

# Designing of a Digital LED Display Board for an Industry

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**Abstract-** In this paper one aim is to design a message display board for an industry as “Vaibhav Global Limited, Jaipur. This display board contains very large dimension (30ft x 2ft), and it is used to display the name of industry as “Vaibhav Global Limited, Jaipur the display board consists total alphabet letters and each letter is made up of acrylic sheet. Complete needs three sheets on the metallic board and each letter is embedded with high intensity based LED. The proposed and designed display which is widely demanding by every industry in India.

## I. INTRODUCTION

An information display is a way of providing information and is used as an object for promotion. It can be seen in a form of cardboard at stores/shops, streamers and electronic display devices. But the advent of new technologies made the information in the form of an electronic display in the world of advertisements and promotions. The ability to display a short message can be useful application to be available for any business. A LED display board is perfect for this application. It can be used for both indoor and outdoor which makes it universal fit for any business or event. The LED display board is

very efficient and cost effective way to spread messages to thousands of people, without any

Personal contact or door-to-door sales. LED is a solid state light source with several attractive properties for display application. It is chosen as the main component for displaying messages because, today LED is the most energy efficiency example as compared to incandescent light bulb. A LED light emit very little heat and saves a lot of energy, as 98 percent of the energy used by a traditional incandescent light can be lost as heat energy instead of light energy.

## II. PROBLEM ANALYSIS

These are many other running message display available of size 4ft by 1/2ft or LED based notice boards but for advertisement purpose and to display name of industry/organization at night is a big challenge therefore this project resolve above problem and useful for every small medium and big industry ,shop organization, firm ,schools, hospitals etc.

Based on the papers reviewed, we identified some drawbacks which induced us to concentrate or designing a new enhanced LED display board. A common drawback that exists is, none of the designs can display more than a message at a time at big scale. Another common drawback found in these systems is

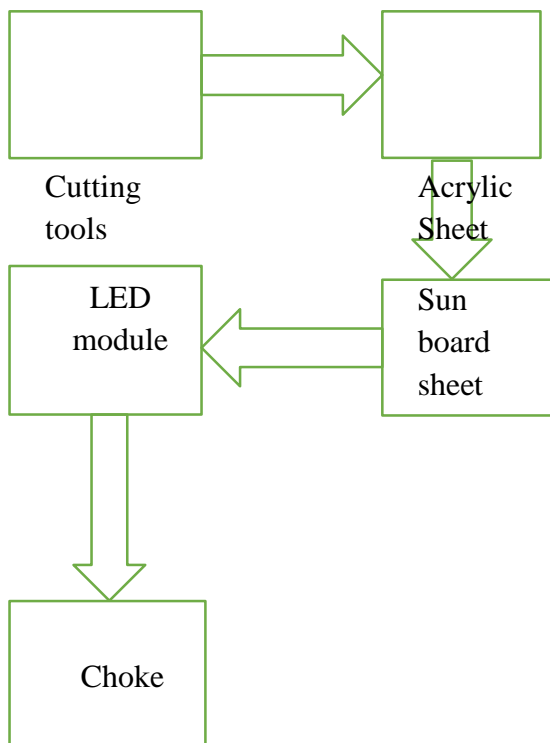
the display board functions using only one type of power supply, which is either AC power or solar power. None of the above system is able to function without manual switching on and off the system. It requires man power to handle the display board.

### III. THE PROPOSED WORK

We will be doing to latest design of led tube light for research purpose we create a led tube light for just checking and measuring its intensity and power. The proposed system is designed in such a way that it works based on solar power as well as AC power. On a daily basis, the electricity is generated using solar panel and the power is stored at the power bank.

Basically we have following steps for performing designing led project.

#### BLOCK DIAGRAM OF LED METHODOLOGY



### ACRYLIC SHEET

Acrylic also known as Poly(methyl methacrylate) (PMMA), as well as by the trade names Plexiglas, Acrylite, Lucite, and Perspex among several others, is a transparent thermoplastic often used in sheet form as a lightweight or shatter-resistant alternative to glass.

