

# RTC BASED AUTOMATIC STREET LIGHT USING ARDUINO AND LDR

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**Abstract:** These days there's a gigantic request for vitality utilized by lighting and streets. Road light computerization framework makes a difference in diminishing vitality utilization. For the most part, road lights are on all through the night and off amid the day. But at night, road lights are not necessary in the event that there's no activity. Sparing of this vitality is exceptionally critical calculate these days as vitality assets are getting diminished day by day. To overcome from this problem, a appropriate vitality sparing strategies and lighting control to be implemented. The proposed work has two controls such as, one is to turn off/dimming the lights when there are no vehicles on the street and turn them on consequently when vehicles arrive and the other mode is to supply moo escalated light for people on foot and switch to shinning mode. On streets in minutes of side vehicles. In this work the Driven lights are utilized for road course of action, LDR is utilized as choose day night time. It consequently turns on the lights when daylight passes underneath the visual field of our eyes. Typically done by a sensor called Light Subordinate Resistor (LDR) which really faculties light similar to our eyes Whenever the sensor detects sunlight, it automatically turns off/dim lights. The control signals of sensors have been fed to Arduino UNO Board. In the Arduino UNO Board the control logic is implemented to control lights based on vehicles and pedestrian moments with bright and dim mode of operation and to switch DIM lights during no vehicles.

**Keywords** – Light Dependent Resistor (LDR), Arduino ATMEGA328, Automatic Street Light , Real Time Clock (RTC).

## I. INTRODUCTION

In this project, we will learn how to design RTC Based Automatic Street Light Using Arduino & LDR. The concept of this extend is based on a moo utilization of vitality. In this venture, road lights turn on or off on the premise of day & night timing controlled by real-time clock module DS1307. Time is set by programming to decide on and off time. Essentially, LDR is utilized to identify the sum of light and based on that, the concentrated of the road lamp/light is controlled. The most advantage of road lights is that they increment security and anticipate mishaps and collisions. By and large, road lights are turned on amid evening time and will proceed to glow till morning. This could lead to superfluous utilization of power as the lights will be sparkling at full concentrated all the time But by utilizing auto concentrated control of road lights, the escalated of light can be controlled depending on the lighting condition. As the DS3231 Genuine Time Clock chip with battery back-up is utilized, there will be no unsettling influences for the modified on/off timings indeed in control disappointments. Control switch set is given for entering the specified timings.

## II. LITERATURE SERVEY

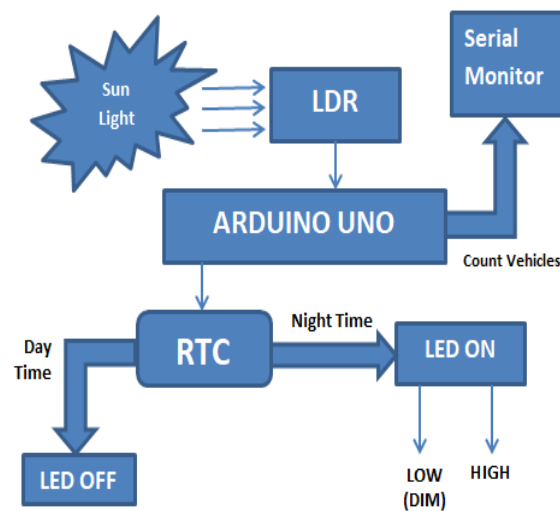
Writing Study Programmed road light analyzed street light with auto following framework by which one Can increment the transformation effectiveness of sun powered vitality era. Here, the sun following sensor may be a detecting gadget that intermittently recognizes the position of the sun and gives an yield of the sun's light concentrated to the intensifier. Those who proposed almost the road light gleam on identifying the development of vehicles utilizing sensors can also be a framework that employments the foremost later innovation for daylight sources as Driven lamps[5]. it's too wont to control the exchanging of road light naturally steady with the daylight intensity. The executed plan of activity stream based road light framework with successful utilization of sun powered control inside the year 2015[11]. They utilized the renewable source of vitality i.e. The sun oriented vitality for road lighting. He is overviewed on Road Lighting Framework upheld Vehicle Movements[6]. The framework Works inside the programmed mode which directs the street light steady with brightness and shadowiness. He has utilized anprogrammed chip with photovoltaic Cell[3].The Road light optimizer. An Brilliantly Road Lighting framework for shrewd city Bolstered IOT[10].

