



SMART HOME SYSTEM

Group name; Team 6

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APPLICATION FUNCTIONS OF THE SMART HOME DEVICES

- 01 Bluetooth where LED lights are connected locally in a short range.
- 02 LDR or Photoresistor to control when the light should be Turned On or Off.
- 03 GSM Module System in connection with window blinds.

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Bluetooth controlled LED Light

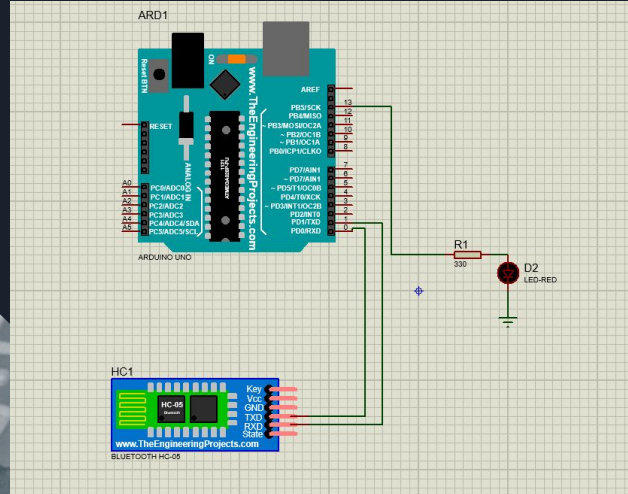
```
File Edit Sketch Tools Help
NEWVV_Light_Text_Command_C__Light

String text;

void setup() {
  pinMode(13, OUTPUT);
  Serial.begin(9600);
}

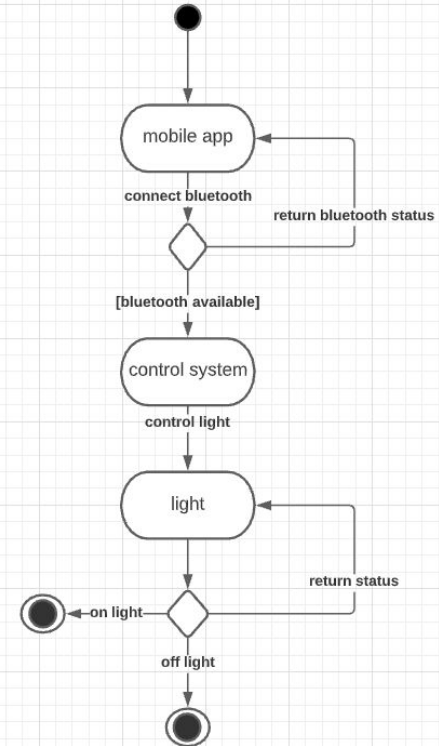
void loop() {
  while(Serial.available()){
    delay(10);
    char c = Serial.read();
    text+=c;
  }

  if(text.length() >0){
    Serial.println(text);
    if(text == "on light")
    {digitalWrite(13, HIGH);}
    else if(text == "off light")
    {digitalWrite(13, LOW);}
    text="";
  }
}
```

