

Smart Headlight Control System

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ABSTRACT:

These days the number of accidents is increasing tremendously, especially at night. [1]The main reasons for such accidents are improper lighting conditions and glare of the vehicle headlights. The topic of this project is deviational headlights to road vehicles so as to not cause trouble to the opponent driver. Various vehicle headlight systems including the usual low/high beam headlights whose feature is to reduce/increase the intensity were studied under varied conditions of the vehicle's speed and separation distance between opposing single and multiple vehicles with respect to the vision targets with drivers have varied glare adaption response. They have been controlled automatically by sensing the conflicting headlights through LDR and deviation of it is done by microcontroller. Therefore, it is highly desirable to invent a device to solve this problem and such device is of high utility.

Keywords - Smart headlight control, Microcontroller, LDR, PWM Mechanism, Stepper Motor.

I. INTRODUCTION

As advancement in vehicular technology over the years the number of manufacturing of vehicles also increases vastly because of its usage in our daily life. [2]According to the survey it is evident that there is going to be increase in number of accidents, mostly during night time. The present invention relates to headlights of an automobile, more particularly to a direction turning device for headlights of an automobile which enables to deviate and hence increasing the safety for driving at night or in the darkness. The accidents take place on the curve roads than other roads due to improper lighting conditions. Reasons for such accidents are due to improper visibility of pedestrians at the curved paths, poor lighting conditions and glare of oncoming vehicle headlights, blind spots at the curved paths and also steep turns in remote areas like hills and mountains which may lead to the accidents. [3]When oncoming vehicle headlights fall on our eyesight, the driver may face blindness for short period of time, which results into a situation called Dazzling of headlights, which can cause a serious threat and results in loss of many lives. So, appropriate illumination of road to the drivers is a major task. Hence headlights play a vital role in preventing such accidents. Due to static headlamp systems blind spots will occur, which need to be avoided for road safety. Therefore, a new dynamic technology called "Smart headlight control system" is designed to address the solution to this major problem.

II.METHODOLOGY

It makes use of LED's as light source and simultaneously its intensity can be varied and controlled as per the need. [4]The programmable instructions to control the intensity by producing PWM signals which drives a MOSFET to switch LEDs to achieve required results are fed into the Atmega328 microcontroller. Our system also senses external lighting conditions to vary the light intensity. Based on external lighting conditions the intensity of headlight is varied using PWM. So, when external light is low, the light intensity is high. There are [5] three scenarios for deviation of lights.

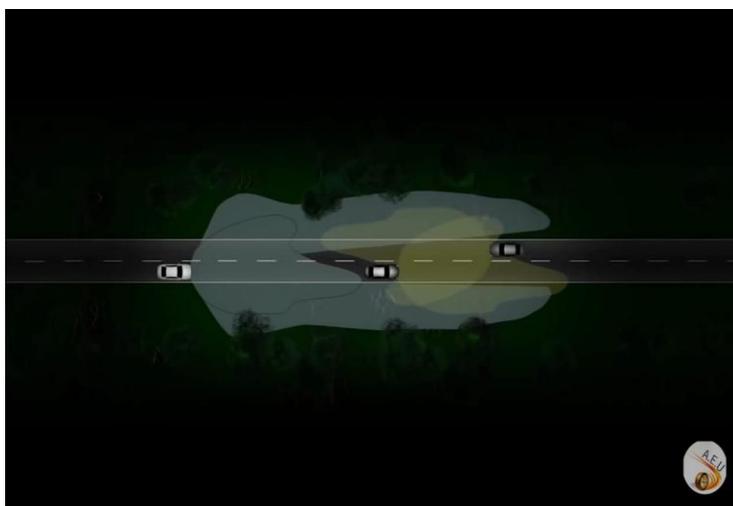
1. Oncoming vehicles



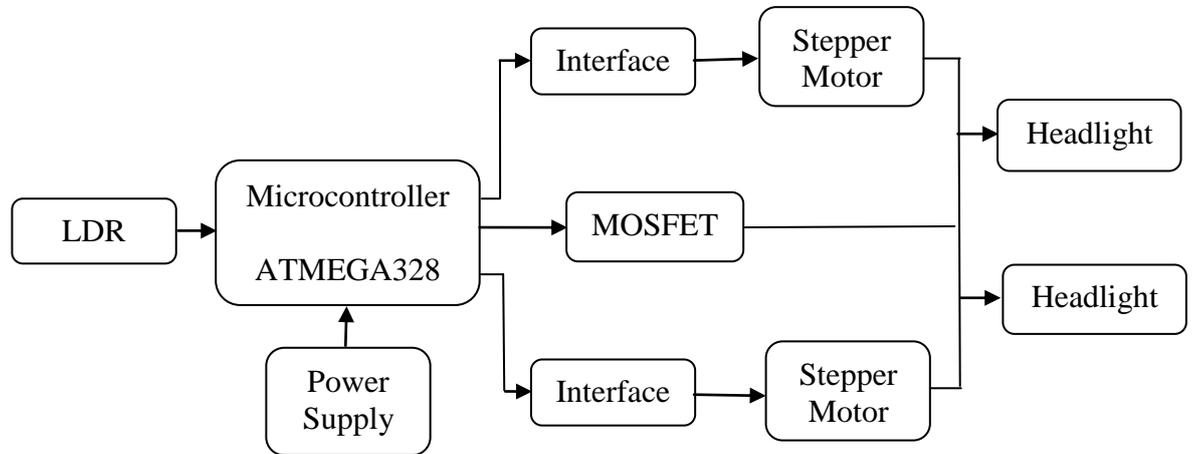
2. Preceding vehicles



3. Both Preceding and Oncoming Vehicles



III. BLOCK DIAGRAM



V. CONCLUSION

Before we undertook this project our knowledge about deviational headlights were limited. After doing an extensive research for this project we have a wider knowledge of this field in automotive technology, learnt useful information about different types of headlights. During the build of an experimental model of deviational headlights on a vehicle, we have improved our DIY skills and technical problem solving ability. Carrying out test with the project vehicle has proved that this concept works and although such lights being used nowadays does support the driver's vision during night-time.

VI. ACKNOWLEDGEMENT

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