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AUTOMATIC UPPER DIPPER LIGHTS INVEHICLES

[1]G.KARTHIK REDDY, [2]K.RAVIKIRAN, [3]B.ARCHANA, [4]D.DIVAKAR,[5]D.ANJALI

[1]Asst. Prof, Dept. of ECE, CMR COLLEGE OF ENGINEERING & TECHNOLOGY

[2] Asst. Prof Dept. of ECE, CMR COLLEGE OF ENGINEERING & TECHNOLOGY

[3] Asst. Prof, Dept. of CSE, CMR COLLEGE OF ENGINEERING & TECHNOLOGY

[4-5]B-TECH,Dept.of CSE, CMR COLLEGE OF ENGINEERING & TECHNOLOGY

Abstract

The purpose of our project is to minimizing the problems of road accidents in night. By the using of this system in our vehicles dazzle problem is almost solved. The number of vehicles on our roads is burgeoning day by day. This is turn forced almost all this vehicle manufactures to think about the extra safety instruments and electronic controls to attach with these products for giving the users a safety derived in all road conditions through a mass flow traffic. If asked, one should 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. The auto dipper can perform a great deal in reducing the manual efforts and fatigue of drivers in dipping the headlamp frequently while driving through highways full of moving vehicles. However, vehicles employed with automatic dippers are not very often seen in our cities, and it maybe due to lack of information about the system and also because of giving attention to the people saying that it is not at all practicable in our highways.

1. INTRODUCTION

Now a days the number of vehicles on road is increasing drastically and number of accidents on road also increases. Especially at night most of the accidents are occurred due to dazzling of head light. While driving at night the head light beam of oncoming vehicle is directly effects the driver's eyeand eye gets blur, it takes 3 to 8 seconds to recover to it's normal vision. High beam from theheadlight causes a dangerous situation during night driving. It causes temporary blindness for thedrivers that may lead to collision or sometimes it may lead to accident. Pedestrian crossing the roadmay get hurt. Almost 30% of accidents occurring due to headlight glare. When enough street light sare available, there is noneed of headlight beamwith such high intensity.This project helps to

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automatically control the headlight glare in motor vehicles. LDR is known aslight dependent resistor, its resistance varies according to the intensity of light falling on it. When ahigh beam falls on the surface of LDR, it measures the intensity. LDR compares the intensity ofincoming light with the desired intensity value. When the intensity value is increased beyond thedesiredintensityvalue,itreducestheintensityoflight andprovidesagreatreliefforthedriver fromtheirritating situation that occurs during thenightdriving.

2. RELATED WORK

Morethan30%percentof accidentsduringnighttimehappen duetoheadlightglare.The correctuseof dipper (low beam) during night is essential for the drivers in the presence of street light.Theunwanteduseof high beam may lead to unnecessary crashes.

Abdul Kader Riyaz .M (2017) proposed an graphene coated LED based automatic streetlighting system using arduino microcontroller. In this the author introduced GaN basedLEDwhich acts as aheatsink. They haveusedarudino uno microcontroller.

SanalMalhotra (2014) designs an automatic brightness control using LDR sensor. In thissystem they used LED and LDR. LED is a diode which works based on the concept ofElectroluminescence. According to the programming the LED will glow. If in day timetheydon't need light theLED will offautomatically.

B. K. Subramanyam worked on Design and Development of Intelligent Wireless StreetLightControlandMonitoringSystemAlongWithGUIinthisforautomaticmodeoperation they using LDR sensor. Its main principle is to when the light intensity is low,light will ON automatically and if light intensity is high ,light will OFF automatically.Chitradeep Sarma in their work on limitations of probable vehicle headlight technologiestheyhavegive methods forcontrolling theintensity of lightsduring night times.

Chitradeep Sarma in their work on limitations of probable vehicle headlight technologiestheyhavegive methodsfor controlling theintensityof lights during nighttimes.

VictorNutt,ShubhalaxmiKherproposed this project.Headlightintensityprovidesbettervisual acuity, it inversely affects oncoming traffic. This problem is

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compoundedwhenboth driversareusing ahigherheadlight intensity setting.

