

SAFE DRIVING MODE ON AUTONOMOUS CARS AND INNOVATIONS IN AUGMENTED-REALITY TECHNOLOGY

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Abstract:

In this paper, the autonomous driving cars which create an amusing part of the technical world with multiple technologies. And the safest driving methodologies of driverless cars and the upcoming to renown with the technology called augmented reality. In self-driving cars, certain methodologies and algorithms have been implemented for making driverless cars. The most self-drive cars have been designed using video capturing of opposite party and rules destination routes and road conditions as sensors which created as software and implemented inside as the car parts. The augmented reality cars used to view the roads and traffics and the opposite drivers' action can be displayed in the optic cameras which was attached as the front side car glasses that to prevent from traffic. This technology aims to increase driver safety for a more convenient driving experience. An augmented-reality helmet that gives cyclists a 360-degree view of the road could help prevent accidents. With optic cameras provided by Google glass, GPS navigation has been installed to track the information and performance of the driver.

Key Words: Optic Camera, GPS navigation, Google glass.

I. INTRODUCTION:

Many road accidents are occurred in India due to overtaking of vehicles, high speed driving, and carelessness of road crossing on diligent roads. About 1,37,000 people have been killed in current years due to Road accidents. And 25% was occurred during bike ride. According to the recent research more accident are happening in nights.

One serious road accident in the country occurs every minute and 16 die on Indian roads every hour. 1214 road crashes occur every day in India.

About 21% of people died due to the road accident. Many childrens under the age of 14 died in accidents. 377 people die every day, equivalent to a jumbo jet crashing every day. Three people die every hour in Uttar Pradesh with maximum number of road crash deaths. Tamil Nadu is the state with the maximum number of road crash injuries.

In order to prevent such kind faults the researchers have designed the autonomous cars.

The Autonomous cars have been designed to make the techy experience and not only the reason but also to prevent the drunken drivers and unconcerned people. It helps the travellers from get relief from driving and navigation chores. It lowers the fuel consumption, it reduce the needs for parking space.

The Autonomous cars consists of various techniques such as radar, lidar, GPS, wheel encoder-used to track the location of the car and its movement.

III. AUGMENTED-REALITY IN HUMAN DRIVING CARS:



The Augmented-reality is a developing concept to drive safely in order to avoid road traffics with

virtual experiences. It can be implemented through google glasses. The mobile phones are connected via Bluetooth to track or view the road directions and activities going on the road. The sensors which connected to the car which reacts according to driving situation under the supervision of augmented reality.

The google cars have been started to design in the year of 2009 with the tie up of the company waymo which was founded in the year of 2016 is an independent company to develop self driving car. Google cars are still in data gathering process. To earn a fame of high secured self driving cars in tragic defense on roads.

Augmented Reality which creates the safe drive mode for the driver as well as for self driving cars. It helps the driver to analyze the road actions in a longer distance. however it captures the image and store it in a video recorder and also records the road actions.



The video recorder still captures opposite location's view but using GPS the navigation of location will be possible.

It shows the road traffic situations and other possible routes to achieve destination through GPS System which is in it. It avoids the traffic collision and prevents from accidents and prevent from anticipated drivers. The sensors which fit in the part of cars with the help of object recognition it reduce the speed limit by capturing through the optic image.

II. AUTONOMOUS CAR METHODOLOGY:



It has designed with various techniques using sensors, image processing, dynamic driving control Sensors for followed by various driving algorithms.

All other Autonomous cars have the sensors and the sensors have some major modules programmed which were followed by a certain algorithms.

Most of the cars using Simultaneous Localization and Mapping algorithm(SLAM) and an off-line map into current location estimates and map updates. And the latest algorithm such as SLAM with DATMO is a variant developed by researcher now at Google which also handles detection and tracking of other moving objects such as cars and pedestrians.

