

BATCH: B5-5M1E

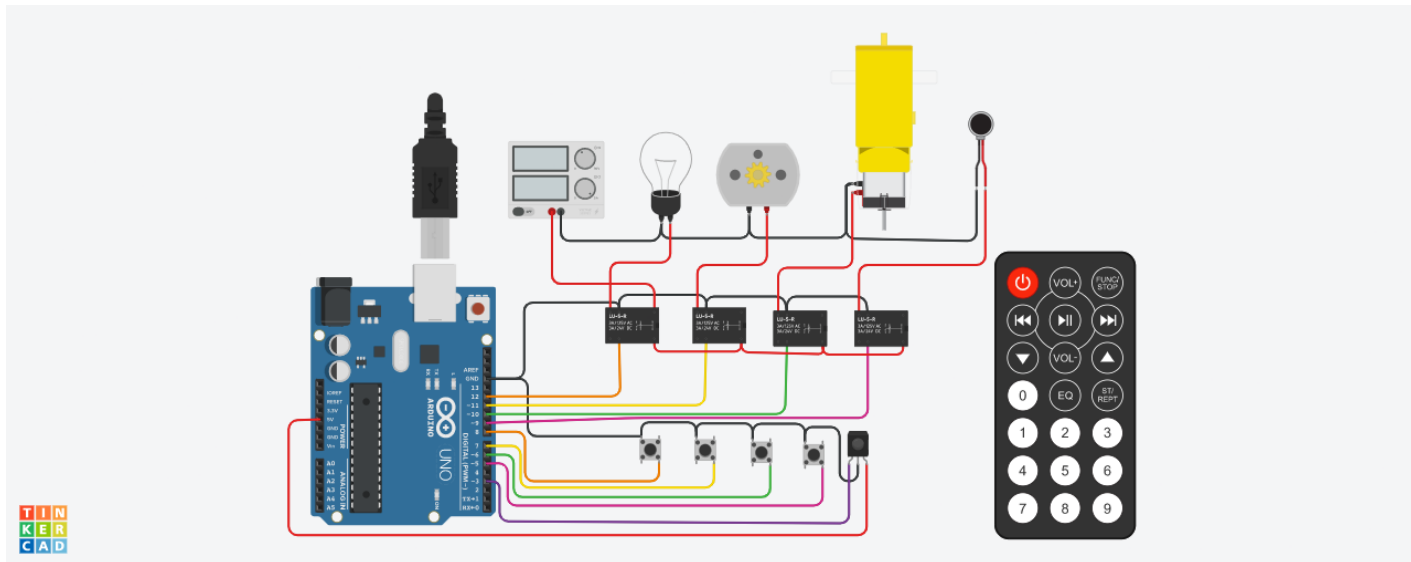
ASSIGNMENT-1

TOPIC: ARDUINO-BASED HOME AUTOMATION SYSTEM

DESCRIPTION

The system is assisted by an Arduino UNO to operate many appliances or gadgets, resulting in a rudimentary home automation system. Remote controllers are a popular gadget present in practically all households. They assist us in operating appliances such as televisions and air conditioners. The significant advantage of remote control is that it is device-specific. For example, a TV remote control unit can only be used with the associated TV. However, in this project, we created an Arduino-based Home Automation Using IR Remote, where a single remote controls four separate devices. We may also control the various devices via manual switches, as seen in the video (possible to control more devices).

SCHEMATIC DIAGRAM:



CODE:

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

TINKER CAD SIMULATION LINK:

<https://www.tinkercad.com/things/jBoRWwHqj15-funky-kup/editel?tenant=circuits>

Faculty Mentor: Ms Angelina Royappa

Team ID: PNT2022TMID23571

Team Members: Dhanalaksmi P
Faheem Jinna S
Harini G N
Yokesh J

