

**TITLE: AUTOMATED ROOM LIGHTING
SYSYEM**

GROUP NO: 18

TEAM MEMBERS:

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INTRODUCTION:

Now with increasing technology day by day all the work done by human is being automated to reduce errors, decrease the cost, high efficiency.

We prefer automation because the result quality increases labour decreases so that less money can be spent of labour and more on quality of the result.

Now what is home automation: Home automation or domotics is building automation for a home, called a smart home or smart house? A home automation system will control lighting, climate, entertainment systems, and appliances. It may also include home **security** such as access control and alarm systems,

Our project is an application of home automation which deals with automatic turning on the light when a person enters the room and turn off when the person leaves the room.

CONNECTIONS:

We have divided our project into 2 one is the receiver E1 and one more is the transmitter E2

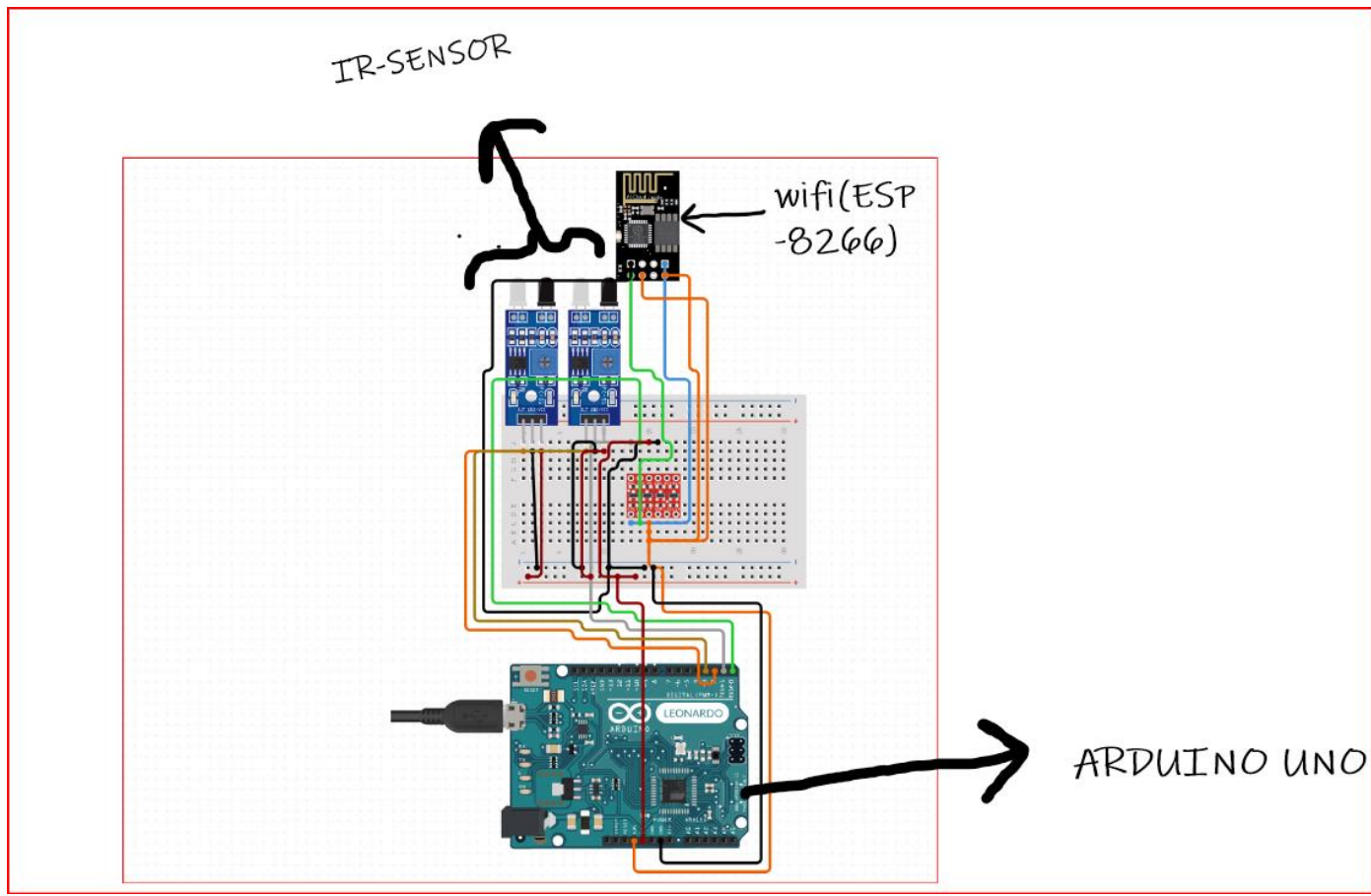
The function of the receiver is to take the input from the IR sensor and update to the cloud using the read api keys we are using Things Speak cloud in our project whenever the sensor detects any movement its updates the cloud in the cloud I have created 2 fields 1.is for the sensor 1 2.for the second sensor

