

# INTELLIGENT OF AUTOMATIC HIGH BEAM LIGHT CONTROLLER

ASSISTANT PROFESSOR

K.Sheeba<sup>1</sup>

STUDENTS

J.Gowthami<sup>2</sup>, V.Gunavathidevi<sup>3</sup>, M.Malathi<sup>4</sup>, S.Sangeetha<sup>5</sup>

DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

*Tejaa Shakthi Institute of Technology for Women, Coimbatore, India.*

## ABSTRACT

Headlights of vehicles great danger during night driving. The drivers of most vehicles use high, bright beam while driving at night. This causes a discomfort to the person travelling from the opposite direction and therefore experiences a sudden glare for a short period of time. This is caused due to the high intense headlight beam from the other vehicle coming towards the one from the opposite direction. In this project, an automatic headlight dimmer which uses a Light Dependent Resistor (LDR) sensor has been designed to dim the headlight of on-coming vehicles to avoid human eye effects. This automatically switched the high beam into low beam, therefore reducing the glare effect by sensing the light intensity value of approaching vehicle and also eliminated the requirement of manual switching by the driver which was not done at all times. Arduino Uno software was employed in designing the project. The system device was able to automatically

switch the headlight to low beam when it sensed a vehicle approaching from the opposite side using LDR sensor.

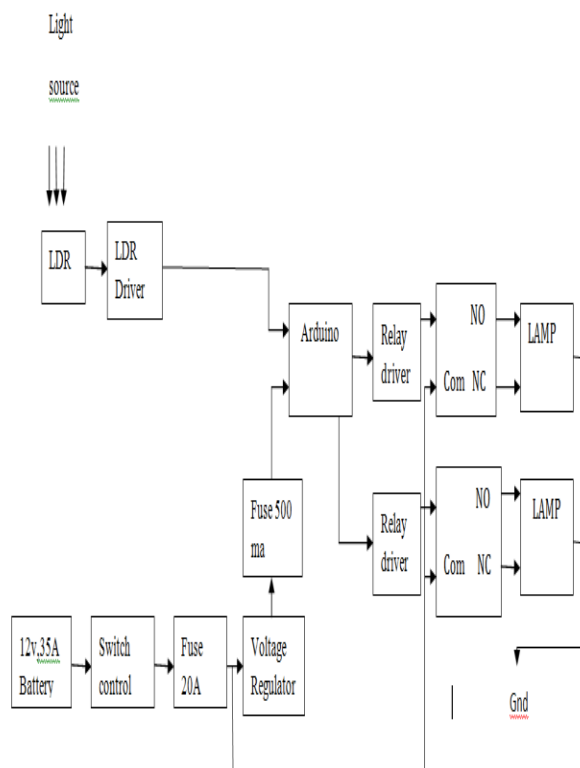
**Keywords:** LDR, Arduino Uno, headlight system, battery.

