

# Automatic Lightning System for The Modern Automobiles

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**Abstract:** - Automated car lightning system is a simple yet powerful concept. By using this system manual works are 100% removed. It automatically switches on 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 eye. It automatically switches of the lights, whenever the sun light comes visible to our eyes.

**Key Words:**— *Arduino UNO, Automation, LDR Sensor.*

## I. INTRODUCTION

Usually people will buy automobiles with lakhs of rupees for both comfort and safety. But the automobiles are not up to the expected range. we know that every automobile user should use the lightning system in car while driving. Here there are two cases one is where driver is very experienced in which we need to worry. In the next case if the user is new to automobile here there is a chance of driver could not notice that car lights are not being in on state. In this case there is no problem if the street lights are present. The case will be dangerous if the street lights are not there or suddenly the car went to dark area it may leads to accident or any serious problems. The solution for this problem we discussed is called Automated Car Lightning System. Automated car lightning system is a simple yet powerful concept. Here the main component is LDR which senses the light and sends signal to the Arduino to control the on/off of the headlight.

## II. LITERATURE SURVEY

We searched for existing system and its disadvantages and we analyzed what we should do to overcome this problem. And finally, we decided to make automated car headlights system. For this we searched for this type of systems if they already exist are not. For this we referred many websites and we came to know about all the existing system and components used in it. Using Arduino and LDR we didn't find any existing system so we tried for this new system where the cost is less compared to already existing automated headlight system First, we analyzed about usage of the Arduino programming language, which is based on a very simple hardware programming language called processing, which is similar to

the C language. After the sketch is written in the Arduino IDE, it should be uploaded on the Arduino board for execution. The first step in programming the Arduino board is downloading and installing the Arduino IDE. Second, we came to know about the LDR sensor which is the main component of our project. It is sensor which senses the light actually like our sensors because of this property we used this sensor to know the intensity of light. Then we searched for the visible region intensity of sun light. Visible range or light spans 380 to 780 nm. As the name suggests, this range is visible to the naked eye. We used LED lights as headlights of a car for experiment purpose.

## III. SYSTEM SPECIFICATIONS

*Software specifications:*

- Operating system: windows 8.1
- Programming Language: Arduino c
- Platform used: Arduino IDE

*Hardware specifications:*

- LDR sensor
- Arduino UNO
- LED's
- Connecting cables
- 10kΩ resistor
- 10Ω resistor.

#### A. Arduino UNO:

Arduino is an open-source electronics platform based on easy-to-use hardware and software. Arduino boards are able to read inputs - light on a sensor, a finger on a button, or a Twitter message - and turn it into an output - activating a motor, turning on an LED.

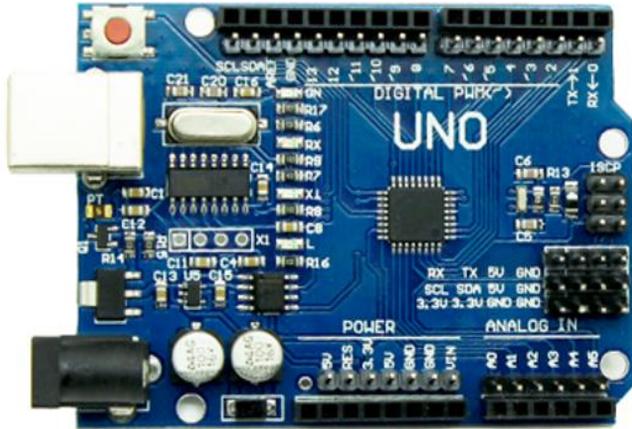


Fig.1. Arduino UNO Board

#### B. Light detecting resistor

A photo resistor is a light-controlled variable resistor. The resistance of a photo resistor decreases with increasing incident light intensity; in other words, it exhibits photoconductivity. A photo resistor can be applied in light-sensitive detector circuits, and light-activated and dark-activated switching circuit.



Fig.2. Light detecting resistor

#### C. Light-emitting Diode:

A light-emitting diode is a semiconductor light source that emits light when current flows through it. Electrons in the semiconductor recombine with electron holes, releasing energy in the form of photons.

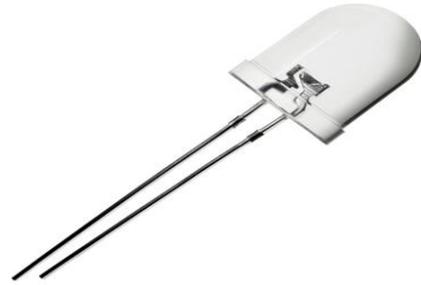


Fig.3. Light-emitting Diode.

### IV. SYSTEM FUNCTIONING

#### A. Existing System:

At present the system used in the automobiles are not automated but manually transmitted, where the user can control the lights manually i.e. if it is the day the driver should off the lights and in night the user should on the lights. The other condition is when the weather changes the visibility range may come down hence the driver should actively notice that and he should on the lights for convenience and safety driving, otherwise it may lead to some accidents. But all the users may not notice this, some people who are newly driving the car may face problems with this system.

#### Disadvantages:

- Power consumption is more.
- Manually the driver should on and off the headlights when necessary.
- If driver forget to on the lights during night times or when visibility range is less, it may lead to any accidents.
- There are so many cases where people et with the accident because of headlight problem.

#### B. Proposed System:

The proposed system is automated headlight system. By using this system manual works are completely removed. It automatically switches on the lights when the sunlight goes below the visible region of our eyes. This is done by using sensor called Light Dependent Resistor (LDR) which senses the light actually like our eyes.

#### Advantages:

- Reduces power consumption.
- Removes manual work.
- Helps for people who are newly driving.
- Safe driving

## V. CONCLUSION

To overcome the manual on and off of the car headlight system we are proposing a new automatic system where the lights are automatically on and off based on the intensity of light. Because of this system manual work is reduced and it provides a convenience driving.

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