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DECISION SUPPORT FOR AUTONOMOUS CAR WHICH GREATLY ELIMINATES ACCIDENTS AND ALERTS THROUGH VIDEOS

Sharmila V[1], S. Karthik[2], BL.Aarthi[3]

[1]*ME in KRISHNASAMY COLLEGE OF ENGINEERING & TECHNOLOGY, Cuddalore, Tamil Nadu*
Email-id: sharmil.me.venkat@gmail.com
[2]*HOD/ASSOCIATE PROFESSOR in KRISHNASAMY COLLEGE OF ENGINEERING & TECHNOLOGY, Cuddalore, Tamil Nadu*
[3]*ME in KRISHNASAMY COLLEGE OF ENGINEERING & TECHNOLOGY, Cuddalore, Tamil Nadu*

Abstract: - Automatic car are unscrewed vehicle, driverless car, self-driving car and robotic car. This car also called as Autonomous car which would be welcomed in great way fulfilling the main transportation capabilities of a traditional car. As an automatic/autonomous vehicle, it is capable of sensing its environment and navigating without human input. Autonomous car exist as demonstration and prototype system. . In this we use "Image processing technique" for detecting and computation of the direction angles. Every human being loves to enjoy the nature's beauty; vehicles are one kind invented towards achieving these enjoyments. But in actual they fulfil their needs and also meet with several accidents which cause in loss of lives & even properties because of rash drive simultaneously in high population regions. To avoid the rash driving and to save the lives from accidents the vehicles must be provided with some safety measures. So a rush between the inventors followed for inventing an automatic car with provision ability to control speed and other systems. By calculating the distance, size, speed and position of other vehicles that arise through fixed camera in front, avoiding rash drive in robotic cars in highly populated regions. This by assuming that system will apply the brake automatically for more number of times in highly populated regions.

Index Terms: - Autonomous system, Nano sensors, image detector.

1. Introduction

According to the current outer status every person in the universe are busy the world itself is a busy world. In this busy condition we use vehicle to travel from place to place. Mainly we consider car as a safest vehicle than other vehicle. Even in car due to carelessness many accidents may occurs the accident rate increases accordingly with the population rate. In this condition to avoid frequent accidents and to save our valuable life

many driving technique were introduced such as (automatic speed control, speed breaker control, smart control & display, automatic on off etc..,) [1][2]but this were not enough they fail in each and every circumstances. As next level Smart Control & Display (SCD) is designed to custom fit into the dashboard in vehicles and simultaneously it displays information on the vehicles. This acts as an instructor to the driver driving the car making easy for the driver to handle the car. The display in the dashboard will instruct each path and it also detects the future circumstance and instructs the engine handler accordingly. And also depending on no of brake movements the system is controlled. This composes two separate units:

- Status Zone transmitter
- Receiver transmitter zone

The status zone concentrates on taking care of engines and its control. SZC protects the mistakes that occur while travelling in school zone, highways, and hilly areas. It mainly concentrates on road and its path way. As road is major concern in developed state. Recently a survey shows that $1/3^{rd}$ of serious accidents are caused of inappropriate speed and also because of change in road way and also change in road style [2].
The receiver transmitter zone monitors the road condition and act according to it. It promotes some instruction over the opposite car attack. It then alerts the opposite vehicle by beep before causing any damage. Through this the accidents are promotionally decreased. But yet it could not be stopped completely or banned as it is a hypothetical position. Depending on where you live, an automatic might be the most practical choice. If you find you frequently end up in rush hour traffic, an automatic clearly wins out. Driving a manual transmission in stop and go traffic is simply fatiguing. Automatics are also easier if you live in hilly areas [3].To make these possible many researches were done and automatic car is introduced but not utilized for working yet. They are under research it has to undergo many test and then it could be finalized. In autonomous car it uses robotics technique to drive the car [4]. Speed control is in the need of the hour due to the increased rate of accidents reported in our day-to-day life.

2. Autonomous car working system:

Almost all cars have automatic models so any car can be chosen for driving. In an automatic car the gears change at the appropriate times. It's a lot easier and less stressful to drive an automatic car because it does all the thinking for you. In this system the fuel usage will be rarely used and will not be wasted.   Analyzing the road in front and thinking what gear to select no longer becomes an issue and that's why a lot of people use autonomous car.
The advantages that the autonomous [4] cars provide are:

- Control the brake system according to the instruction provided. Automatic car have ability to maximize the speed limit of the car.
- The lower limit brake of the car will be same. If there is no more brake application to proceed then the speed will automatically decreased.
- The road status is also detected. By adopting this measures road accidents could be prevented. The quality of road, traffic in road can also be judged.
- An automatic car can make you feel free from driving because there is no tension of pressing accelerator or brakes which creates awareness about safety.

