Electronic Product Design and Manufacturing

EN1070

# SMART LED LAMP

## - PROGRESS REVIEW REPORT -


**Group No: 20**

**Group Name: No name**

**Group Members**

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# Report of the survey

## SMART LED LAMP

### Introduction

Nowadays there are so many Bluetooth controlling smart devices. Our project idea is innovating a bulb that can be controlled by Bluetooth. There are so many instances that we want to control a bulb from a distance. At night we can switch on or off the bulb in bedroom or outside without reaching the switch. A physically differently abled person can switch on or off the bulb from a distance. Also, the intensity of the light can be adjusted, and also we can develop the bulb with changing colors. The app which developed to control the bulb can be programmed to have a timer. This developed model can also be used to control many bulbs at once without reaching different switches at different places.

### Findings

We did a survey about our project. Among those who done that survey 77.97% are undergraduate, 20.34% are students and 1.69% are employees. Those are the information get from the survey.

| How many bulbs they are interested in buying | | | |
|---|---|---|---|
| 2 | 3 | 4 | 5 |
| 3.39 % | 15.25 % | 50.85 % | 30.51 % |

| How many rupees they are willing to spend to buy a bulb | | |
|---|---|---|
| Less than 500 /= | 500 – 1000 /= | Over 1000/= |
| 11.86 % | 57.63 % | 30.51 % |

| Where they do like to have this bulb | | |
|---|---|---|
| Bedroom | Livingroom | Outside |
| 67.79 % | 18.64 % | 13.56 % |

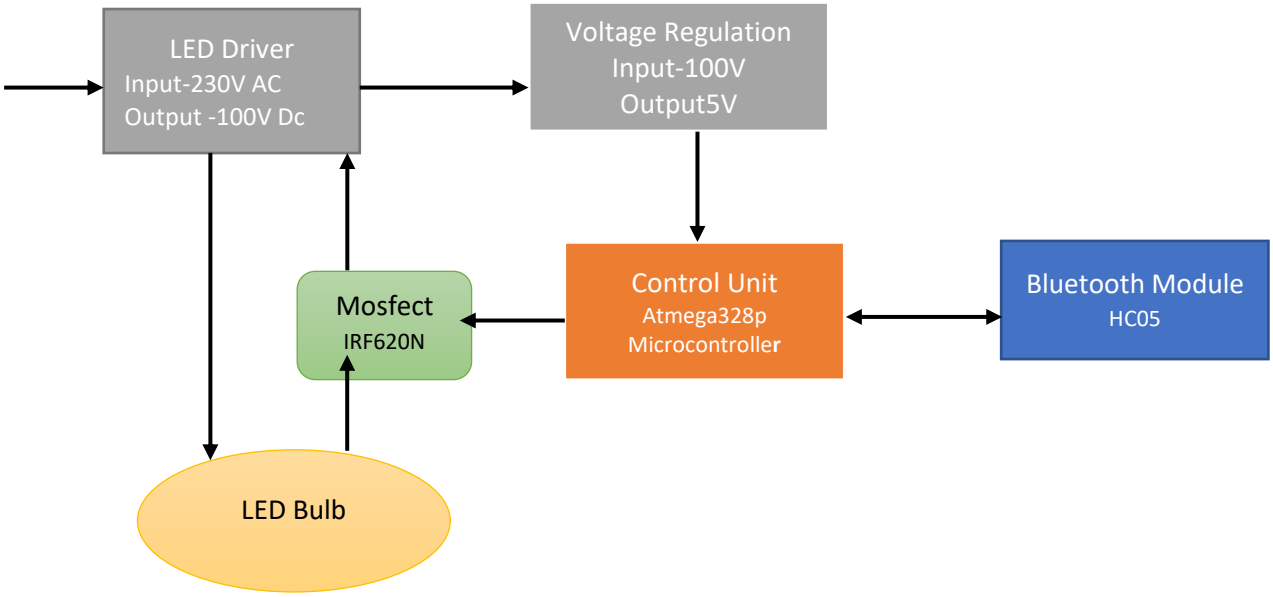
The special features that people are expecting from the bulb.

- Easy and fast connectivity between the bulb and app
- Controlling remotely within considerable distance
- Different colors
- High quality bulb and user-friendly app
- Easy to control.
- When we are sleeping, the bulb can be off automatically.
- Ability to use for a long time period.
- Connecting through the internet
- It may have power backup.
- Less energy consuming.
- Having a timer
- Include a dimmer controller.
- Control the intensity.
- Water proofing production
- Echo friendly.

