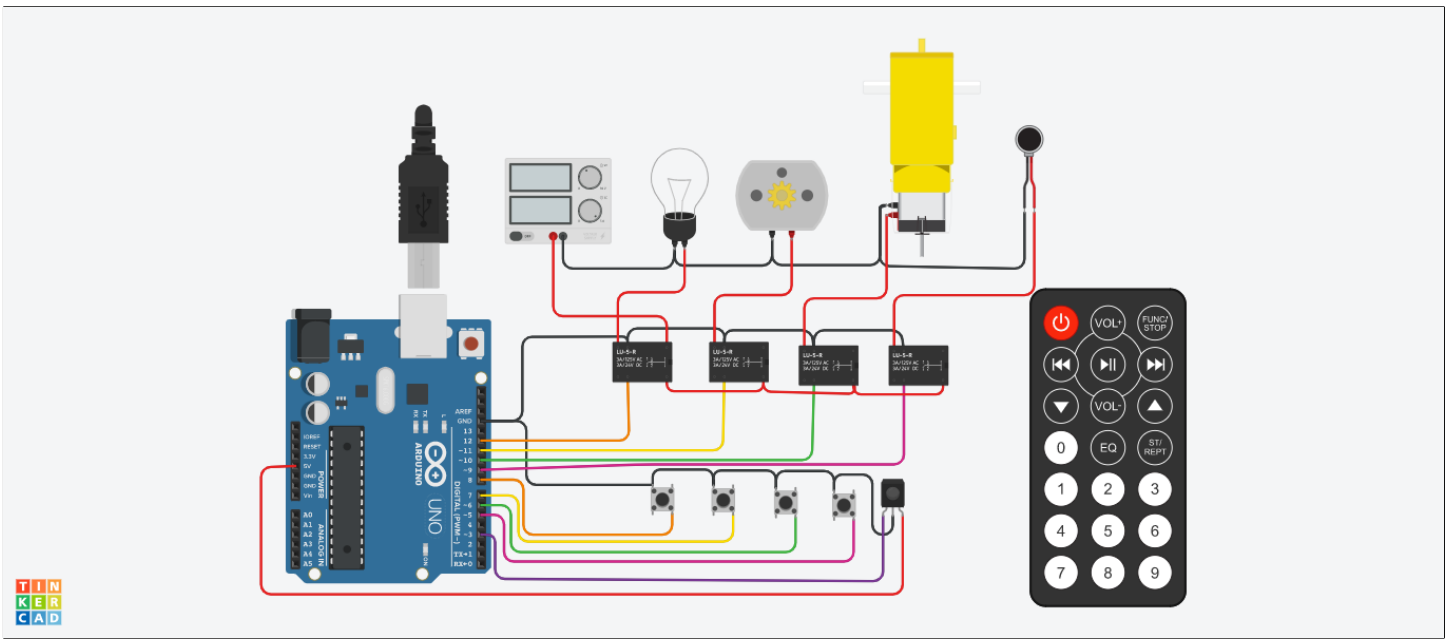
REGISTER NO: 611419104087

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();
 }
}
```