The function of the receiver is to read the data from the cloud and act accordingly as it was told earlier that are 2 fields in the cloud if field-1 is 1 then the receiver turns on the light if the field-2 is 1 then the receiver turns off the light

Cloud used: <https://thingspeak.com/>

Our project channel: <https://thingspeak.com/channels/1223049>

Transmitter:



Components used:

1. 2x IR Sensors
2. Wi-Fi module(esp8266)
3. Arduino Uno
4. Breadboard

The IR sensors have 3 pin

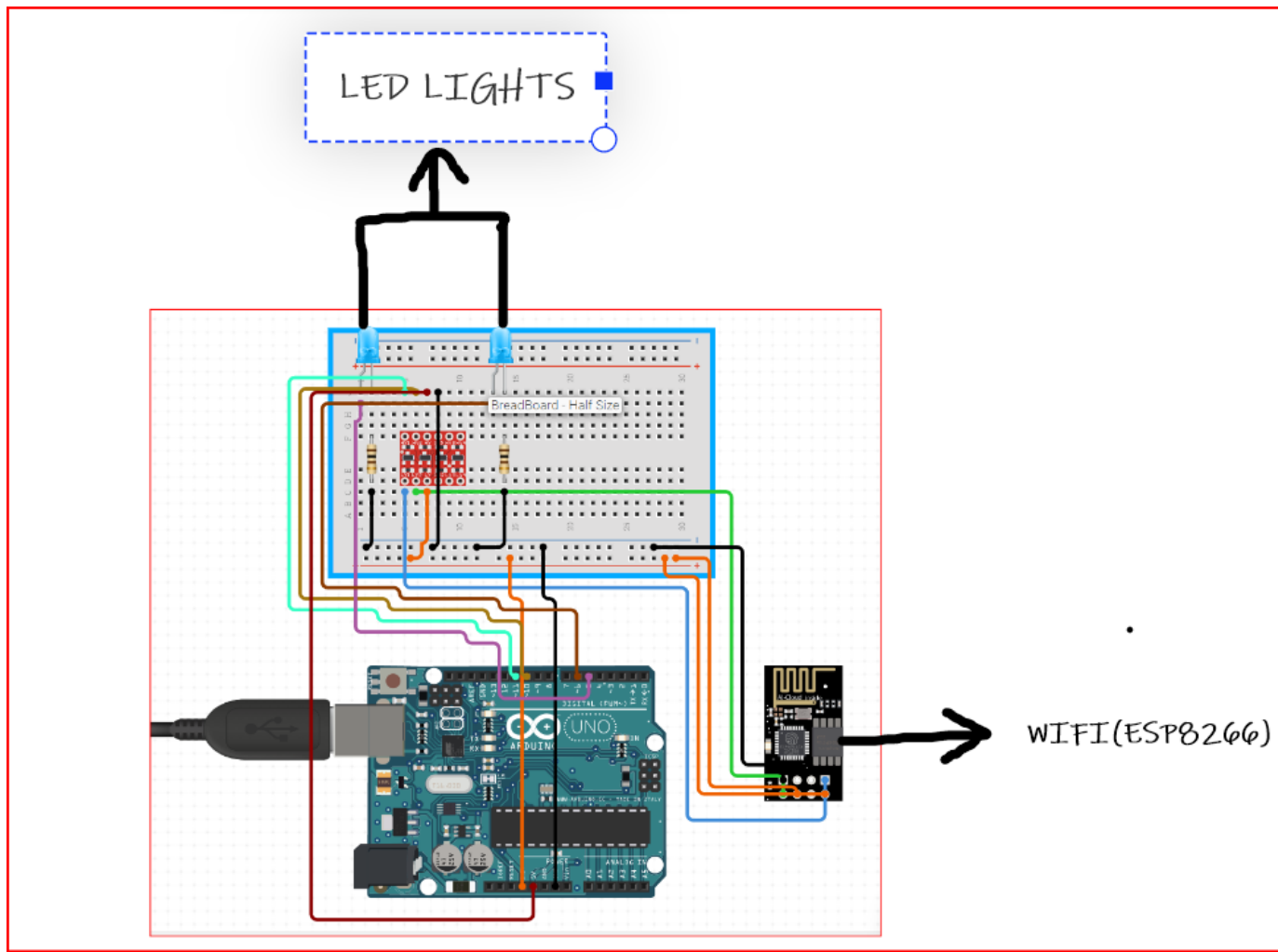
1. The ground pin which is connected to the ground pin of the arduino
2. The vcc pin which is connected to the 5v in of the arduino
3. The digital output pin connected to a digital pin of the arduino