## INTRODUCTION

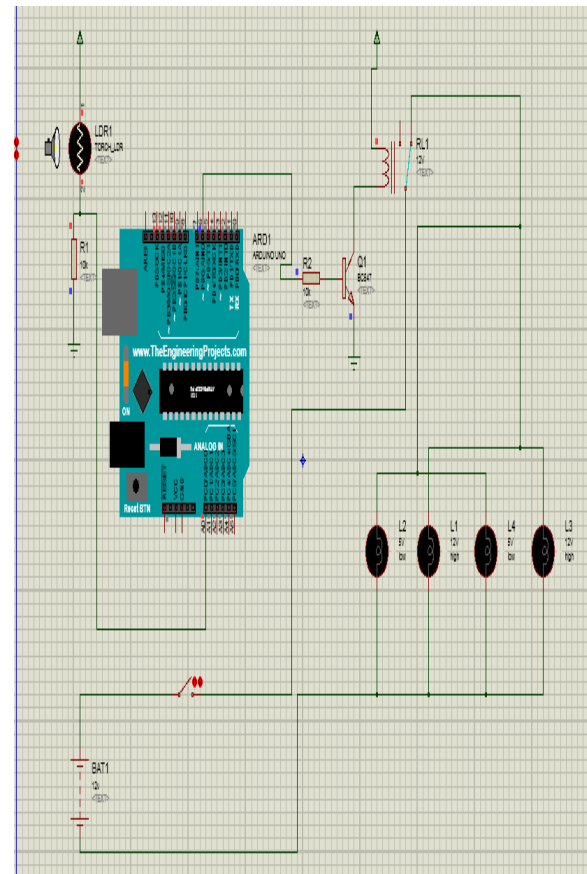
The number of vehicles on our roads is increasing day by day. This, in turn forced almost all the vehicle manufactures to think about the extra safety instruments and electronic controls to provide with their products for giving the users a safety, derived in all road conditions through a mass flow traffic. If asked, one will always mention that the right driving is very cumbersome due to the dazzling light problems and the frequent dipping of headlights by manual means that often causes fatigue to the driver particularly at the time of peak traffic. At present vehicles include a variety of lamps to provide light in various conditions. In this, headlamps are altered between high beam and

low beam. Low beams produce less light and used at night time to illuminate when vehicles are in-front. High beams produce more light and used at night time to illuminate when it does not detect any vehicle. The range of low beam provides up to 80-90 meters and high beam ranges above 180 meters. The AHBA Feature will deactivate the High Beam Lights, when it detects oncoming vehicle at a distance of 800m and preceding vehicle at a distance of 350m. The devices for actual process of providing high beam and low beam involve LDR (Light dependent resistor), Arduino Uno, Relay, Battery. Mainly the Automatic High Beam Light Controller depends on different states such as Active High, Active Low, Blocked and Disabled states.

## BLOCK DIAGRAM



## CIRCUIT DIAGRAM



## CIRCUIT DEVELOPMENT

Now let us see the main components of the device in above circuit diagram and their general description:

### Headlamp

A headlamp is a lamp attached to the front of a vehicle to light the road ahead. Headlight is a synonym for headlamp. Low beam range is 55 W. High beam range is 60 W.

### Battery

A supply of 12 volts is required for the circuit. It is taken from the vehicle's battery box.

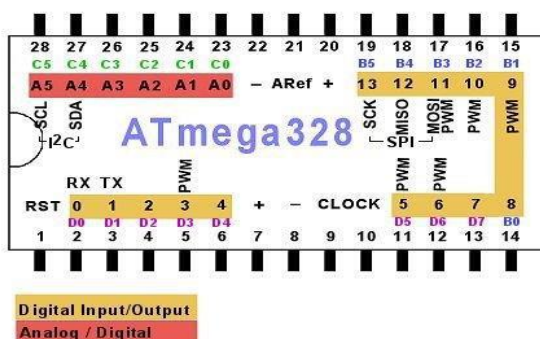
This is preferred for two reasons. First, it is a constant DC supply and second, there is no need for introducing a separate electrical supply source.

## Relay

Relay circuit is main part of the model which is use to automatic change from high beam to low beam of head lamp. Relay is an electrically operated switch. Relays are switches that open and close circuits electromechanically or electronically.

