ILLUMINANT AND INTERSPACE MONITORING USING ADVANCE DRIVER ASSISTANCE SYSTEMS

Y. SUNDEEP¹, G. VENKATA VINAY PREM CHAND², K. SURYA TEJA³, MVD PRASAD⁴, SK. HASANE AHAMMAD⁵, K. SAIKUMAR⁶

¹,²,³,⁴ Koneru Lakshmaiah Education Foundation, Vaddeswaram, Guntur-522 502, India

ABSTRACT
ADAS (advance driver assistance system): In simple words it is a combination of safety measurements/systems that are used in car assessors. In other words it is an electro mechanical device which is used to simplify or rectify the human errors which are caused while driving. By using this we can increase road safety as well as the life of the drivers and passengers. In the current smart system, the vehicle to be able to take care of all the stuff that it needs to make the driving even simpler, and it needs to make your work more simply a mixture is like the driver needs to enjoy the driving experience, the passengers need to enjoy the experience of travelling in their vehicle. Anything like a blind spot detector in the cause of the 1990s, it's not like a radar, where cars with several thousand cars have rear camera, the cars from 2010 have automatic in 2020 - it's intelligent devices that have powered and unlock, etc. there's no improvement 20 years back in today's steering column, you have to go all right because you have cars now, GPS not only trust your mobile, you can really connect to a mobile display screen, you have to stop your car and then you have to go okay now.

Keywords: ADAS, Electro-Mechanical Device, OEM, ADAS, Different Stages

1. INTRODUCTION

India has close to 4 million cars being produced annually in India. 70 billion cars that is being produced in the world. Tesla is working on automatic cars and I in India have started production and they are also going to start sales of Hyundai Kona which is a complete powertrain. There is a huge demand or huge supply is there but are there enough engineers skilled technicians is the right word here to satisfy the demands of the industry that is a very very important thing so automotive industry is concerned. OEM’s (Original equipment manufacturer): It is a manufacture company that provides parts and equipment that may be marketed to other manufacturer for example fox con, Taiwanese electronics company these are the one of the OEM’s company that manufactures parts and sells to other companies like apple, dell etc and for example Samsung is one of the OEM for the most of the other companies that they make camera sensors to other companies. Coming to the ADAS In the name itself we having that advanced driver assistance systems (ADAS). It is the collection of safety systems that are combining together to provides safety assistance to the driver and increase the vehicle safety.

ADAS has many features some of them are amount of fuel indication, forward and backward collision control, monitoring of driver activity, provides parking assistance, detection of blind spot, adaptive light control. These features are divided into different type of stages.

Features which are present at the stage 1 are totally manual driver control, some features that are present at this stage are line keeping, backup camera, front camera and adaptive cruise control. At the stage 2 features are control over driver which is nothing but alcohol detection, anti lock braking, parking assistance etc: from the stage 3 the amount of autonomous vehicle control increases some of the features are automatic breaking system, forward and backward collision control, automatic parking system, detection of blind spot etc; At the stage 4 autonomous driving assistance on highways can be observed and at the final stage the vehicle is fully automated.
II. DATA & METHODOLOGY

Adaptive Light Control
This technology gives the solution for the adaptive use of the light in this technology will regulate the intensity of light by tracking the surrounding conditions. In this the key component is LDR which is nothing but light dependent resistor in the name itself showing that resistance of the component is varies according to the light intensity falling on it. So LDR is placed in the dark it will have a low resistance if the resistance is low the led which is connected to the circuit is glows brightly and if the LDR is placed in the light the resistance will increase slowly and the LED will glows slowly using all the information a circuit is designed which is shown below the required components are LDR resistor, potentiometer, OP AMP LM358,BC 547transistor,relay and LED.

Adaptive Curse Control
Adaptive cruise regulation that adapts This function can be helpful when travelling on open roads like highways for long stretches of time because it helps you to control your pace without needing to press the accelerator pedal. We'll look at the various modules and how they all fit together as a device now the first and most significant part of the acc system is the forward radar sensor, which is situated in the front of the car.

The sensor from detecting vehicles in front of us also worth noting is whenever you're cleaning the front end of the vehicle it's important to not use high pressure water or steam as those kinds of things can damage the radar sensor now we'll take a look at the components that are inside the vehicle we'll have a look at the acc menu in the instrument cluster as well as the control stock on the side of the steering column first things first let's pull up the adaptive cruise control. We have to connect the ultra sonic sensor to the arduino as shown in figure I that echo pin is connected to the 10 pin of arduino and trigger pin is connected to 11 pin of the arduino we have to connected according to that because we have declare the pin numbers in the code itself if we want to change the pin number we also change the pin number in the code also.

III. RESULTS AND DISCUSSION

Explanation For the first figure, when we placed ldr in light negative terminal will have more voltage compare to positive terminal so the output of operational amplifier is very low or near to zero which is applied to relay and the led will be glows slowly/lightly.