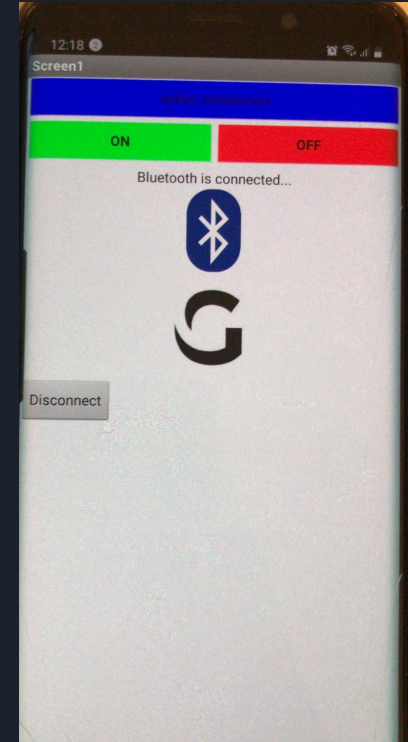
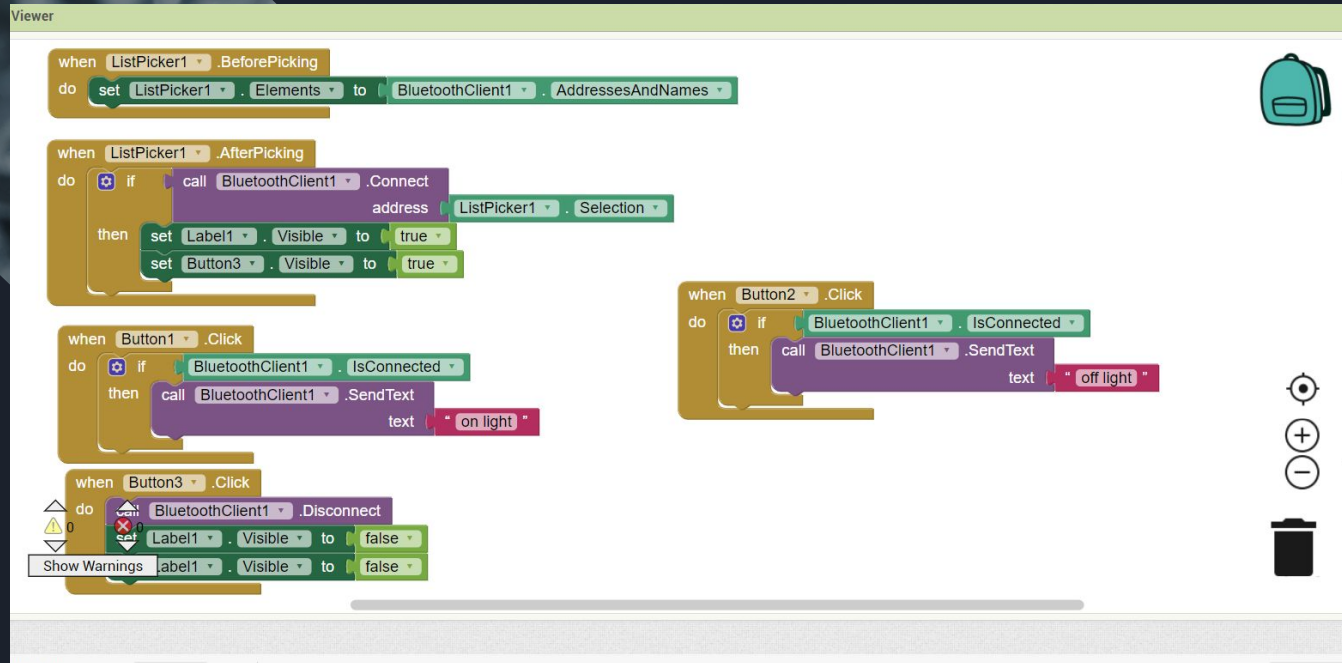


