

# Automatic Solar Street Light System

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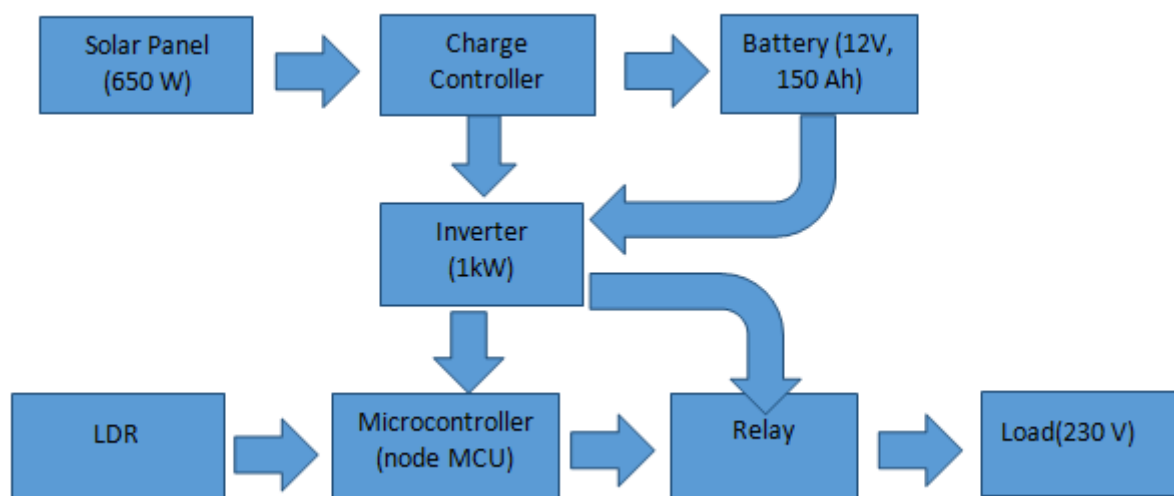
## ABSTRACT

**Automatic Street Light Control System is a simple yet powerful concept, which uses NodeMCU as a microcontroller. By using this system manual works are 100% removed. It automatically switches ON lights when the sunlight goes below the visible region due to done by a sensor called Light Dependant Resistor (LDR) which senses the light actually like our eyes. It automatically switches OFF lights whenever the sunlight comes. This system energy consumption is also reduced because nowadays the manually operated street lights are not switched off even the sunlight comes and also switched on earlier before sunset. In this project, no need of manual operation like ON time and OFF time setting is microcontroller are controlled to the relay is work on a switch.**

## INTRODUCTION

We need to save the energy because most of the energy sources we depend on like coal, nuclear atom and natural gas can't be replaced once we use them up, they're gone forever. Saving power is very important, instead of using the power in unnecessary times it should be switched off. In any city "STREET LIGHT" is one of the major power consuming factors. We see street lights are controlled has an LDR which is used to detect the ambient light. If the ambient light is below a specific value the lights are turned ON.

The working of relay is controlled by Microcontroller and the code is written in embedded C, the resulted value can be seen with the help of LCD display. Automatic Street Light Control System is a simple powerful concept. It automatically switches ON lights when the sunlight goes below the visible region of our eyes. This is done by a sensor called Light Dependent Resistor (LDR) which senses the light actually like our eyes. They Block diagram and working controller circuit are in below.



**Fig 1. Block Diagram**

The automatic streetlight controller are operates on 12 V DC supply. The automatic streetlight controller has a photoconductive device whose resistance changes proportional to the extent of illumination, The central domain

of the circuit is that the change in voltage drop across the LDR on illumination or darkness switches the relay OFF or ON the LED As we know property of LDR that during the time of day resistance is low therefore voltage at the inverting input is higher than the voltage at the non-inverting input hence the output at the pin D0 is high so the transistor goes into the cut off state which means LED or bulb w/ill no glow.

### RESULT AND ANALYSIS

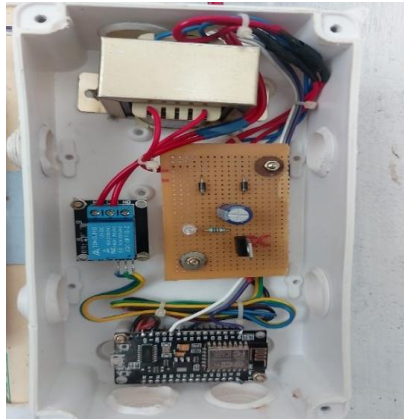


Fig 2 Controller

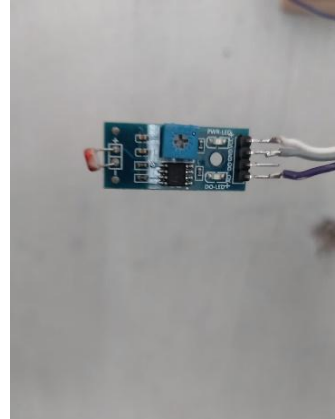


Fig 3 LDR



Fig 4 Solar panel



Fig 5 Inverter And Battery

In 230V,1A transformer outcome 12V given to the rectifier circuit, then the circuit has been converter AC to DC. The DC supply given to the regulator. It can be regulate the 12V to 5V DC. Then the 5V given to the input of NodeMCU. It is working the circuit as a microcontroller and also anIoT device. In the day time to sunlight is detecting a LDR. They LDR are consist of four pin, it's are +Vcc, GND, D0 and A0 pins. Then this circuit to us only using the power pins and A0 pin. Light illumination detected out are get in A0 LDR pin. They output are connected to the microcontroller(NodeMCU) a0 pin. Comes analog input are we fix a range of code as to be compared. In this code to comes analog are below 700 range relay is ON. Above 700 range crossed relay is automatically OFF.

### CONCLUSION

More effective in case of cost, manpower and safety as compare with today's running difficult and complex light controlling systems. Automatic Street Light Controlling System puts up a very user friendly approach and could increase the power This The Streetlight controller using LDR based Light intensity in the today's up growing countries will be paper elaborates the design and construction of automatic street control system circuit. Circuit works properly to turn street light ON/OFF. This method are using the renewable energy like solar. This solar energy using to non pollution eco-friendly to consume a power.



### **FUTURE SCOPE**

We can save the energy for the future use and we can control the losses of the power. We can implemented this project for the home application to used.

### **REFERENCES**

- [1]. Mazam .J. (2007), “Street Lighting Energy Saving Systems for University City”,AUS,p.10
- [2]. Our Latest Projects Of Solar Street Lighting ,Solar Street Light .Internet :<http://www.solarstreetlights.net/latestproject.htm>,2008 [jan,03,2015]
- [3]. ”HPS: How It Works”. Retrieved November , 2014 Available:<http://www.edisontechcenterorg/SodiumLamps.html>
- [4]. Design Recycle Inc. “Comparision Chat LED Lights vs Incandescent Light
- [5]. Bulbs vs CFLs,”[online]. Available:<http://www.designrecperycleinc.com/led%20comp%20chart.html> [Accessed: Jan.03, 2015].
- [6]. Y.Fujii, N.Yoshiura, A.Takita, and N.Ohta, “Smart street light system with energy saving function based on the sensor network,” Berkeley, CA, United states,2013, pp.271-272.
- [7]. Our Latest Projects of Solar Street Lighting, Solar Street Lights. Internet: <http://www.solarstreetlights.net/latestprojects.htm>,2008 [Jan.03, 2015].