The Programmed Road Light framework utilizing Remote Sensor Systems. From this writing overview, the strategies all has actualized and utilized is basic and simple to get it. These papers are focused to further implement how proficient framework and make things mechanized.

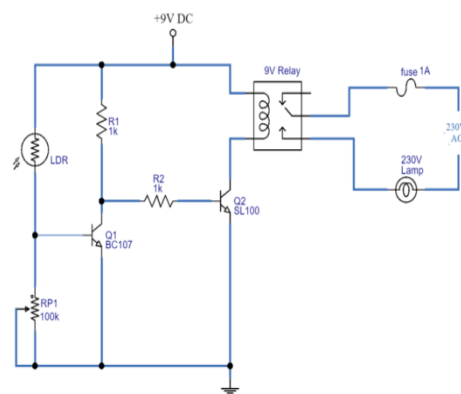
### III. METHODOLOGY

1. *Proposed System*
2. *Circuit Diagram*
3. *Flowchart*

#### 1. Proposed System :

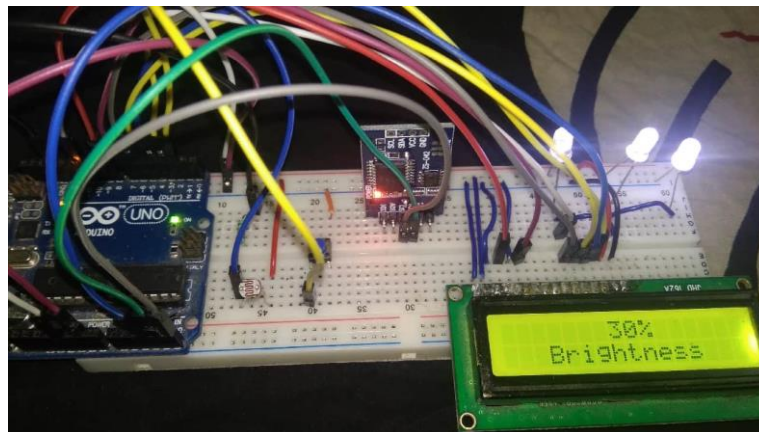
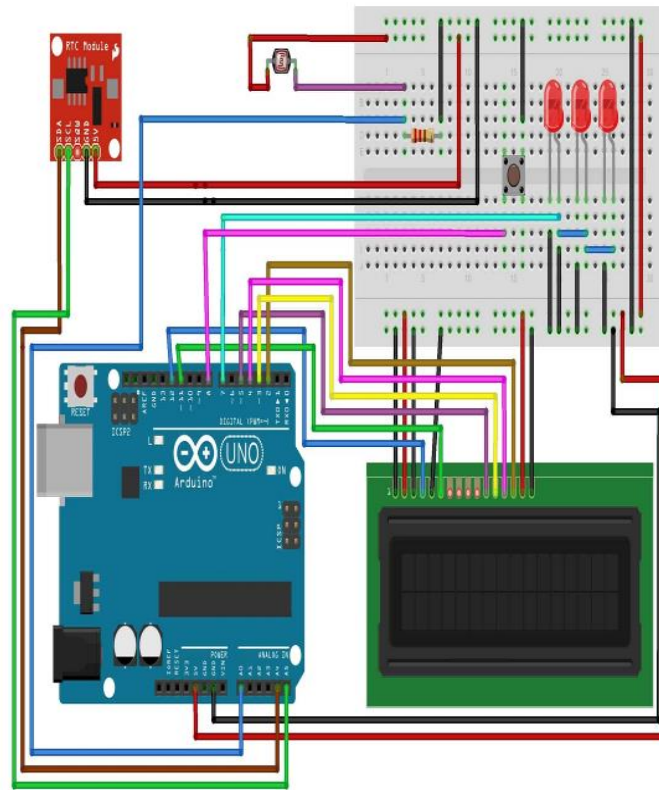


