

Literature Review on Multifeatured Automatic Headlight Management System for Automobile

Aniket S. Nikam¹, Saurabh S. Meshram², Prachi S. Ghante³, Ashwin P. Tiwari⁴, Dr. Rahul M. Sherekar⁵

Student, Bachelor of Mechanical, Jawaharlal Darda Institute of Engineering & Technology, Yavatmal^{1,2,3,4}

Assistant Professor, Department of Mechanical, Jawaharlal Darda Institute of Engineering & Technology, Yavatmal⁵

Abstract: *The goal of our project is to reduce the number of night time traffic accidents. Now that we've implemented this technology in our vehicles, the glare issue is nearly resolved. Every day, the number of automobiles on our highways grows. As a result, practically all of these vehicle manufacturers have been obliged to consider adding extra safety instruments and technological controls to their vehicles in order to provide consumers with safety in all road conditions through mass flow traffic. When asked, one should always clarify that proper driving is extremely difficult owing to blinding light problems and the constant dipping of headlights by manual methods, which frequently causes driver tiredness, especially during high traffic periods.*

I. INTRODUCTION

The requirement of light is incredibly common throughout night travel. An equivalent \ sheadlight that assists the driving force for better vision throughout night travel is additionally responsible for several accidents that square measure being caused. The driving force has the management of the light which might be switched from irradiation (bright) to irradiation (dim) (dim). The headlight needs to be adjusted in keeping with the light demand by the driving force. During pitch black conditions wherever there aren't any other sources of sunshine, irradiation is employed to. On all alternative cases, irradiation is preferred. However, in an exceedingly two-way traffic, there are vehicles plying on either side of the road. Therefore, once the intense lightweight from the headlight of a vehicle returning from the opposite direction falls on an individual, it glares him for an explicit quantity of your time. This causes disorientation thereto driver. This discomfort can lead to involuntary closing of the driver's eyes momentarily. This fraction of distraction is that the prime cause of several road accidents. The prototype that's has been designed, reduces this drawback by really dimming down the intense light of our vehicle to low beam mechanically once it senses a vehicle at shut proximity approaching from the opposite direction.

The entire working of the variable resistor could be an easy equipment arrangement that senses and switches the light according to the conditions needed. Electronic controls to connect with these products for giving the users a security derived all told road conditions through mass flow traffic. If asked, one should always mention that the correct driving is very cumbersome because off the dazzling lightweight problems and therefore the frequent dipping of headlights by manual means usually causes fatigue to the driving force significantly at the time of peak traffic. So, naturally to get eliminate this perennial drawback, an automatic mechanism needs to come back up to dip the light source mechanically whenever needed. For keeping an automobile under excellent management and reins of the driver, differing types of controls and accessories square measure provided in associate degree automobile around the driver, seat, on the dashboard and at the footboard. Simply, associate degree automatic dipper could be a unit, which might mechanically choose once the light beam must be down, and that dip the light source from that beam to a lordotic beam. Because the dipper unit is well connected to the lighting system of the vehicle, we have to look short into the sort and construction of a head lightweight before discussing the wiring diagram or the development of Automatic dippers.

You need to have encountered this irritating state of affairs whereas driving at nighttime when you realize the light focus from associate degree opposite vehicle falling straight in your eyes, creating things troublesome to assess. Incidentally, the driving force of the other vehicle may be prying an equivalent situation because of the light focus from your vehicle. Such things square measure commonly tackled by exploitation manual dipper switch mechanism, wherever the driving force is prompted to "dip" the main focus of his light, thus giving the other vehicle an opportunity to adjust his vehicle

and conjointly a sign that he too must "dip" his vehicle lamps. The modern lighting system consists of switches, lamps, wiring harness, and fuses or circuit breakers. However, the supply should even be created that the drivers of other vehicles returning from {the opposite the alternative the alternative} direction to not expertise a glare. For this purpose, a lordotic or meeting beam is additionally provided for maintaining the affordable speed with safety while not dazzling the coming driver. To stop dazzle to the oncoming driver throughout significantly misty or hazy conditions the sunshine concerning the horizontal ought to be stop.

This is called dipping of the top shaft of light. In an average automotive, the lighting system consumes concerning seventy a seventy-five % of electrical energy once driven at nighttime. In terms of amperage the consumption could also be from 24 a forty A at nighttime for al functions including the radio, heater, and transmission controls. There square measure 2 forms of lightweight sources, namely, the one that emits lightweight and therefore the other that reflects lightweight. Within the case of headlamp employed in vehicles, both the things square measure combines in one. The filament of the electrical lamp is that the primary supply, while the reflector is remarked because the secondary supply.