## Conclusion

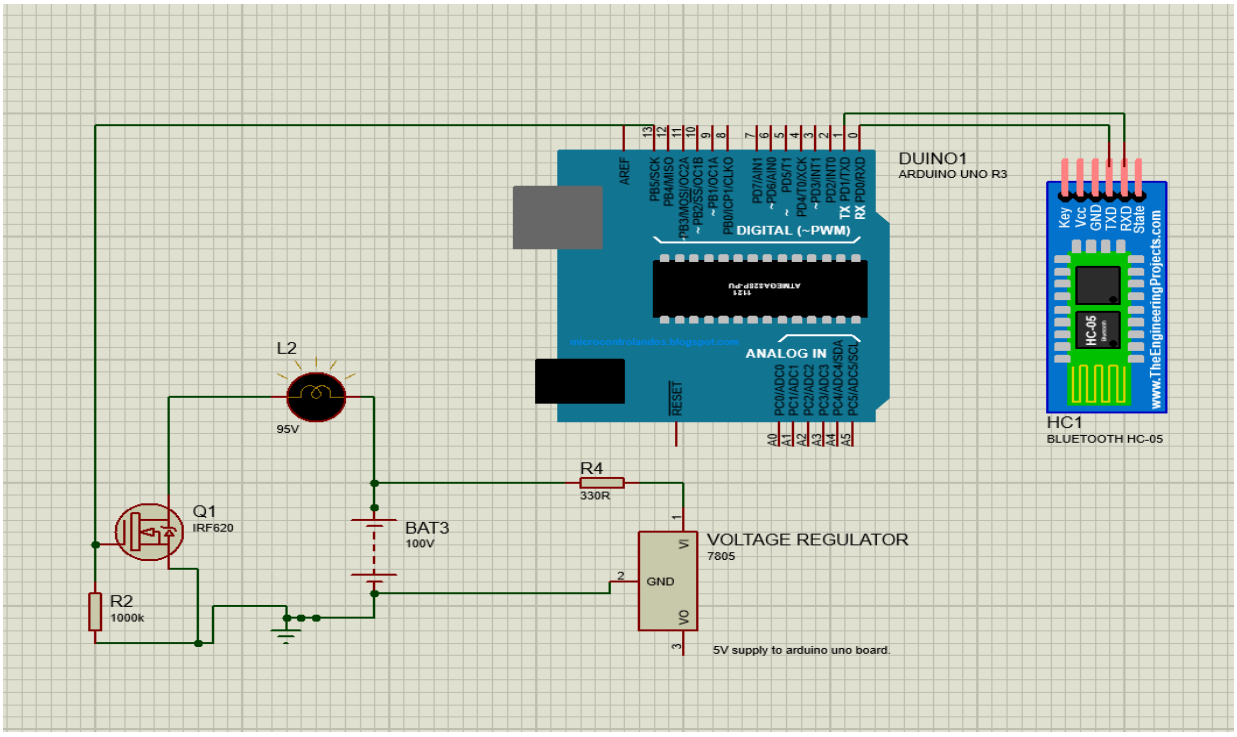
We are trying to give a high-quality product to lower cost as the outlet. We planned to improve our model to switch on and off automatically by using a timer which user can set properly. And also, we are working with controlling the intensity of the light.