### Automatic Street Light Circuit



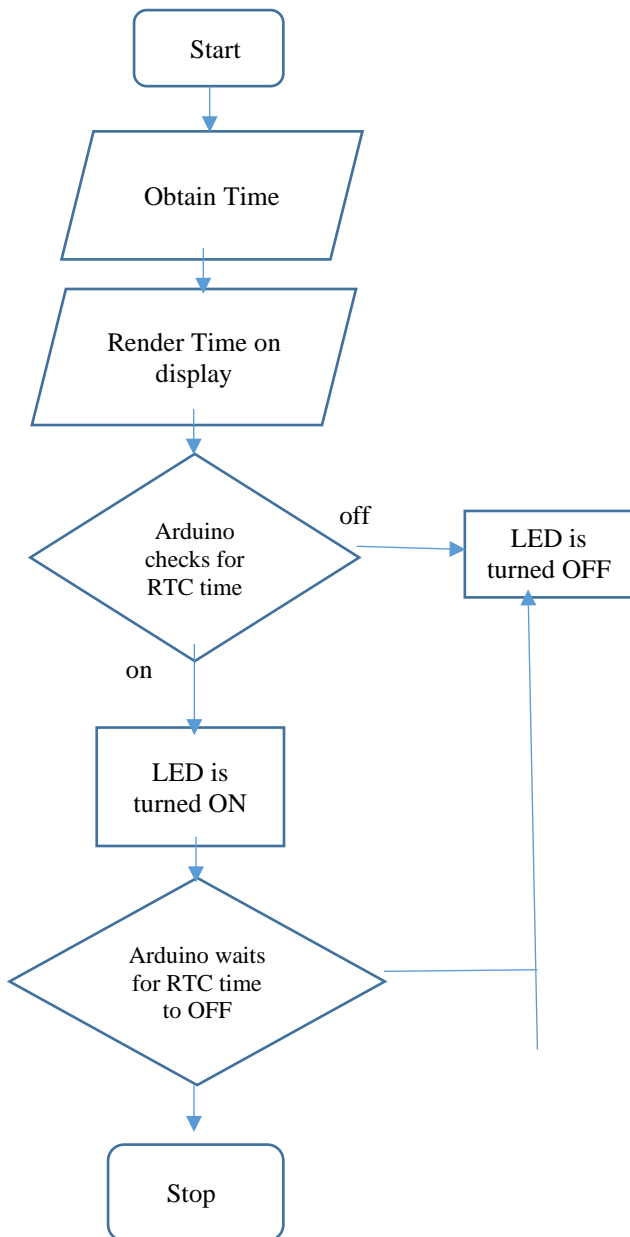
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In this proposed system we have different type of components such as Light Dependent Resistor (LDR), The LDR is used to detect the presence of ambient light so that the street lamp automatically turns off when the sun is shining during the day. When there is no light at night, the LDR sends a signal to the microcontroller to turn on the street lamp. A relay that allows a small amount of current to control a high current load. And the Arduino will act as a heart of the system.

**2. Circuit Diagram :**

RTC based automatic street light using arduino and LDR This venture works in two modes RTC mode and LDR mode. In RTC mode, the street lights subsequently turn on based on the ON time set inside the code and turn off based on the OFF time. In LDR mode, the heightened of the street lights is controlled based on the enveloping light near the LDR.

After the code is exchanged the wander runs in RTC Mode. There are two times set within the code, i.e. the ON TIME and the OFF TIME. Arduino compares the ON TIME with the time from RTC Module and when they coordinate, the Driven is turned ON. After this, the Arduino holds up for the OFF TIME and once the time from RTC Module comes to the OFF TIME, the Driven is turned OFF. When Arduino enters LDR mode, the Arduino peruses the esteem of the LDR based on the sum of light falling on the LDR, at that point it alters the escalated of the Driven.

**3. Flowchart of RTC Working :****IV. CONCLUSION**

The projected work relates to an automatic street lighting system that does the operation of lighting on/off or dimming of light according to need automatically. This framework can be effectively actualized in road lights, keen cities, domestic computerization, horticulture field observing, convenient mechanized lights, stopping lights of healing centers, shopping centers, airplane terminal, colleges and businesses etc.

The designed system is capable of doing the operation according to weather conditions and timing of a day and night with the help of Arduino Uno Board, Light Dependent Resistor (LDR) and Real Time Clock (RTC). Thus by checking the results obtained from the system, the system reduces the energy cost, cost of maintenance, Increase in the life of lighting equipment. All the advantages are efficiently achieved by the system.

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