An automatic car usage is the safest form for travelling purpose. There would be no tension about accidents, traffic, and other issues.
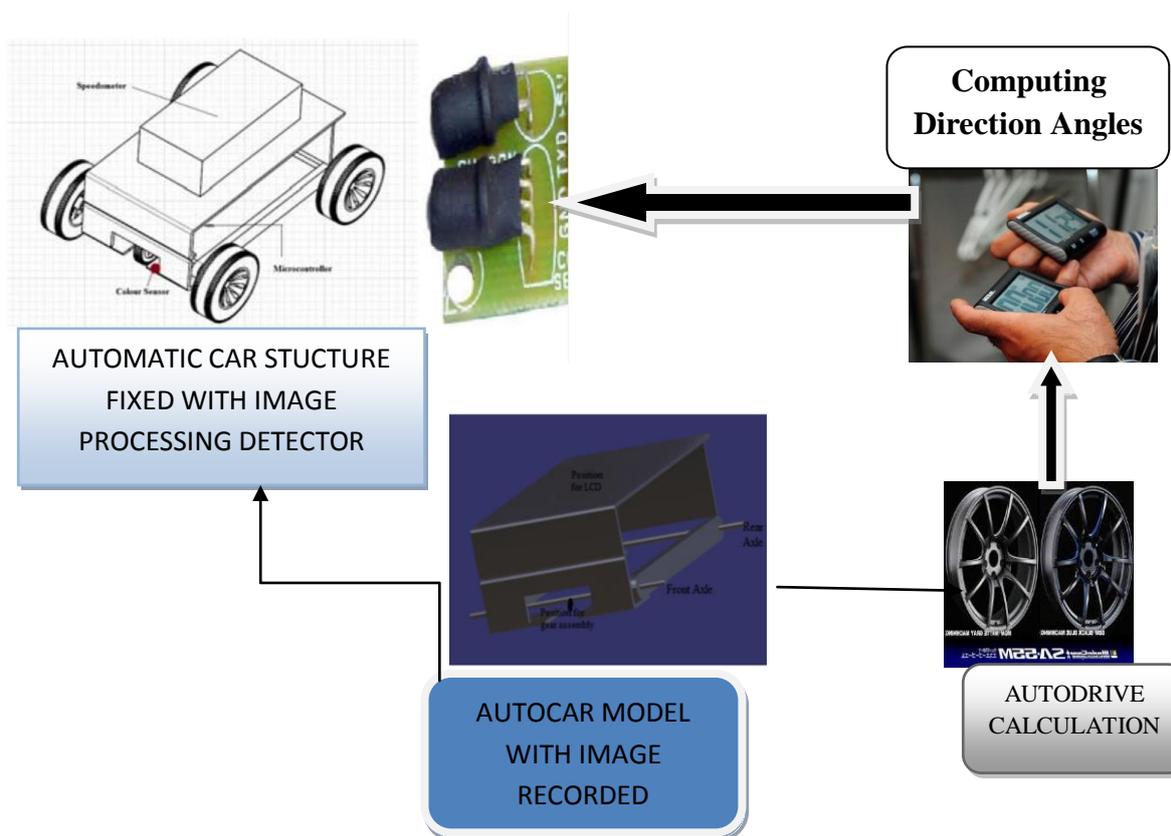
Fig: 1 system architecture

3. Image detector using camera:

In our proposed we use automatic car with miniature camera in front which calculates an accurate speed and distance and even the holding and ending time of other vehicles. In an automatic transmission, the car decides when you shift and automatically changes gears for you. This could be activated by workout the technique: for instance,

a) Forces on a Car Bumper: its tow truck time. Likewise mentioning yes, you turned right when you should have turned left. Fortunately, it was just a snow filled ditch that you hit.