Simulation Connection

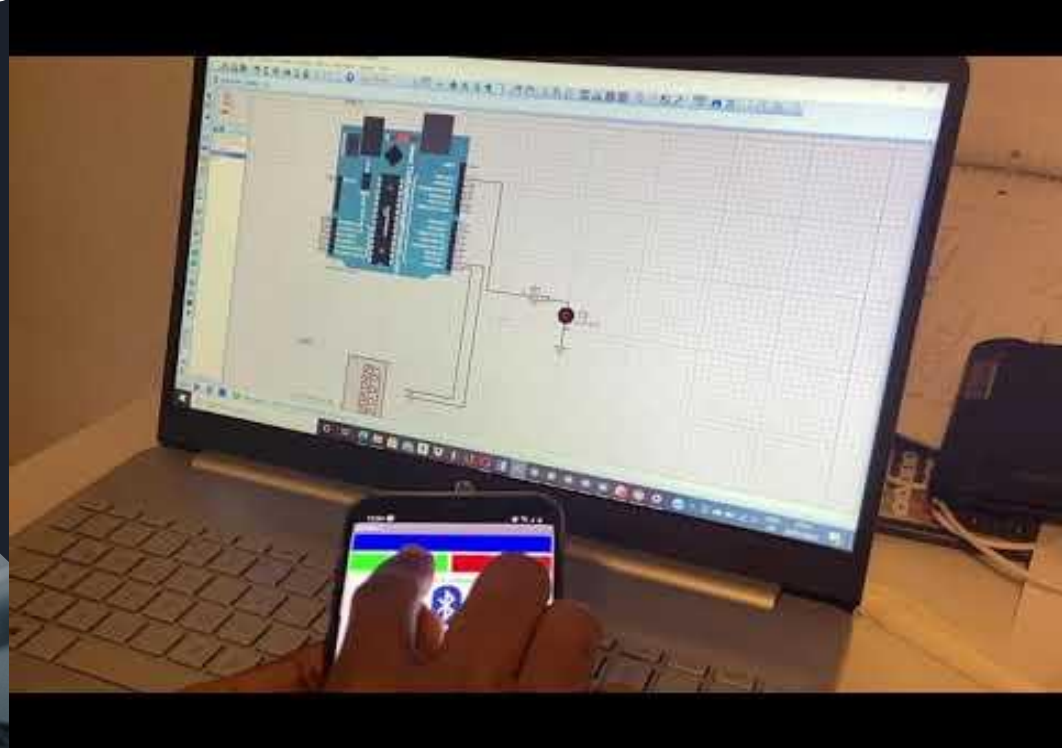
State Machine diagram



Bluetooth controlled LED Light (CODES)



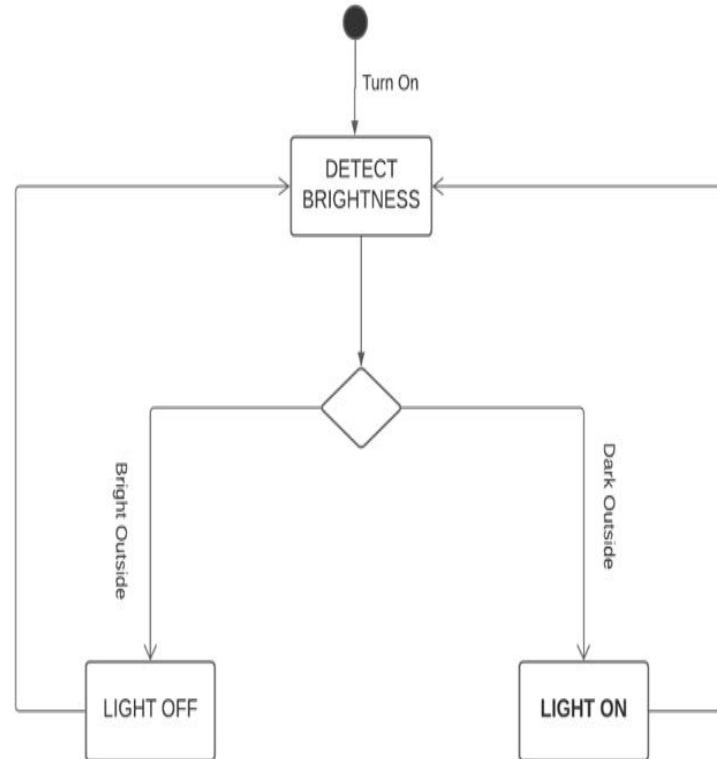
Bluetooth controlled LED Light (SIMULATION)