The Wi-Fi module has 8 pins

1. The vcc(3.3) is connected to the 3.3 volt of the arduino
2. The ground pin which is connected to the ground pin of the arduino
3. The TX pin is connected to the rx of the arduino

4. The rx pin is connected to the TX of the arduino

RECIVER:



Components used:

1. Wi-Fi module(esp8266)
2. Arduino Uno
3. Breadboard
4. 2x LED'S

The Wi-Fi module has 8 pins

1. The vcc(3.3) is connected to the 3.3 volt of the arduino
2. The ground pin which is connected to the ground pin of the arduino
3. The TX pin is connected to the rx of the arduino
4. The rx pin is connected to the TX of the arduino

The led's have 2 pins

One pin is connected to 5v of arduino and one more is connected to the ground

PROGRAM:

```
#include<SoftwareSerial.h>//for bluetooth and Wi-Fi module

#define ir_out1 6//ir sensor-1;

#define ir_out2 7//ir sensor-2

SoftwareSerial bt(2,3);//(Rx,Tx)//the bluetooth pins

SoftwareSerial Wi-Fi(4,5);//(Rx,Tx)//Wi-Fi pins

String wifiname="helloo";

String pass="bye";

String data;

int res1,res2;

void setup() {

    // put your setup code here, to run once:

    pinMode(ir_out1,INPUT);

    pinMode(ir_out2,INPUT);

    bt.begin(9600);

    wifi.begin(9600);

    Serial.begin(9600);

    espcmd("AT+RST");//attention command to reset the Wi-Fi module

    espcmd("AT+CWMODE=1");//Wi-Fi module acts as a client

    espcmd("AT+CWJAP=\""+wifiname+"\", \""+pass+"\"");//attention command

    To connect to local Wi-Fi network
```

```

while(!wifi.find("OK")){
    //becomes false and exits the loop only after the Wi-Fi module is connected
}
delay(1000);
}

```

```

void loop() {
    // put your main code here, to run repeatedly:
    res1=digitalRead(ir_out1);//reads output from the first ir sensor
    res2=digitalRead(ir_out2);//reads output from the second ir sensor
    if(res1==1){
        light_on();//user defined function to turn on lights
    }
    else if(res2==1){
        light_off();//user defined function to turn off lights
    }
}

```

```

void light_on(){//user defined function to turn on lights
    espcmd("AT+CIPMUX");//attention command to specify number of devices to
    be connected
    espcmd("AT+CIPSTART=\"TCP\", \"api.thingspeak.com\",80");//address of the
    cloud we are using
    String data="/update?api_key=EG23Y36D9LLC1KRJ&field1=1";//read api key
    given by the cloud
    espcmd("AT+CIPSEND="+String(data.length()+2));//attention command to send
    data
}

```

```

wifi.find(">");
wifi.println(data);
espcmd("AT+CIPCLOSE=0");
delay(1000);
}

void light_off(){//user defined function to turn off lights
    espcmd("AT+CIPMUX");

    espcmd("AT+CIPSTART=\"TCP\", \"api.thingspeak.com\",80");//address of the
cloud we are using

    data="/update?api_key=EG23Y36D9LLC1KRJ&field2=1";//read api key given
by the cloud

    espcmd("AT+CIPSEND="+String(data.length()+2));//attention comman to send
data

    wifi.find(">");
    wifi.println(data);
    espcmd("AT+CIPCLOSE=0");
    delay(1000);
}

void espcmd(String cmd){//function to write in the esp monitor
    wifi.println(cmd);//used to print in the esp monitor
    delay(1000);
}

```