b) Because there is not much room to manage, the tow truck has to pull out your car at an angle (not recommended in your owner's manual). Your concern is whether to have the driver pull out your old beater, or to leave it there without the plates.
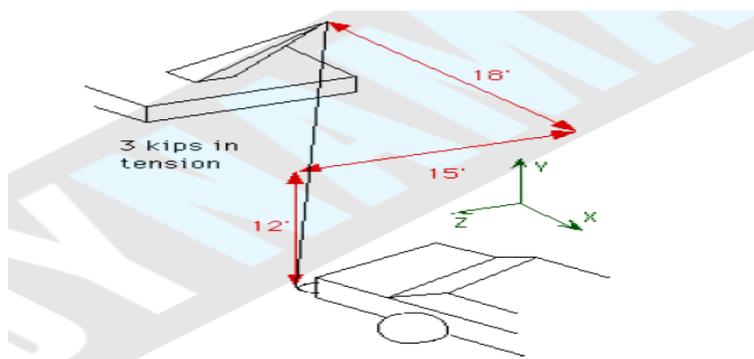
All type of cars and its images are recorded in the automatic car system. Through this any type of vehicle and car can be detected. Through this the distance and speed and its preferable action or working can also be calculated. It gives each and every instruction about gear changing, traffic rate, disturbance if any. This system also leads us with correct path. It gives information about the other vehicle that travels near us.

For instance, consider some other vehicle travelling in front. The miniature camera fitted in the front will scan the vehicle completely. Then it fixes the size and estimate with a calculation whether the vehicle could be overtaken or not [9]. The calculation is done according to the size of the vehicle and capture of the vehicle. Through this the decision will be taken by the system and the system promotes the process. The accurate calculation is done and this is been processed. When this process is followed for all cars then the traffic and accidents can be reduced. The detection can also be carried by nano-sensor detection which when the accident situation arrive the sensors detects and decision is made in fractions to overcome the situation in autonomous car.

4. Conclusion

This paper presents systematic architecture for automatic car adaptation for speed control of a vehicle to the circumstances of the road which can help to decrease speed which is one of the major causes for accidents. Due to the inadequate vehicle speed we loss even lives. Our approach is based on a combination of different detecting techniques using image processing. In which it provides an image processing fixed with camera in front and back. The camera acts as a detector which in turn detects the faults that occur in future. Through the image detector vehicle travelling in front, back and opposite can be detected and system could be controlled. This way of proposing system is portable and easily adaptable to any commercial car with minimal modifications. By this system, our approach is to control the speed of vehicle at limiting road area to avoid the accidents. The accidents and rash driving can be reduced up to 80 % and can save many lives and many valuable properties. In the empirical trials in our installations, the vehicle's speed and distance calculation was successfully changed as a result of the detection of the signals, increasing the safety. The technology developed can assist human drivers in difficult road circumstances. By using this system, it can be reduced the rash driving within cities, within the regions of school zones, villages that are located at the highways and beside the highways. This also calculates other vehicles speed and each and every single action of the near coming vehicle. By calculating this we may be able to provide a sustainable automatic car without any fault occurrence.

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A Brief Author Biography

V.SHARMILA

Sharmil.me.venkat@gmail.com

V. SHARMILA is presently pursuing her M.E degree in computer science and Engineering from Krishnasamy college of engineering and Technology, Cuddalore, TamilNadu, India. She has received her B.E degree in C.S.E from IFET College of Engineering, Villupuram, TamilNadu, India in 2013. Her research interests are in the areas of Image Processing and Big-data.

S. KARTHIK

S. Karthik Completed his B.E. (CSE) degree in the year 2005, M. Tech (CSE) degree in the year 2007, MBA (HRM) in the year 2008, M. Phil (CSE) degree in the year 2009. Currently he is pursuing Ph.D. in the area of Image Processing. Currently he is working as a HOD/ Associate professor in Computer Science and Engineering at Krishnasamy College of Engineering & Technology, Cuddalore, Tamil Nadu, India. His Teaching experience is 10 Years. Previously he worked at Ganathipathy Tulsi's Engineering College, Vellore, Tamil Nadu, India. His research interests lies in the areas of Image Processing, BIG DATA, DBMS, Data Mining, Data warehousing, Cryptography & Network Security, and Cloud Computing. He has published 7 International Journals and 3 research papers in National/ International conferences. Also he is life member of Indian Society of Technical Education of India (ISTE). He attended many workshops & National seminars in various technologies and also attended Faculty Development Programme

BL. AARTHI

BL. AARTHI is presently pursuing her M.E degree in computer science and Engineering from Krishnasamy college of engineering and Technology, Cuddalore, TamilNadu, India. She has received her B.Sc. Computer Technology (B.Sc., CT) degree in Computer Technology from Bannari Amman Institute of Technology (BIT), Erode, TamilNadu, India in 2009, M.C.A from Coimbatore Institute of Technology (CIT), Coimbatore, TamilNadu, India in 2012. Her research interests are in the areas of Big-data and Image Processing.