Muralikrishnan.R explains Glare during driving is a serious problem for drivers. This iscaused due to the suddenexposureofoureyes toa verybrightlight; thebrightheadlights of vehicles in this case. This causes a temporary blindness called the Troxlereffect.Eventually this becomes themajorreason fornight accidents.

Tejas Vijay Narkar proposed this approach At night time,whiledrivingin thecitiestherearelight everywhere which can affect the working of the deviceatthattimethemodecanshifttoma nual mode to avoid flickering of the headlight. When both thevehicles were fitted with the "Automatic Dipper" then both the vehicles dip the headlightbeamof each other efficiently

3. IMPLEMENTATION

Ourproblemstatementisthatnowadaysthe numberof vehiclesonroadisincreasingdrasticallyan d numberofaccidents onroad alsoincreases. Especiallyat night mostof theaccidents areoccurred due to dazzling of head light. While driving at night the head light beam of oncomingvehicle is directly effects the driver's eye and eye gets blur, it takes 3 to 8 seconds to recover to it'snormal vision. To overcome this we are making automatic upper dipper system reacts like the humaneye to head light of incoming vehicles and independently turns upper beam to dipper beam whenneeded.Suchasystem offers both safetyand convenience.The main aim to design and development of a prototype **Automatic upper dipper light in vehicles**is to reduce accidents during night time driving, which automatically switches the headlight to lowbeamwhen it sensesavehicleapproaching from theopposite side.

RequirementAnalysis

- RELAYMODULE
- LDRLIGHTSENSORMODULE
- HEADLIGHTS
- JUMPERWIRES
- POWERSUPPLYBOARD
- RESISTOR

Automaticdipper lightis used toreduceaccidentsduringnight time dueto oncoming vehicles.

We implemented our project using relay module, LDR (Light Dependent Sensor), LED's for upperand dipperpurpose.

We made two cars and connected LED's for upper and dipper purpose infront of cars at theplace ofheadlights and LDR in between headlight LED's, where LDR sensors oftwo cars sense

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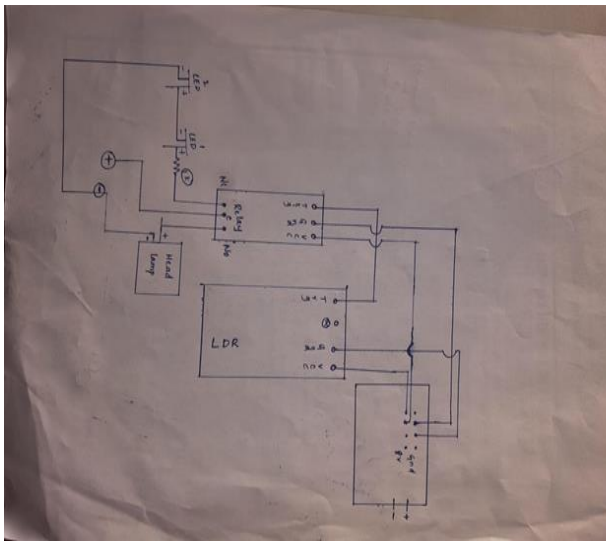
oncomingvehicle light and dips when vehicle approaches nearby and ups (Brightness increases) when vehiclespassesthrough somedistance.

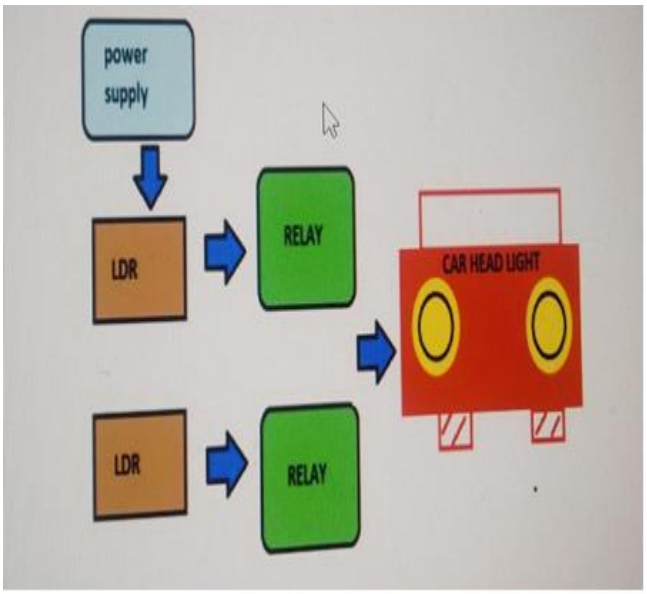
We used LDR that is made up of semiconductor cadmium sulphate. This device is used in controlcircuitsto turn lights on and in photographic exposuremeters.

