Automatic Headlight System

Chaitanya Vikas Chinchole[1], Pranav Vitthal Chaudhari[2], Soham Rajendra Gujar[3]

[1, 2, 3] Dept of Applied Science and Humanities
[1, 2, 3] Pimpri Chinchwad College of Engineering, Pune

Abstract- *The headlight is very important for night driving. While driving at night all vehicle use bright beam due to this there may be an irritating condition occurs, because of the glaring from a vehicle coming from the opposite direction. It causes blindness for a short period and that causes collisions and major accidents. In this project of an automatic headlights dimmer, we automatically switch the high light beam to the low light beam of the vehicle arriving from the opposite direction. This paper also has different features of the headlight System. The features are automatically switching headlights ON at night and OFF in day time. The prototype consists of Arduino UNO R3, LDR sensor, Relay, battery, etc. Arduino UNO R3 is an important part of a model to code the circuit and to conquer the desired outcome.*

Keywords- Microcontroller, Arduino, Relay, LDR, Headlight, Illumination,

I. INTRODUCTION

High beam headlights cause a dangerous situation when driving in the dark. This makes the driver temporarily blind, which can lead to a collision or sometimes an accident. Many accidents happen due to glare from headlights. With sufficient street lighting, a headlight of high intensity is not necessary. This project automatically controls the glare of vehicle headlights. . In this model, an automatic switch ON and OFF feature is added. LDR is known as a light-dependent resistor, the resistance varies depending on the intensity of the light falling on it. The microcontroller used here is the Arduino Uno R3. The microcontroller controls the high light falling on it. If a dazzling beam hits the surface of the LDR, the information is sent to the microcontroller. The microcontroller compares the intensity of the incident light with the desired intensity value. If the intensity value is increased above the desired intensity value, the light intensity is reduced and the driver is relieved of the disturbance when driving at night.

II. LITERATURE SURVEY

When driving many drivers to face a big problem i.e. a high beam of light coming from the opposite side of the vehicle falls directly into the driver's eyes . from this it glares him for a certain amount of time from this driver can go serious accidents due to this we purposed our model and we study some Research from which conclude following things

Mr Sandip S. Jadhav and Prof. Ansar A. Mulla worked on automatic Headlights of vehicles. From their work, we see that when high beams of light fall on the human eyes at times drivers can't see anything due to this many accidents can take place. Therefore, we have added headlight dimmer in all vehicles. This device uses LDR sensors that sense the light intensity and give out data to the Arduino which controls intensity which can do the intensity of light high or low from a given threshold which we have to set up according to surrounding nature.

They use two sensors l1 and l2 for sensing light from nature and vehicle light coming from the opposite

Dr RD Balaji case study the automatic headlight system which can stop all problems related to headlight .like high beam of light coming from the opposite side of the vehicle falls directly into the driver's eyes from this driver can't see anything and serious accidents can take place or adverse weather conditions .they use sensors LDR to detect light coming from vehicles or coming from sunlight, they use Arduino to control the intensity of headlight .they uses all components which are low in cost than other components that used by other big car companies.
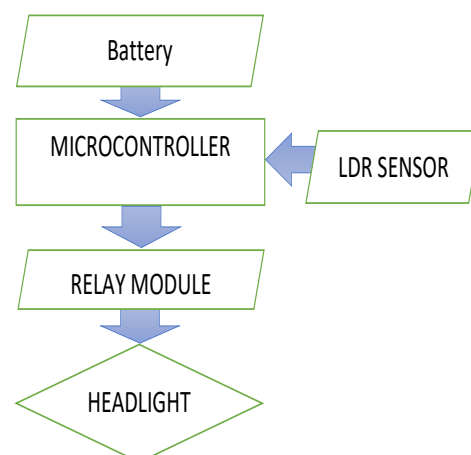
III. BLOCK DIAGRAM

Fig. 2.1 Block Diagram

In this project battery is placed to supply the power input to microcontroller. LDR is also connected to microcontroller to sense the illumination outside. After reading that illumination microcontroller will decide what to do with power output. Depending upon illumination microcontroller will give output. As microcontroller will only give output till 5 volts and to give more voltage we will give output to relay. Relay will convert that output to the higher rated values. This output from relay will be connected to headlight which will decide its intensity depending upon the input received from output of relay.

IV. COMPONENTS

[1] ARDUINO:

Arudino is microcontroller which used to reads input from sensors and convert it into output as instructed to it. we have to give instructions to Aurdino in the form code for working our model. It has microchip ATmega328, operating range of Arduino is 5V, it consists of 14 digital pins ,6 analog pins. Analog pins are used for input while digital pins are used for output.

[2] LDR :

An LDR is a type of light sensor whose resistance varies depending on the amount of light falling on its surface. When the light falls on the resistor, then the resistance of ldr changes in such manner that its resistance increases with increase in darkness.

[3] RELAY :

Relay is an electrical switch, which can be controlled by microcontroller. It is used to control on or off the device which uses high voltage. It is also used for providing high dc voltage from low dc voltage.
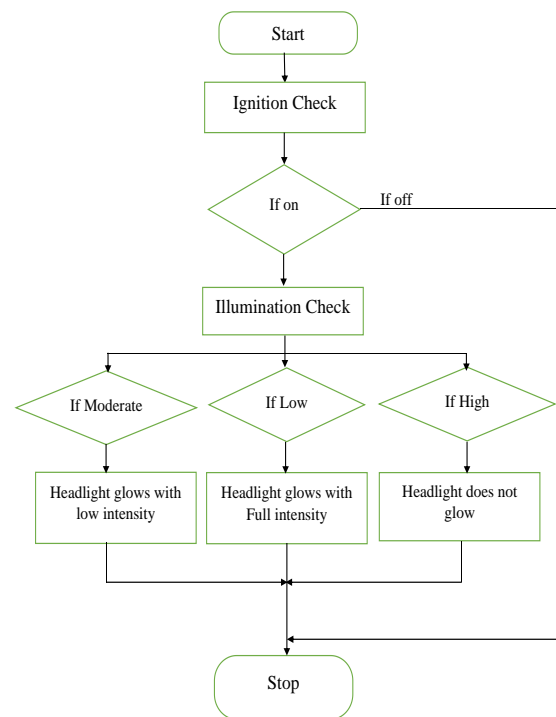
V. METHODOLOGY

Fig. 3.1 Methodology

Here in this project Ignition of vehicle will decide will on or off the supply to the microcontroller. When the ignition is on the supply is on and vice versa. When the ignition off i.e. supply off no outer illumination will work on it as microcontroller will not receive any power supply from battery. But when the ignition will on the battery supply will connected to microcontroller. After that microcontroller will check the readings from LDR. When the outer illumination will high i.e. like daytime no output will given by microcontroller i.e. Arduino. When outer illumination is found to be moderate at that time microcontroller will give output to glow light beam with low intensity. And when its dark outside at that time microcontroller will give output to glow light beam with high intensity.

VI. ADVANTAGES

1]Easy for use.
2] Low Cost.
3]No need for on or off headlight manually.
4]Accidents due to glares will reduce.

VII. CONCLUSION

The high or bright light intensity to the human eye is a major problem and maybe leads to a collision or sometimes

it may lead to a major accident. This problem may be solved by an automatic headlight system. In this model, the high beam is automatically switched to a low beam when the glaring light from the opposite vehicle falls on the LDR. This provides active safety to the driver.

VIII. FUTURE SCOPE

One can develop the automatic headlight system with artificial intelligence to dim or glow the light in particular region for not causing any darkness on another side of incoming vehicle.

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