II. LITERATURE REVIEW

1) Adaptive Headlight System for Accident Prevention

Published in: 2014 International Conference on Recent Trends in Information Technology Shreyas S, Kirthanaa Raghuraman, Padmavathy AP, S Arun Prasad, G. Devaradjane Madras Institute of Technology, Anna University Chennai, India 1.

The work in this paper is focusing on the design and operation of a microcontroller-based Adaptive Headlight System (AHS) for automobiles is the subject of this study. The major goal of this system is to provide a cost estimate. When driving in the dark, this is an efficient strategy for illuminating blind spots. during the night and when visibility is obstructed order to make the objects visible in those dimly lit areas as a result, accidents are avoided. The concept of adaptive headlamps is not new in high end cars like Volvo, BMW, Audi etc. The components that are used to implement the adaptive headlight system are Microcontroller unit, DC Generator, Photo diode, Stepper motor etc. limitation is the maximum degree of turn achieved on the left headlamp is 37 degrees and on the right-hand side is 43 degrees.

2) Intelligent Automatic High Beam Light Controller

Mohammed Alsumady and Shadi. A. Alboon Hijjawi Faculty for Engineering Technology, Electronics Engineering Department, Yarmouk University, Irbid, 21163, Jordan Published by license under the OCP Science imprint, a member of the Old City Publishing Group.

The work in this paper focusing on an automatic high beam light controller is required to make night time driving safer and more friendly to other cars on the road. This study provides a simple, low-cost, and easy-to-implement method. Install and build an intelligent high beam light controller that turns on and off automatically. They are using simple LDR sensor, which is sense simple light intensity. The technology was developed and tested on a real car that was driven at night. The results of the experiments suggest that the system can detect incoming car lights from a distance of roughly 230 meters.

3) Night Time Vehicle Detection for Driving Assistance Light Beam Controller

P. F. Alcantarilla, L. M. Bergasa, P. Jim'enez, M. A. Sotelo, I. Parra, D. Fern'andez Department of Electronics. University of Alcal'a de Henares (Madrid), Spain pablo.alcantarilla, bergasa, pjimenez, sotelo, parra. S.S. MayoralFICO MIRRORS, SA - Research Department Mollet del Vall'es (Barcelona), Spain Silvia.

They demonstrate a successful system for recognising cars in front of a camera-assisted vehicle (preceding vehicles moving in the same direction and oncoming vehicles travelling in the opposite direction) under nighttime driving conditions so that vehicle head lights can be automatically changed. Avoiding glares by switching between low and high beams for the motorists. In this paper they are studied on Clustering Process, Distance Estimation, Black Hat Transformation, Classification Using Support Vector Machines etc. On the one hand, the system's performance for headlights is excellent (detection distances of 300 m to 500 m), while on the other hand. Limitation is the performance of tail lights (distance from the vehicle) the detecting range (50 m - 80 m) has to be expanded.

4) Temporal Coherence Analysis for Intelligent Headlight Control

Antonio Lopez ´, Jorg Hilgenstock, Andreas Busses, Ramon Baldrich ´, Felipe Lumbreras, Joan Serrat. January 2008.
The work in this paper focusing on, even when the traffic situation requires it, drivers use high lights sparingly at night. As a result, intelligent automatic regulation of vehicle headlights is critical. Because dazzling other drivers is prohibited. In this paper they are mostly studied on “Algorithm”. The key problem in the application at hand is distinguishing between picture spots caused by vehicle lights and those caused by reflections in various structures.

5) Fuzzy Headlight Intensity Controller using Wireless

Sensor Network Victor Nutt Electrical Engineering Arkansas State University Jonesboro, USA. Shubhalaxmi Kher Electrical Engineering Arkansas State University Jonesboro, USA. Mehul Raval Pattern Recognition and Image Processing Group DAIICT Gandhinagar, India. IEEE International Conference on Fuzzy Systems · July 2013.
The work in this paper is focusing on, the data acquired by a wireless sensor network is used to create a fuzzy controller (WSN). Low latency enables for faster adjustment of illumination intensity, reducing momentary blindness. For controller design, a number of factors are taken into account. The results reveal that the controller output is practically instantaneous and continuously generates a control signal. They are mainly studied on Headlight Intensity Controller, Design issues, Fuzzy inference system, Data acquisition etc. When both drivers use a greater lamp intensity setting, the problem becomes even worse. Increased speed as a result of lower traffic levels at night also enhances the severity of accidents.