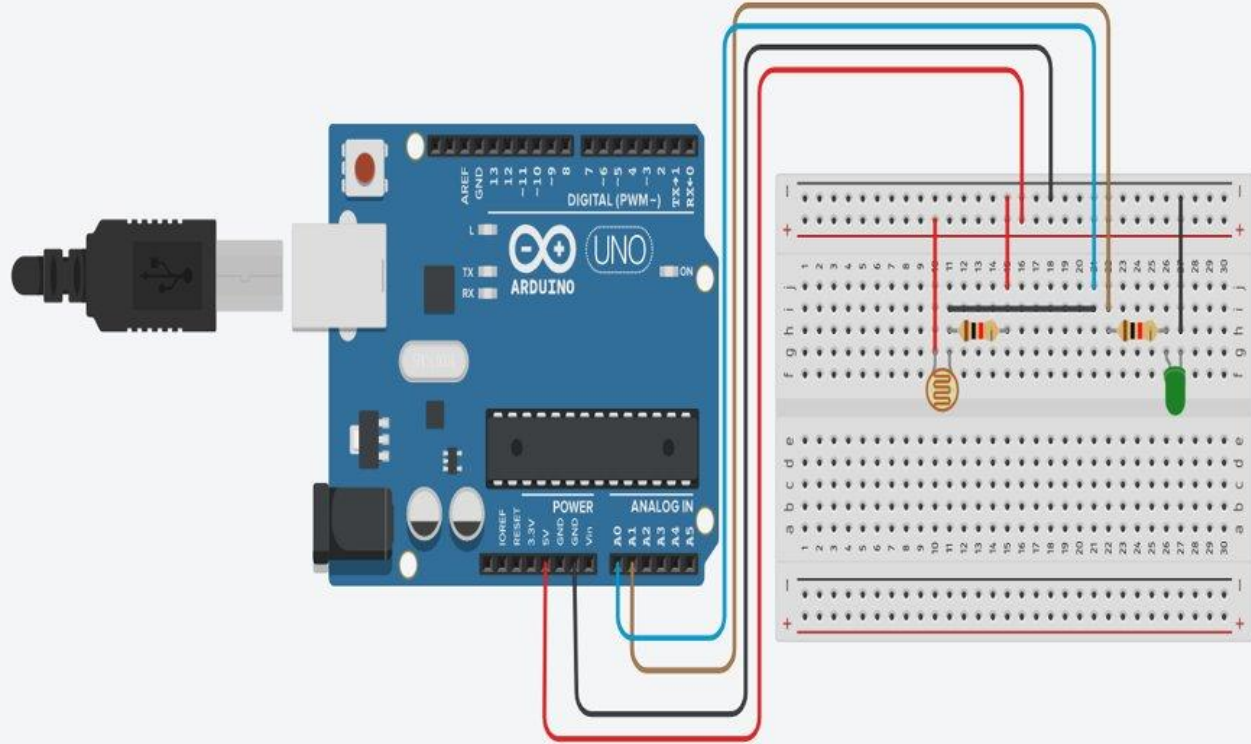
George Izuchukwu Enekwa

MODELLING :

STATE MACHINE DIAGRAM OF A LIGHTING SYSTEM



HARDWARE SETUP



TINKERCAD CODE SNIPPET

```
1 int brightness;
2 void setup()
3 {
4     pinMode(A1, OUTPUT);
5     pinMode(A0, INPUT);
6 }
7
8 void loop()
9 {
10
11     brightness= analogRead(A0);
12
13     if(brightness <350)
14     {
15         digitalWrite(A1, HIGH);
16     }
17     else
18     {
19         digitalWrite(A1, LOW);
20     }
21 }
```

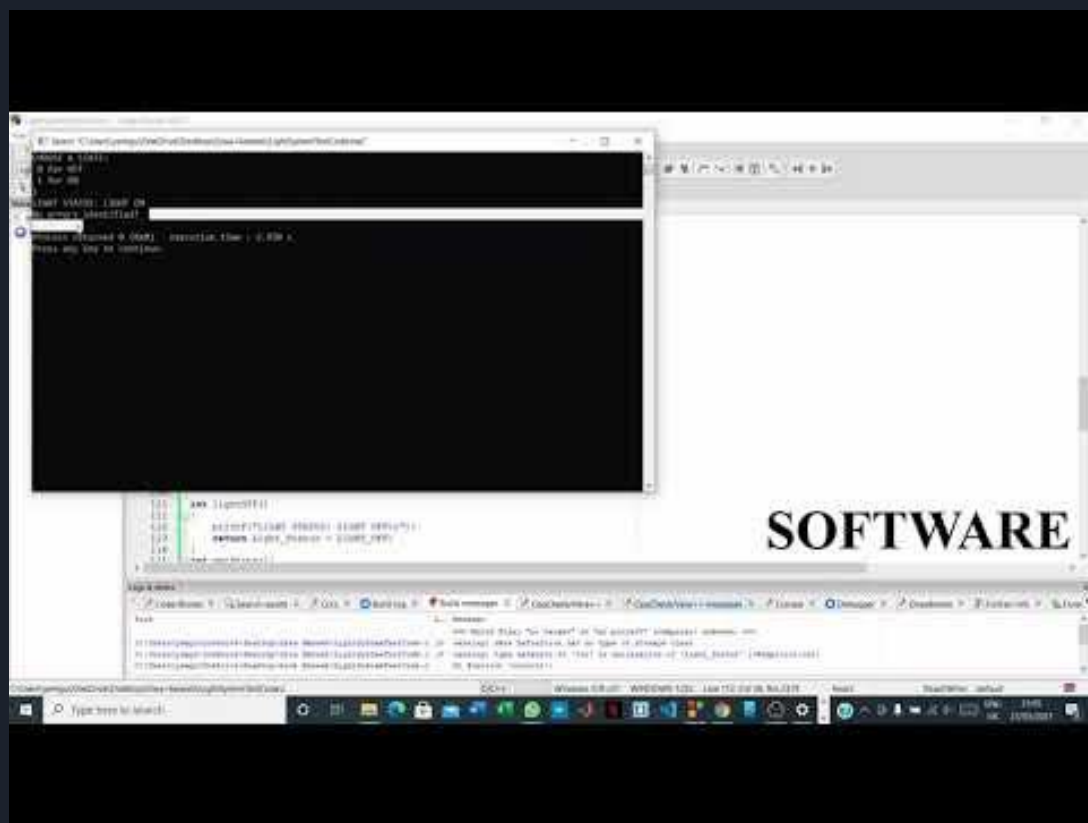
IDE CODE SNIPPET

```
CHOOSE A STATE:
1 for OFF
0 for ON
1
LIGHT STATUS: LIGHT OFF
No errors identified!

Process returned 0 (0x0)   execution time : 2.234 s
Press any key to continue.
```

```
CHOOSE A STATE:
1 for OFF
0 for ON
0
LIGHT STATUS: LIGHT ON
Process returned 0 (0x0)   execution time : 1.355 s
Press any key to continue.
```

```
CHOOSE A STATE:
1 for OFF
0 for ON
1
LIGHT STATUS: LIGHT OFF
Process returned 0 (0x0)   execution time : 1.806 s
Press any key to continue.
```



