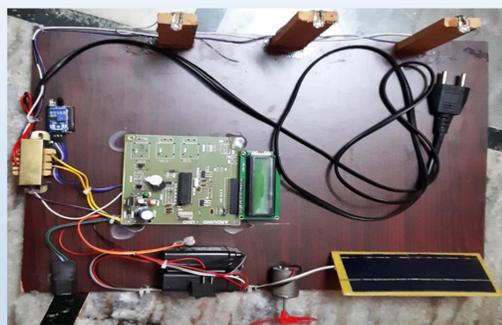


# SOLAR-POWERED LED STREET LIGHT AND MOBILE CHARGER WITH AUTO INTENSITY CONTROL CIRCUIT

HEMA VARSHINI.G, SWATHI.Y, SAI SUDHA MAI.V , DURGA MEGHANA.N, ALEKHYA.P  
SRM UNIVERSITY AP, ECE.

## ABSTRACT

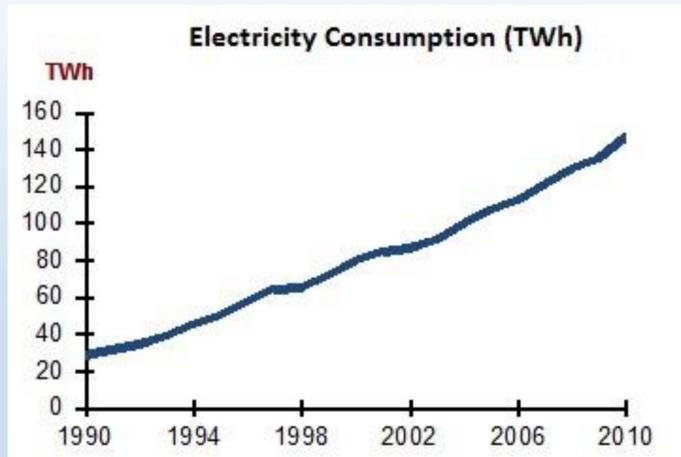
As we know that, nowadays energy sources are limited and energy consumption has increased, so renewable energy sources are used to meet the increase in the energy demand. Keeping this in mind in this article, we are discussing a solar-powered LED street light with auto intensity control. This project is driven by solar energy used to control the light intensity from morning to evening based on the brightness. A case study is also done to demonstrate the advantages of this solar LED street light compared to the traditional street light. Because this solar-powered street light can conserve a large amount of electricity compared to the other lights which are a light to their maximum intensity at all times after they are turned on solar-powered Led Street Light with Auto Intensity Control Circuit and Its Working.



## INTRODUCTION

India is a hub for all renewable and nonrenewable resources, it is one of the leading coal producers all over the world. India is listed in 3<sup>rd</sup> position among the list of countries by electricity consumption. With increasing concerns about global warming and climate change, renewable energy systems are receiving increased attention from researchers. Street lighting is a major energy consumer for cities. Normally, 50% of the energy budget is reserved for lighting. There are around one hundred million street lights all over the world. In the case of 100 million street lamps, each street lamp consumes 20 watts and a half of lighting lamps are always operating around the globe. They consume around 8760 Giga watt-hour (GWh).

In the few past years, most of the cities all over the world have upgraded to be smart cities by involving and adopting lots of advanced technological projects for the ease of lives of people. In this framework, the proposed system solves this shortfall of the conventional street lighting scheme by adjusting the lights switching in coherence with the traffic circulation. It lowers energy consumption. This proposed framework satisfactorily works for energy saving and is especially suitable for remote and rural areas with low traffic circulation.



## RESULT

The result comprises the successful operation of the 'SOLAR POWERED LED STREET LIGHT AND MOBILE CHARGER WITH AUTO INTENSITY CONTROL'. The circuit is stationed in a suitable location that is exposed to sunlight so that immediately it is dark the system automatically switches "ON" the lamps and when the illumination is above 50 lux the lamps are automatically switched "OFF". The values of illumination, voltage, current, and temperature are noted from the LCD and also, we can see that the mobile charging.

S.No	Input	Result
1.	Light <40	LED ON
2.	Light >40	LED OFF
3.	Objected detected	LED ON
4.	No objected detected	LED OFF

## FUTURE SCOPE

With improved efficiency we can reduce the charging time. Conserved energy can be used for charging laptops, electric cars if we increase power supply

## CONCLUSION

Light Emitting Diodes technology for street lighting is one of the most efficient lighting technologies used currently especially when it is powered with renewable energy sources like hybrid solar/wind systems; it consumes less power for the same output luminance.

This project 'SOLAR POWERED LED STREET LIGHT AND MOBILE CHARGER WITH AUTO INTENSITY CONTROL' is a cost-effective, practical, eco-friendly, and the safest way to save energy. It tackles the two problems that the world is facing today, saving energy and also disposal of incandescent lamps, very efficiently. According to statistical data, we can save more than 40 % of electrical energy that is now consumed by the highways. Initial cost and maintenance can be the drawbacks of this project.

## REFERENCES

- K. s. G. B. & B. Deepu Vijay M, "LED Based Street Lighting With Automatic intensity Control Using Solar PV," *IEEE*, p. 6, 2015.
- W. M. Alzahrani, F.M.Almojalid and N.S.Hammad, "A Vehicle Movement Based Self - Organised Solar Powered Street Lightning," *IEEE*, vol. 3, no. 9, p. 4, 2019.
- S. Georges and F. Slaoui, "Case Study Of Hybrid Wind Solar Power Systems For Street Lightning," *IEEE International Conference on Systems Engineering*, vol. 3, no. 11, p. 4, 2011.
- Ch Kavitha, Swathi, Satyaprakash and Vinitha, "Solar Powered LED Street Lighting with Auto," *International Journal of Scientific & Engineering Research*, vol. 7, no. 7, p. 4, 2017.