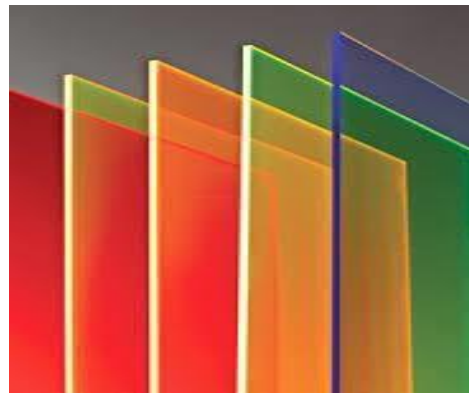


Fig: Acrylic sheet

### SUNBOARD SHEET

Sun board or Foam board is a very strong, light, and easily cut sheet material used for the mounting of vinyl prints, as backing in framing, and for painting.



Fig: Sun board sheet

## FINAL DESIGN



Fig: Image of Furnished Project

## IV. ADVANAGES & DISAVANTAGES OF LED

### a) *ADVANTAGES*

1. The high efficacy of LEDs makes them useful in battery powered or energy-saving devices.
2. LEDs can emit light of an intended colour without the use of colour filters that traditional lighting methods require. The SSL can be designed to focus its light without use of reflector as in conventional lighting LEDs are ideal for use in high speed applications and where frequent ON- OFF is required, unlike in incandescence lamps, the maximum failure rates of lamps are during ON-OFF only.

3. Only one LED is not sufficient for illumination purpose, LEDs are used in packed form. It can be made practically possible to replace only faulty LED, reducing inventory and maintenance cost.

### b) *DISADVANTAGES*

The major disadvantage lies with LEDs, is only initial cost. As the initial cost of LEDs is very high, it is not so popular in common man. The other drawback is that of production of beam, as the efficacy is low (compared to pressure lamps) and beam cannot be produced the application of LEDs in flood lighting is limited.

## V. FEATURES

1. Low Voltage working, safe and reliable, meeting different environment.
2. High heat conductivity, low luminous decay, pure light colour and no ghosting.
3. The LEDs closely connected to the crust ensures life-span effectively.
4. No air pollution, no heat radiation, hydrargyrum and any other contamination.
5. Housing dust proof and jet-proof, no internal cleaning required.
6. High quality electronic control gear, it is both energy saving and durable.

## VI. APPLICATION

a). *Backup lighting*:-The LEDs can be used in every part of life, including applications from house hold to industries. As the power consumption is very low, the LEDs are very useful for battery operated systems like home lighting on inverters, torch lights etc. In commercial building and shops also they find applications where back up lighting (with independent power supply) is provided throughout the day irrespective of power supply.

b). *Street Light*:-LEDs are used in street lighting because they have extremely long life makes them more economical to operate over their span of operation and LEDs can provide a more pleasant spectrum. The city hopes to be able to cut street lighting budget in half by switching to LED street lighting, and that accounts for just the energy savings.

c). *Vigilance*:-The other application of LED lighting is in corridors, parking place and places where vigilance is required. Generally the vigilance lighting is thought the night, and just sufficient enough to illuminate, LED lightings are ideal choice and payback period is also very less.

d). *Rural areas*:-The LED lighting can be very helpful in remote rural areas, where grid has not reached. With the help of solar PV panels, batteries can be charged and if it is used through LED lighting system, a long back can be possible.

e). *Street Reflectors*:-LED lighting is a wondrous application for street reflectors. The self charging. LED lighting scheme can be used as reflectors on road. During day time they will store energy and later same will be used for glowing during night time, as reflectors, thus avoiding accidents.

f). *Operation Theatres* :- LED lighting can be life saver, when used in operation theatres. As the operation theatres light need to be on irrespective of grid power available, LED system can be used as backup lighting, operating on battery and giving backup for a long time.

## VII. CONCLUSION AND FUTURE SCOPE

This paper identifies the drawbacks that have been found in every existing work. It has been observed that LED illumination is better than any general illumination systems (including CFLs) in terms of energy saving and cost effectiveness .The technology is being improved and full conversion will save many generating stations in the world.

As a result, by introducing the concept of enhanced LED display board, this paper explains by integrating features of dual power supply, dual option of changing message and inbuilt motion detector in the field of communication. Besides, in this paper the user can display additional messages at a time. From this the user of this display board can use the board for rental out, notice board and promotion board. In a nutshell, this paper describes the new enhancement in LED display board which is highly efficient than the existing technology.

It is proposed to apply anywhere like-Institutes, Industries, homes, street lights etc. By applying this model energy and cost both are save and get high efficiency.

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