Features and characteristics

Windows Blinds



Windows blinds

- Mode based analysis
 - Class diagram
 - Sequence diagram
 - State machine diagram

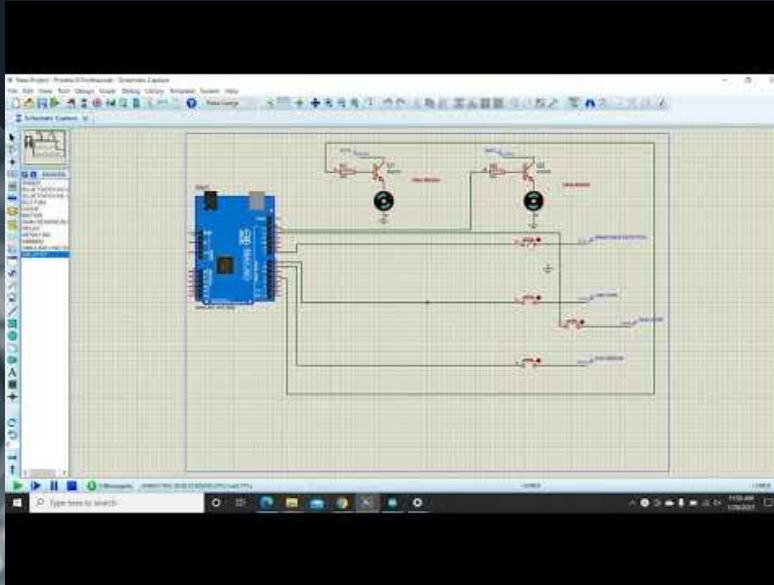


Windows Blinds

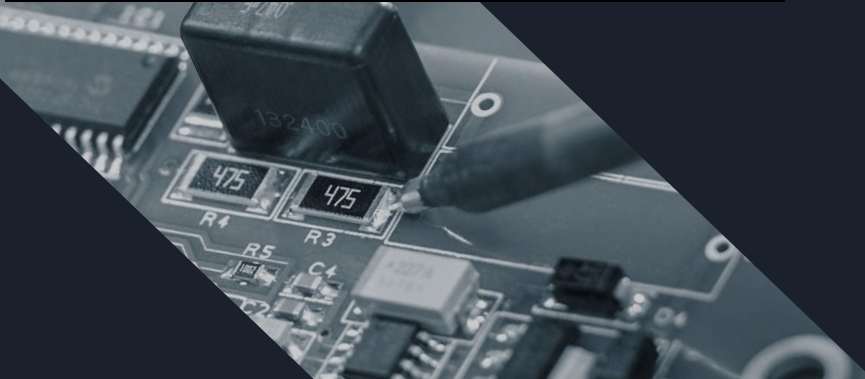
- Mapping from class diagram to code and test
- Mapping from state machine diagram to code and test



Windows Blinds



- From code to ide (Arduino)
- Simulation tool (Proteus professional)
- Simulation



The background is a dark navy blue. In the top-left corner, there are two overlapping geometric shapes: a blue parallelogram and a light green parallelogram. In the top-right corner, there is a grey, 3D-rendered circuit board pattern. In the bottom-left corner, there is a circular inset showing a detailed, high-magnification view of a circuit board with various components and solder points.

Windows Blinds

Reliability and quality



Windows Blinds

- Reliability over time and users
- Ensuring real time improvement (Scrum working method)



THANK YOU....