## Block Diagram of circuit

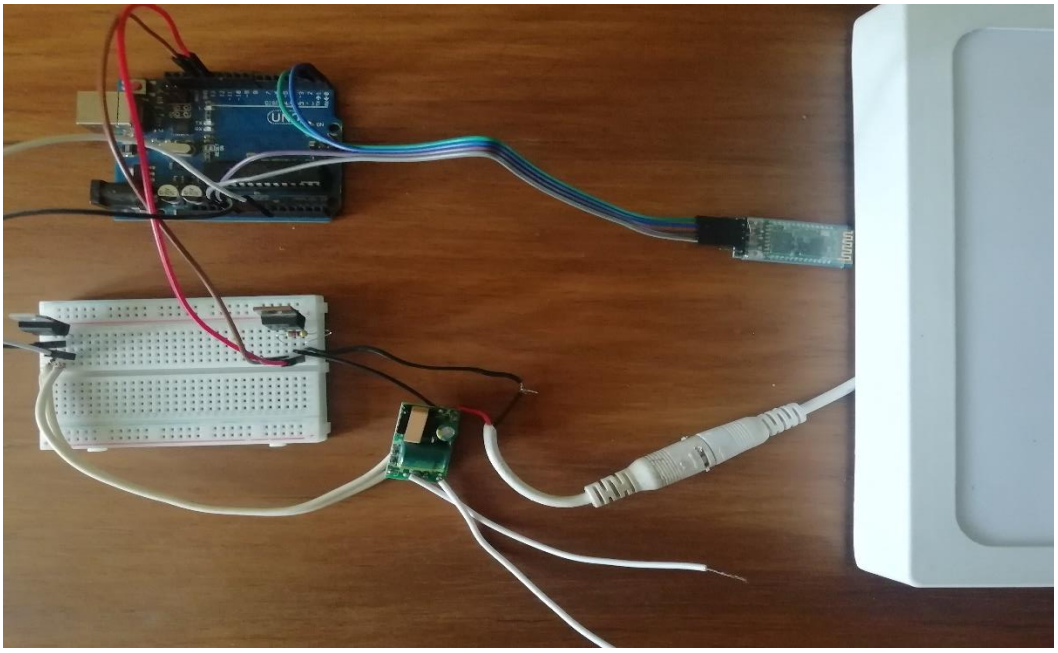



## Proteus Simulation

Simulation was done using Arduino uno. It is proposed to use Atmega328p Microcontroller in the final product.

