## **ASSIGNMENT 1**

## MAHENDRA ENGINEERING COLLEGE FOR WOMEN

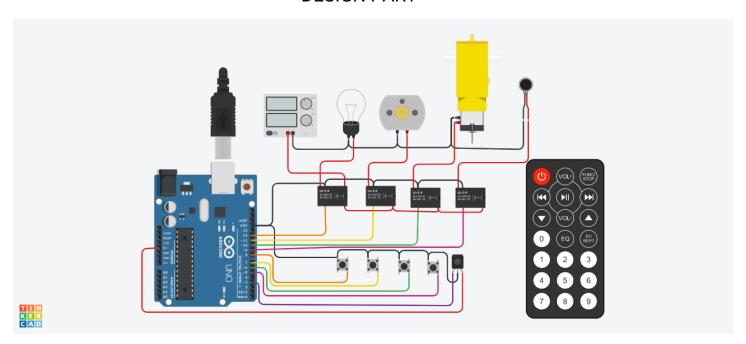
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CLASS:4th YEAR ECE

SUBJECT:IBM

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## **DESIGN PART**



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## **CODING PART**

#include <SPI.h>

#include <Wire.h>

#include <IRremote.h>

const int relay\_1 = 12;

const int relay\_2 = 11;

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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;
```

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}
    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();
}
```