

Result of Multifeatured Automatic Headlight Management System for Automobile

Pranav Shinde¹, Kartiket Aghav², Dr. Rahul M. Sherekar³

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

Assistant Professor, Department of Mechanical, Jawaharlal Darda Institute of Engineering & Technology, Yavatmal³

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 night-time 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. RESULT AND DISCUSSION

Truly speaking, auto dippers are devices, which can attain more and more importance within the forthcoming years. In short, it's a tool with an awfully bright future. the number of vehicles and also the condition of the roads are improving in no time 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. Auto dipper may be a highly sophisticated device which may automatically judge when the top ray of light has to be lowered. Auto dippers are basically switches, which dip the headlamp from beam light of light shaft of light irradiation} to a dipped beam if a specific amount of light falls on its sensor. This is often a system, which electronically selects the correct headlamp beam for smooth driving. It switches headlights of own vehicle to Dipper Mode (Low Beam).

automatically when the sharp shaft lights of an upcoming vehicle fall on its sensor and switches back from Dipper Mode (Low Beam) to main Mode (High Beam) automatically once the upcoming vehicle passes off and the other way around. It all happens within a fraction of second. Aside from this, Auto dipper also keeps high beams in restraint automatically in well streets.

The following results are obtained: -

1. It reduces the chances of accidents at night.
 2. Provide extra safety to driver at night.
 3. Increases safety during night.
 4. Problem of glare almost overcome.
 5. Problem of dazzle is also almost reducing.
- Automatic dipper performs it is function of automatic dipping of head light beam and restoring of head light beam very efficiently. Beside this the automatic dipping device also gives the cyclic overtaking signal very efficiently.
 - Automatic dipper has the efficiency to dip the pinnacle ray of light of the vehicle within which it's fitted even when the oncoming vehicle is 180 m away which is 2 times over the stopping distance (80 m) required at 60 km/h.
 - Automatic dipper not only dips the headlight beam but also restores the most beam just in case the countering vehicle doesn't dip the top shaft of light within the safe distance of 60 m before crossing one another. This promotes road safety at the hours of darkness time driving.
 - Automatic dipper does not get activated by street lights (mercury/sodium) or by any stray Light.
 - When both the vehicles were fitted with Automatic dipper then both the vehicles dip the head light beam of each other efficiently. This will promote road safety during night time.
 - The majority of driver's when interviewed are of opinion that glare may be a problem during already dark driving and majority of them felt discomfort, irritation and reduction in driving performance because of glare during already dark driving.

- The majority of the drivers are also of the opinion that the automatic dipper should be fitted in all the vehicles.
- The bulk drivers who have used automatic dipper when interviewed were of opinion that the employment of automatic dipper provided them comfort and relaxation from glare and also in improve the driving performance during getting dark.
- The automated dipping of head visible light and it's restoring within the stopping distance plus the opposite functions available on automatic dipper system fulfils driving requirements necessary for already dark driving, which are likely to help and to push road safety during dark.
- In earlier accidental case studies, we have seen that the accidents due to troxler effect are quite low as compare to other causes. But we are trying to reduce that 100% of accidental cases due to troxler effect by applying this safety system in our vehicle.
- By applying this safety system in our vehicle, we offer a better and distraction free driving experience to the driver.
- With the implementation of Arduino, we are enhancing the accuracy of this device to next level of advancement.

III. CONCLUSION

Newer and better technologies always include time and it will help in reducing the labour 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 mentioned above. Glare during driving may be a significant issue for drivers. This is often caused because of the sudden exposure of our eyes to an awfully bright light; the bright headlights of vehicles during this case. This causes a brief blindness called the Troxler effect. Eventually, this becomes the foremost reason for night accidents. The driving force should actually turn down the intense lights immediately to avoid glare to the opposite person which is not happening. Hence, is that the idea for the design and development of a prototype circuit called the automated headlight dimmer. It gives the driving force to use high beam light when required. But is automatically switches the headlight to low beam when it senses a vehicle approaching from the alternative side. The circuit consists of easy and economical components which might be easily installed. The working and implementation of the prototype are discussed well. The effects of bright light on the human eye are also studied. Thus, the implementation of this device in every vehicle in future will not only avoid accidents but also provide a secure and a snug driving.