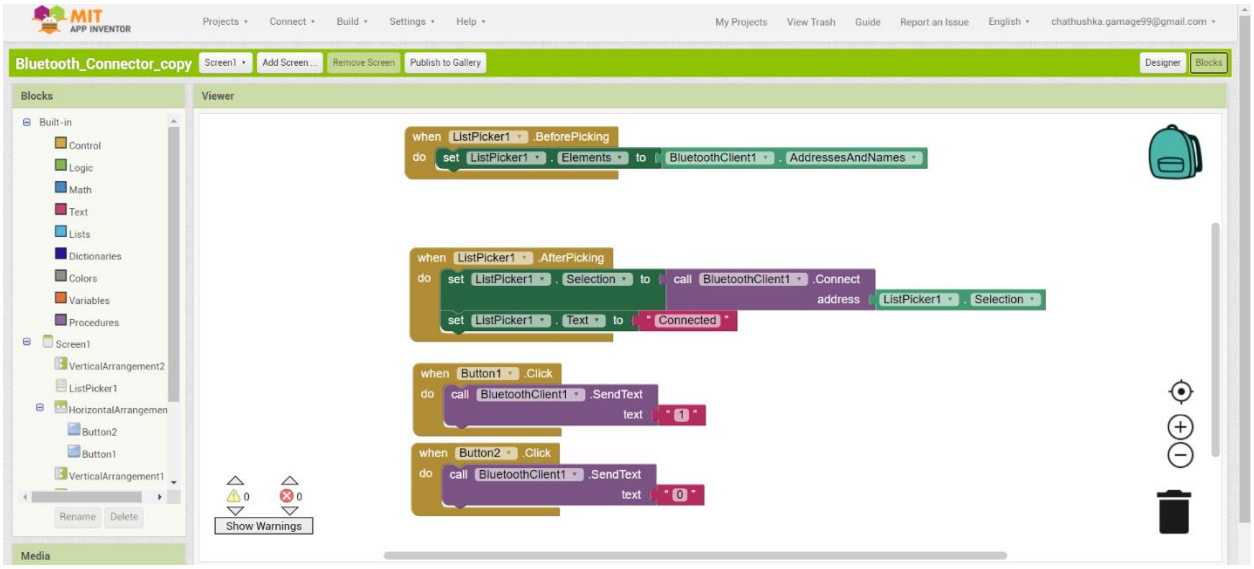


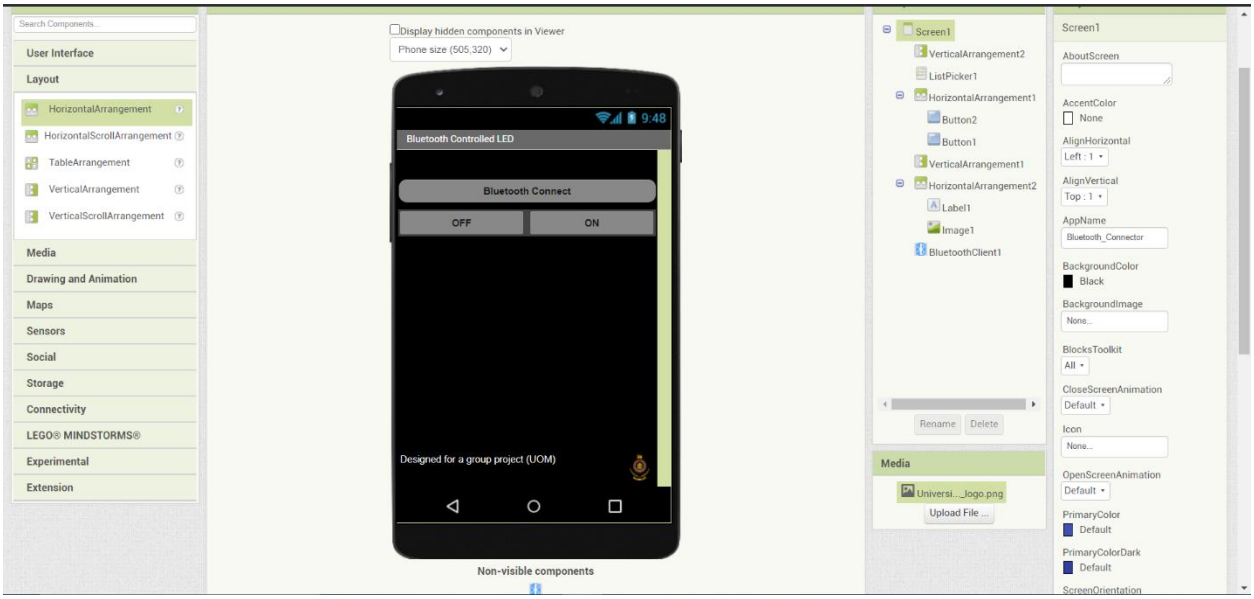
## Prototype 01



## Mobile Application Development

Mobile app has been developed to perform the basic functionality of the product. (Switching on and off the bulb remotely using mobile app)

