

PRODUCT DESIGN ANALYSIS

1. FUNCTION COST MATRIX (refer ppt)

2. COST ESTIMATION (with Functions of each Components)

Function Cost Matrix



| S.No. | Components | Function | Type | Cost | % on Selling Price |
|-------|-----------------------------|-------------------|---------|-------|--------------------|
| 1. | Al Sheet | Heat Discipation | Support | 08.00 | 3% |
| 2. | LED Strip | Emit Lumen | Basic | 57.00 | 21% |
| 3. | Driver | Interface Devices | Support | 27.00 | 10% |
| 4. | Reflector | Scatter Neutrons | Support | 16.50 | 6% |
| 5. | Diffuser | Passing Fluid | Support | 12.00 | 4% |
| 6. | Electric Wires | Transfer Signals | Support | 04.75 | 2% |
| 7. | Clamp and Double sided tape | Fitting Wall | Support | 02.25 | 1% |
| 8. | Anabond 202 and Fevi kwik | Adhesive Bond | Support | 11.75 | 4.5% |
| 9. | Sleeve and Insulated tape | Protecting Medium | Support | 01.25 | 0.5% |

| NAME OF THE COST | COST | % OF COST |
|---|--------|-----------|
| Material Cost | 140.50 | 52% |
| Operational Cost, Testing Cost and Packing Cost | 19.50 | 7.2% |
| Labour Cost | 15.00 | 5.5% |
| Profit (35%) | 95.00 | 35% |
| Selling Price (Material Cost, Operational Cost and Profit) | 270.00 | 100% |









3. FAST ANALYSIS

FAST ANALYSIS

1. BENCH MARKING

Benchmarking is a process of measuring the performance of a company's products, services, or processes against those of another business considered to be the best in the industry, aka "best in class." The point of **benchmarking** is to identify internal opportunities for improvement.

Bench Marking of LED Lamp is Lux and Lumen

| Light Type | LED Design for Ceiling | New Design for Wall | Fluorescent Tube | LED Tube | LED Panel Light |
|-----------------|---|---|---|--|---|
| Light Image |  |  |  |  |  |
| Watts | 24 | 24 | 40 | 20 | 30 |
| Lumens | 2592 | 2592 | 2400 | 2160 | 3240 |
| Lux Meter Image |  |  |  |  |  |
| Lux at 2 m | 141 | 78 | 56 | 61 | 32 |
| Rs/Lux | 0.123 | 0.222 | 0.515 | 0.236 | 0.675 |

2. COUNTER PART REDUCTION

LED is the best one for lumen and lux improvement. LED will emit heat more. The existing lamp have more parts in order to reduce the heat from LED. Till now there will be heat discipation material and again there will be closed surface without any ventilation for heat. Aluminium is good for discipation of heat. In order to reduce heat there should be heat discipation material with ventilation for it.

3. Weight Reduction

The normal weight of all lamps are 299 gram to 359 grams. 169 gram of weight for the new design of lamp.

4. Alternative Materials

Aluminium Sheet can be replaced by Aluminium Iron and so on. Prefer Heat Discipated material instead of Aluminium.

Diffuser have 2 types, White Diffuser (White Plastic) and Transparent Diffuser (PVC Material). Better to go for White Plastic because cost is same and The LED will affect retina of eye if LED is viewed continuously.

5. Yield Improvement

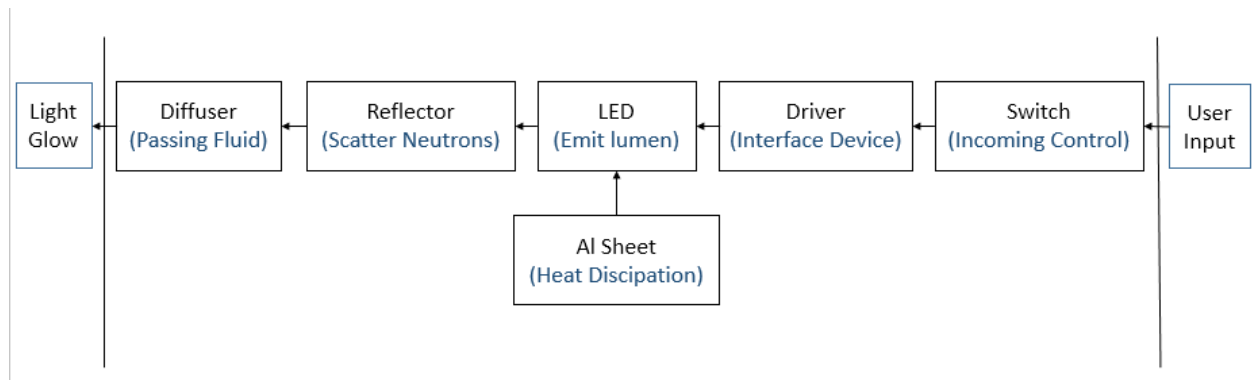
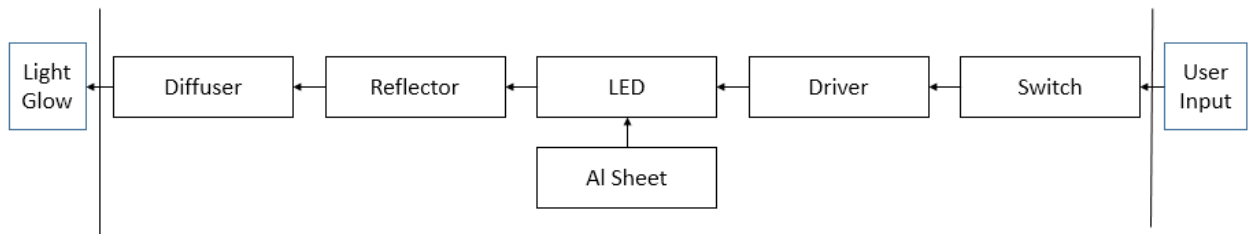
The Aluminium Sheet and Diffuser wastes can be controled if the proper utilization of design of Aluminium Sheet and Diffuser as per the Standard size for the lamp.

6. Part Customization

Both Aluminium sheet and diffuser is designed as single part to help all functional Requirements.

4. FAST DIAGRAM

FAST Diagram



5. VALUE ANALYSIS AND VALUE ENGINEERING