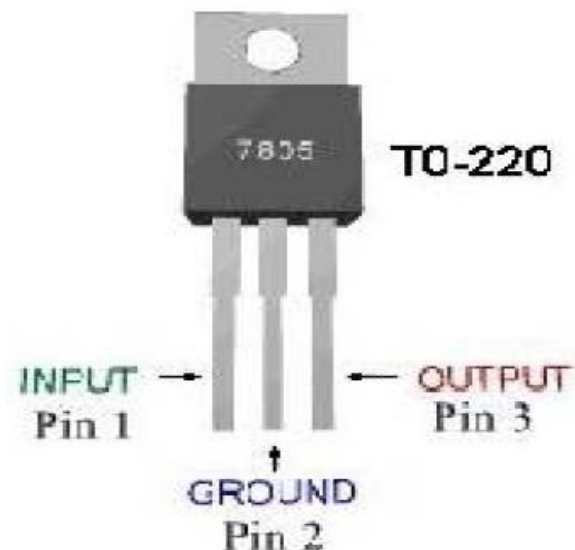
## Arduino Uno

The Arduino Uno is a microcontroller board based on the ATmega328. It has 14 digital input/output pins (of which 6 can be used as PWM outputs), 6 analog inputs, a 16 MHz ceramic resonator, a USB connection, a power jack, an ICSP header, and a reset button. It contains everything needed to support the microcontroller; simply connect it to a computer with a USB cable or power it with a AC-to-DC adapter or battery to get started.



## Voltage regulator using 7805

Voltage regulator provides regulation of either a fixed positive voltage, a fixed negative voltage, or an adjustably set voltage. In this case the 12-volt car battery is used. The regulator regulates this voltage down to 5 volts.



## WORKING

Our own vehicle travelling at high beam. The vehicle coming at the opposite side also travelling at high beam

In our vehicle the LDR will fixed in the bumpers. If the opposite vehicle comes closer to our vehicle means the LDR will produce the output voltage. LDR is absorbed by a light intensity. Light intensity is converted into analog signal using LDR driver. Analog signal is given by Arduino Uno board A0 receive pin.

A supply of 12 volts is required for the circuit. It is taken from the vehicle's battery box. Voltage regulator used to regulate the voltage.

The relay circuit is acting as a switching circuit. If the relay receives the signal from microcontroller Arduino, it change from NO to NC

Due to this our vehicle will switch to low beam. The opposite vehicle driver doesn't experience any sudden glare, so that he will cross our vehicle safely Once the opposite vehicle get crossed, our vehicle switch to high beam.

## **CONCLUSION**

We have presented a simple, low cost and easy to install design for an intelligent of automatic on/off controller for the high beam light. This system will provide the driver with a stress free driving experience at night time. This system is decrease the accidents and save the peoples. Hence, the system is advantageous over conventional front lighting system as it saves battery drainage and also automatically controls the beam switching, reducing the drivers' efforts.

## **REFERENCE**

[1].AUTOMATIC HIGH BEAM CONTROLLER FOR VEHICLES

A.S.M Asaduzzaman, Mohammad Mahmudul Islam, Shuva Paul, Md Farhat Alam, Md Mashuker Rahman

[2].AUTOMATIC HIGH BEAM CONTROL FOR DRIVER ASSISTANCE SYSTEM

Anusha Viswanadha<sup>1</sup>, G. Tirumala Rao<sup>2</sup>, B. Sai Surendra Mohan<sup>3</sup>

[3].AUTOMATIC HEADLIGHT DIMMER A PROTOTYPE FOR VEHICLES

Muralikrishnan.R, IJRET: International Journal of Research in Engineering and Technology eISSN: 2319-1163 pISSN: 2321-7308.

Professor of:



MRS.K.SHEEBA.B.E.,M.E

UG: Maharaja Engineering College in  
Avinashi

PG: Anna University Regional Centre in  
Coimbatore

Works at Tejaa Shakthi Institute of  
Technology for Women

Students of:



J.GOWTHAMI.UG

Student of EEE  
department, Tejaa Shakthi  
Institute of Technology  
for Women, Coimbatore,  
India



V.GUNAVATHIDEVI.  
UG

Student of EEE  
department, Tejaa  
Shakthi Institute of  
Technology for Women,  
Coimbatore, India



M.MALATHI

Student of EEE  
department, Tejaa Shakthi  
Institute of Technology  
for Women, Coimbatore,  
India



S.SANGEETHA.UG

Student of EEE  
department, Tejaa  
Shakthi Institute of  
Technology for Women,  
Coimbatore, India