Sound recognition for recording the alternative vehicle sound can be used to pay the attention for the other people and dynamic drivable area to prevent from anticipated drivers and not to distract from the destination.

And also these kind of algorithm have been working under the sensors radar, lidar that has been provided. The Wheel Encoder is used track the performances and the Location of the Car.



Sensors:

Sound recognition:

Sound sensors work by mimicking the human body process that helps the signal transmission directly to the brain. The magnets surrounded by the coiled wire was used. Sound waves which vibrates the magnets and induces a current in the coil. dynamic, ribbon or condenser microphones are the music microphones. It also used for tracking.

Radar and Lidar

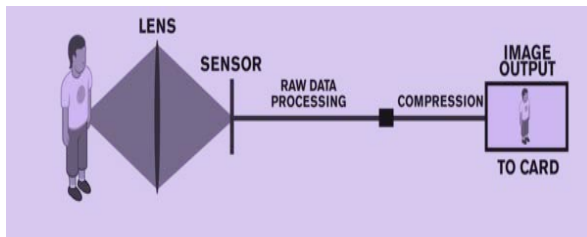
Radar:

Radar is an object detection system that uses radio waves to assess the range, angle, or velocity of objects. A radar system consists of a transmitter producing electronic magnetic waves in the radio domain, is a transmitting antenna (often the same antenna is

used for transmitting and receiving) and a receiver and processor to determine properties. Radio waves which transmits object and return to the receiver, giving information about the object's location and speed.

Lidar is another sensor which uses ultraviolet rays in laser .

Image Sensor:



An image sensor takes that light and converts it to a digital format which the camera can wrangle into a photo. The process take the light or photons that reach it and convert that light information into an image file.

Wheel Encoder:

The Wheel Encoder board used as a infrared reflection sensors that watch the axle spin. By counting the number of falling edges the sensor detects, you can determine how far the car has travelled.

IV. SELF DRIVING CARS USING AUGMENTED-REALITY:

The collision of Augmented reality techniques with psychological effects such as

To prevent from the terrific situations that arrested by natural calamities and or from national crash and dangerous situation of the opposite driver or unfortunate incidents occur in front of the cars.

The psychological informations should be loaded as a module in sensors and psychological expressions can be analysed through image capturing.

The Augmented-reality technology cars has undergoing process with transparent-display projected on to the windows screen which makes the user to look in the car rather than looking roads and GPS locations on phone.

Whenever the driver drives the car in the danger zone the ultimate graphic warning will be displayed in the screen with the help of HUD, the heads-up-displays which assists the pilot while they are flying.

The HUD Controls, which is use to recognize the Current speed, speed limit and adaptive visuals for cruise control.

The engineering domains such as simulator hardware,traffic flow theory,control theory and mathematical driver modeling with psychological domains such as human action andperception,cognitive,modeling,vigilance,distract ion,psycho physiology and mode situation awareness, to optimally address the in-disciplinary domain of human factors.

These Psychological engineering domains can be implemented as sensors then automatically autonomous cars acts as a human driving car as well as protectively and safely.

V.CONCLUSION:

In this paper the presentation of Autonomous Cars and Human driving Cars using augmented reality technology case study and analysis has enormous scientific success in future in order to prevent the people from road accidents and fuel consumption. This paper explains how it relates the human driving and how to drive safe and secure than the human Driving. Since the Best Sensors and Many other Connected parts that tends to show the safe drive mode on Vehicles.

VI.REFERENCE:

Kyowon Kim," Design of Integrated Risk Management-Based Dynamic Driving Control of Automated Vehicles",Proceedings Of IEEE, Vol 9,Pg-57-73.

Pavlo,Daniel heikoop Delft university of Technology, "Human Factors of Automated Driving"

Brandon Aeges,"Future of driverless cars and augmented reality" ,Industry News and Technology Updates.

Errico Guizzo ,"The Working of Google's Self-Driving Cars",The IEEE Spectrum.

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