6) A Multi Featured Automatic Head Light Systems Prototype for Automotive Safety

Mr. Sandip S. Jadhav, Department of Automobile Engineering, Rajarambapu Institute of Technology, Islampur, Shivaji University Kolhapur, M.S. INDIA.

Prof. Ansar A. Mulla Assistant Professor, Department of Automobile Engineering, Rajarambapu Institute of Technology, Islampur, Shivaji University Kolhapur, M.S. INDIA.

The work in this paper is focusing on, the driver has control over the headlamp, which can be altered from high to low beam (brightness) (dim). The headlight must be adjusted to the lighting conditions. The driver's required the prototype that has been created, reduces the problem by lowering the light. our vehicle's bright headlights to low beam automatically when it detects a vehicle approaching in close proximity in the opposite direction The dimmer's full operation is a using a sensor to create a simple electronic circuit Arduino, which detects and controls the headlight in accordance with the necessary conditions [1] This multi-featured prototype A headlight system has been developed. Automatic switch is used in this project. In this project there is some limitation, When the relative humidity in the atmosphere is greater than 195, the immediate fog lamp turns on. In the event that there is less moisture or It will get if the humidity in the atmosphere is less than 195.

7) Multi featured Automatic Headlight Switching System for Human Safety

Mrs. A. Geetha, J. Pravin Balaji, M. Prakash Raj, V. Pravin Kumar. Assistant Professor, Department of Electronics and Communication Engineering, SSM Institute of Engineering and Technology, Dindigul UG Scholars, Department of Electronics and Communication Engineering, SSM Institute of Engineering and Technology.

The work in this paper focusing on Arduino Board, LDR and Ultrasonic Sensor. Based on the detection of On-Coming, the system intends to automatically manage a vehicle's beam condition (high beam or low beam) during nighttime driving. This project includes a reverse parking sensor, which detects when the car is approaching an object while in reverse mode and emits a sound from a specific distance. In this project there are some limitations which is When driving at night or in foggy conditions, motorists suffer a significant disadvantage due to the ray of light that falls straight upon their eyes. These phenomena have medicinal implications.

8) Automatic Vehicle Headlight Management System to Prevent Accidents Due to Headlight Glare

Lakshmi K, Nevetha R, Ilakkiya S N, Ganesan R. International Journal of Innovative Technology and Exploring Engineering (IJITEE), ISSN: 2278-3075, Volume-8 Issue-9, July 2019.

The work in this paper is based on headlight, vehicle, temporary blindness, LDR. During night driving, the high beam from the headlight creates a perilous condition. It causes momentary blindness in drivers, which can result in a collision or, in rare cases, an accident. The information is supplied to the microcontroller when a high beam falls on the surface of LDR. The intensity of the microcontroller is compared. Light comes in at the desired intensity. In this project there are some limitations which is when driving at night or in foggy conditions, motorists suffer a significant disadvantage due to the ray of light that falls straight upon their eyes.

III. CONCLUSION

In Newer and better technologies always include time and it will help in reducing the labor and difficulties within the sectors where it's made use. And in our case, the auto dipper can perform a decent 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 don't seem to be fairly often seen in our cities and it's visiting be due to lack of information about the system and also because of giving attention to the people saying that it is not in any respect practicable in our highways. Yes, in spite of everything it's got some drawbacks like that one which is most common, once we drive the vehicle fitted with automatic dippers on a road during which differing kinds of vehicles and hence varying light intensities cause frequent flickering of the headlight. And also, the operation of the system eliminated or reduced by devising newer methods and technologies. The one nowadays available is just useful in highways and straight width roads. Truly speaking, auto dippers are devices, which is ready to achieve more and more importance within the forthcoming years. In short, it is a tool with a very bright future. The number of vehicles and also the condition of the roads are improving very. fast and also the day is near, when the driving regulation, nature of traffic etc., are growing up to the amount which is already there in countries like America who successfully using auto dippers in their highways

An auto dipper could play an important role in shifting the headlights from driving beam to meeting beam and the other way around. This will improve visibility by minimizing glare, a major reason for momentary loss of vision. The realization of the last word goal of total road safety through creating ideal visibility conditions depends on efforts all told other related areas.