ResistanceofLDRdecreasesas intensityoflightfallingonitincreases.

When we bring our cars nearer with LED's ON, LDR senses the headlight from opposite cars and it'sresistancedecreasesandmakes lights upper (Brighter)



CircuitDiagram



BlockDiagram

4. EXPERIMENTAL RESULTS

Based on the prototype, an actual working model of the same circuit has been constructed. The exactsamecomponentshavebeenusedinits construction.Thesourcerequiredisa12Vp owersupply.Butinreal-timeapplication,thiscanbesubstitutedfro mthecar'sownbatterypack.Theheadlights, LDR,transistor are all connected to the same power supply. For its working, we need to simulate theconditionwheretheLDRisexposedtoab rightlight,whichisactuallytheheadlightofa nothervehiclecoming from the opposite side. Thus the LDR has a change in resistance. Under normal conditions,the vehicle is using high beam bulb (shown as red LED in This case is considered under normal idealconditions. At this stage, the relay is in NC condition. To

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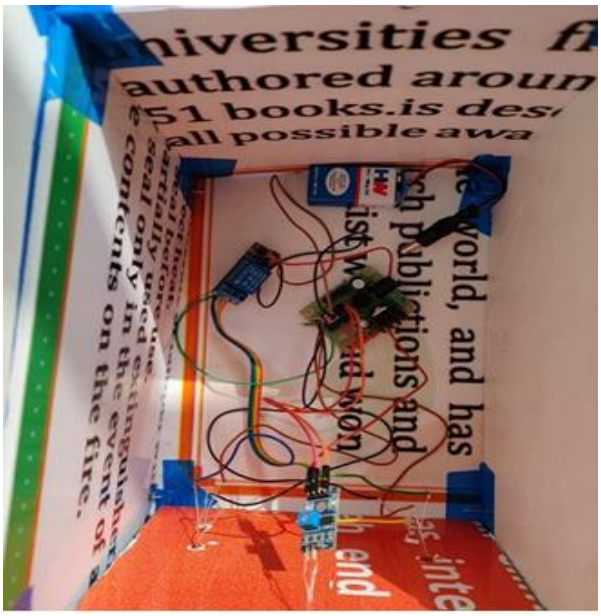
understand the real-time working of thiscircuit, a high intense flash light has been used to simulate the event of an approaching vehicle.Whenever,theLDRsensesalight,it hastoautomatically switchfromthehigh beammodetothelowbeam mode. So, till the LDR senses the bright light (approaching vehicle), the bright bulb will be ON(RED LED). Once the intensity of the incident light goes beyond a particular value, it means that thevehicle is in close proximity of our vehicle. The LDR senses this threshold level and a drop inresistance areobserved.



Prototype

5. CONCLUSION

"Newer and better technologies always come with time and it will help in reducing the manual laboranddifficultiesinthesectorswhereitis madeuse.Andinourcase,theautodippercan performagreatdeal in reducing the manual efforts and fatigue of drivers in dipping the headlamp frequently whiledrivingthrough highways full of moving vehicles.

Automaticdipperprovidesbettersafetyatni ghttimeanddriverscandrivecomfortablya ndreachtheirdestination safely. There are two modes provided viz. automatic and manual mode. While driving inthe cities there are light everywhere which can affect the working of the device at that time the modecanshiftto manualmodetoavoid flickeringofthe headlight.Whenboththevehicleswerefitte

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dwithAutomaticUpperDipperLightinvehicles"thenboththevehiclesdiptheheadlight beamofeachotherefficiently.

Main components helps to run the circuit are easily available and are also cheap. The circuit iscompatible with any vehicle and doesn't require any other supply; it can efficiently work on batteryfittedinthevehicles.Thereforethein stallationofthissafetysystemineachvehicl egivesafetyatnightdriving,increasecomfo rtlevel ofdriverand decreasetheroad accidents.

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