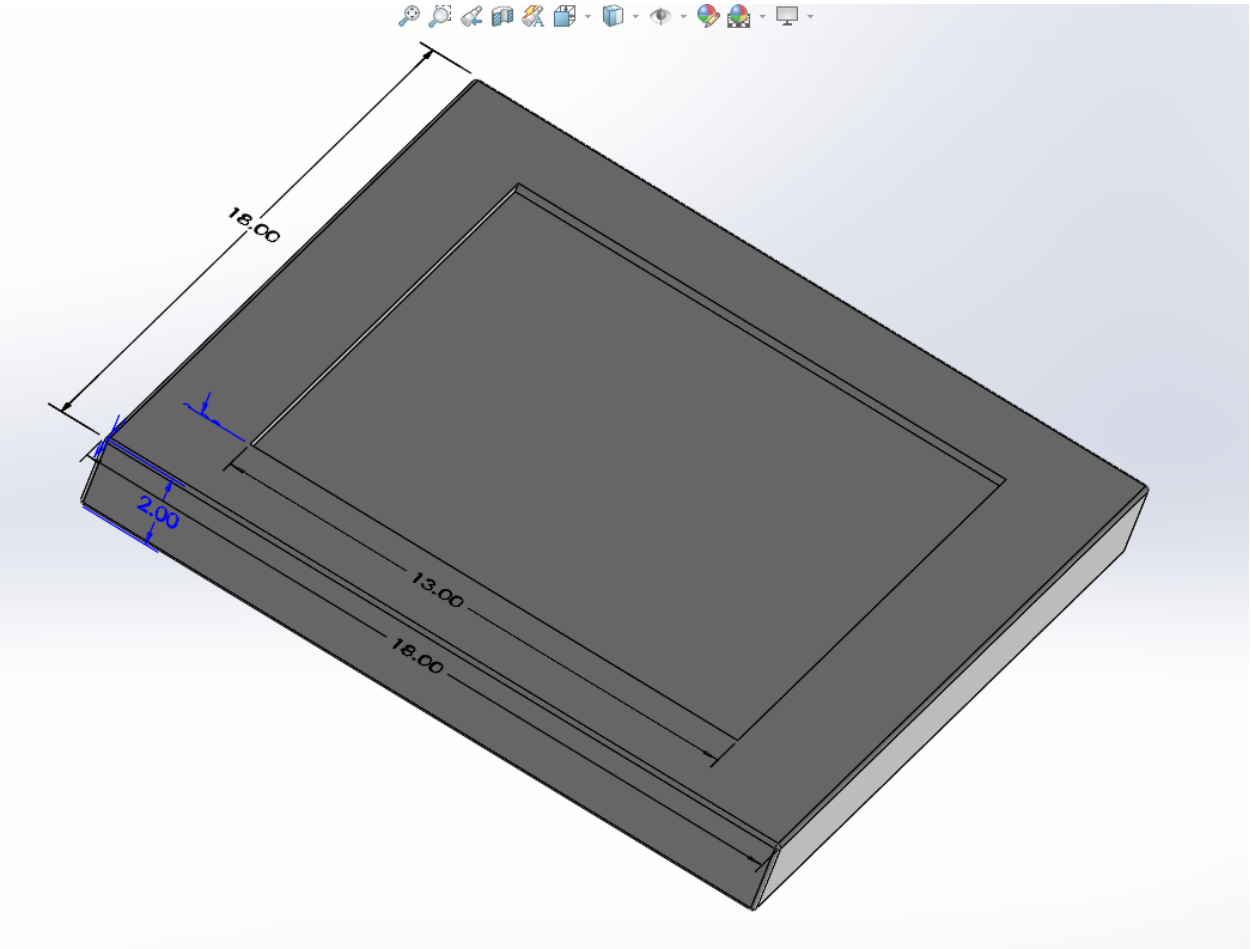




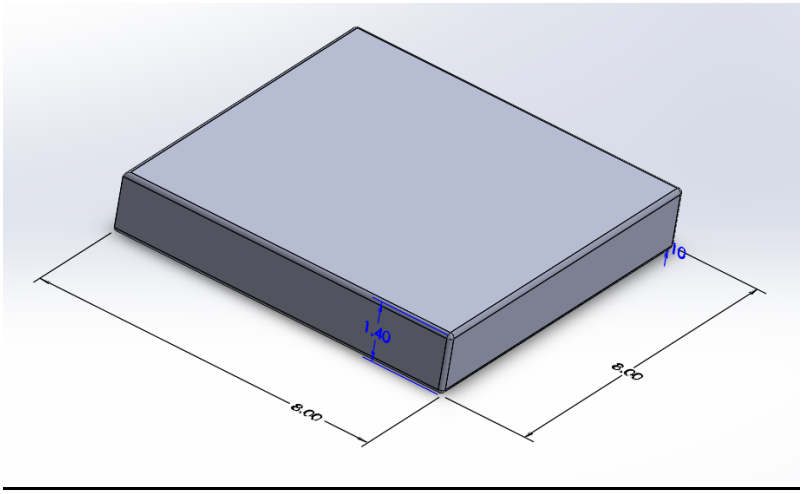

We planned to improve our model to automatically switch on and off the bulb at a time which user can set priorly according to his preference. That part of the mobile application will be developed in the next part of the project.

## Sketches of the Product Enclosure

Bulb




The Box inside the bulb that contains the circuit.



## Estimated budget

| Component | Price (LKR) |
|---|---|
| Atmega328p Microcontroller | 450.00 |
| Hc05 Bluetooth Module | 850.00 |
| LED Panel Light | 500.00 |
| PCB | 100.00 |
| irf620N Mosfet | 50.00 |
| 7805 regulator | 25.00 |
| Resistors | 5.00 |
| Total | 1980.00 |

## Task allocation among group members

| Member | Tasks completed | Future tasks |
|---|---|---|
| Ruvindi S.M.P.M. | Designing the solidworks model for the enclosure. | Designing and doing the programming part related to communication part of the model; Bluetooth module |
| Ranasinghe K.K.H | Designing basic proteus model for the prototype. | Soldering relevant peripherals to the pcb completing the programming part |
| Sandaruwan K.G.C.P | Designing the mobile application | Designing sketch and making the pcb. |
| Amarathunga H. G. N. P. | Conducting a survey to gather ideas and preferences from the society | Designing the power regulating part of the model. |