Explanation for the second figure. When we place ldr in dark or close ldr by our hand there is some voltages which is passing from the negative terminal of the operational amplifier and for the positive terminal a fixed voltage is passed as the 2 resistors are of same resistance the voltage is divided equally positive terminal gets constant voltage and negative terminal has variable voltage depending on the intensity of light falling on the ldr by comparing 2 input voltages relay switches and the led glows on.
After the compile we have to dump the code in the Arduino uno so that its starts sends and receive the data from the ultrasonic sensor and we can observe the results in the serial monitor. From that we can observe the distance to an object in centimeter.

**Advantages**

There is very very less number of scale engineering resources to match high production costs. A car or modern car this is a Mercedes s-class over here mostly success has nearly 100 150 million lines of code which is an equivalent is half 500 copies of the words complete copies of 60. Body based development which actually makes the whole software development process a lot more easier. ECU development costs that goes behind as we all know it's only like 30 to 50 percent is the cost of the hardware there and 50 to 70% it's off the software that what do you flash into it. The average lifetime of cars in India is 18 years and a single car can be driven for seven hours every week and that is 52 into seven for one year. Boeing 707 fleet since its manufacturing its time is 10 times less compared to the average run time of a car so this is going to be the obvious number of that a car is going. The total number of cars that is being manufactured is 10 to 10 times more compared to a car that is writing just the software. The book ends with a look at some of the most common ways in which software is used in cars in the U.S. to improve the quality of cars and to make them more reliable and more fuel efficient in the long-term.

<table>
<thead>
<tr>
<th>COMPARISON ON PREVIOUS MODEL Vs PROPOSED MODEL</th>
<th>PROPERTIES</th>
<th>PREVIOUS MODEL</th>
<th>PROPOSED MODEL</th>
</tr>
</thead>
<tbody>
<tr>
<td>User and Eco Friendly</td>
<td>Yes</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>Software</td>
<td>Required</td>
<td>Not Required</td>
<td></td>
</tr>
<tr>
<td>Hardware</td>
<td>Required</td>
<td>Required</td>
<td></td>
</tr>
<tr>
<td>Work Complexity</td>
<td>Very High</td>
<td>Too Low</td>
<td></td>
</tr>
<tr>
<td>Reliability</td>
<td>Moderate</td>
<td>High</td>
<td></td>
</tr>
<tr>
<td>Cost</td>
<td>High</td>
<td>Low</td>
<td></td>
</tr>
<tr>
<td>Installing</td>
<td>Difficult</td>
<td>Easy</td>
<td></td>
</tr>
<tr>
<td>Glitches</td>
<td>Having High Chances</td>
<td>Don’t Have any Glitches</td>
<td></td>
</tr>
<tr>
<td>Technology Used</td>
<td>In The Loop Simulation</td>
<td>LDR</td>
<td></td>
</tr>
<tr>
<td>Detection Object</td>
<td>Vehicle</td>
<td>Vehicle</td>
<td></td>
</tr>
<tr>
<td>Output Display</td>
<td>No</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>Power Consumption</td>
<td>High</td>
<td>Very Low</td>
<td></td>
</tr>
<tr>
<td>Portability</td>
<td>One Time Install</td>
<td>Have Portability</td>
<td></td>
</tr>
<tr>
<td>Reaction Time</td>
<td>Very Fast</td>
<td>Slow but More Accurate</td>
<td></td>
</tr>
</tbody>
</table>
IV. CONCLUSIONS

By taking all the result from the previous models and the present proposed model we can conclude that previous models have a long process along with the complex circuit that to the main required is to reduce power consumption in the previous models power consumption is high due to having larger circuit that to it required both software and hardware, where as our proposed one has very less circuit and it even run at low power that means it will consume low power as well as due to having less circuit reaction time is very less that to it has only hardware due to having only hard ware Reliability is very high we have to change only the battery if we connected externally or else if we connected internally with the car battery no need to change. By taking all these conditions we can conclude that our proposed one was the best one compared to many previous models.

From this paper the author introduce a new approach it increase the safety approaches to the driver by providing the safety warnings to at the critical situations. There are accidents due to problems such as obstruction in roads, rash driving and lane change. the smart driver support Device can solve these problems by Providing and slowing down automatic controls or Stop the emergency vehicle. This scheme Distance monitoring among moving vehicles, obstruction monitoring.

REFERENCE

4. Wan-Jung Chang, Member, IEEE, Liang-Bi Chen, Senior Member, IEEE, and Yu-ZungChiou, Design and Implementation of a Drowsiness-Fatigue-Detection System Based on Wearable Smart Glasses to Increase Road Safety, IEEE transactions on consumer electronics, vol. 64, no. 4, November 2018.