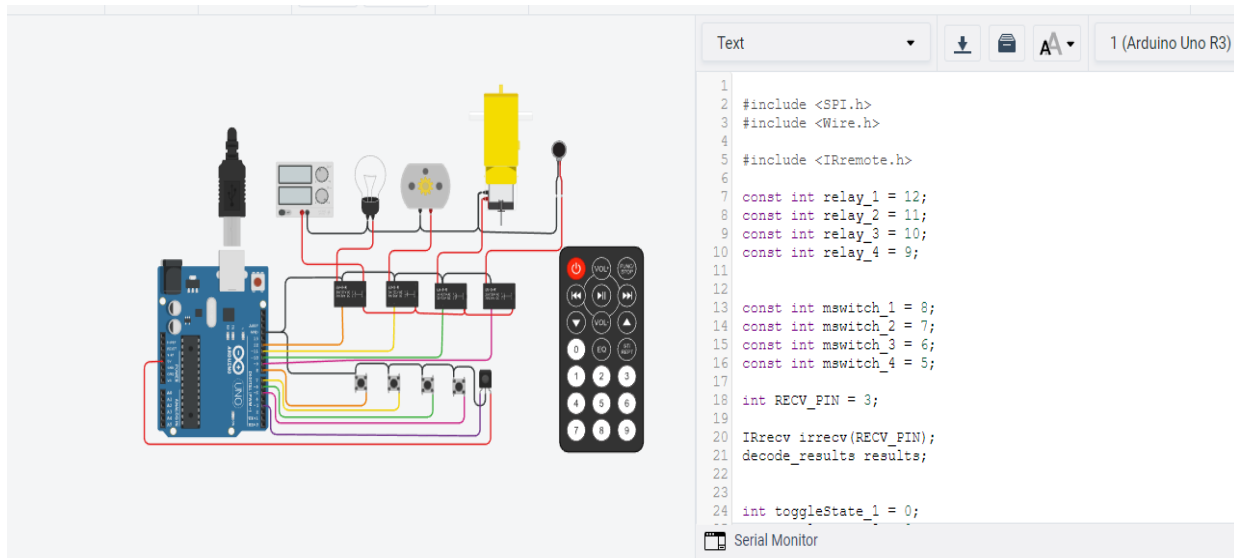


ASSESSMENT-1

Arduino Based IR Remote and Manual Home Automation



PROGRAM

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