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‘HUDWAY’-Car Navigation with Advanced Automated GPS System.

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ABSTRACT: Hudway is one of the most important concept comes in the age of change. Today's market is there where lots of accident and many more concern had been seen in recent past due to bad behavior of navigation system and here we are going to try our best to meet the serious concern and rune over them. Hudway is nothing but a technology in which our navigation panel is projected on a outfitted screen which is paced over our wind shield. By using this kind of technology we can avoid at-least 96% accident as per USA guidance, but we have to take care about its behavior and many more in upcoming era of bad technology. The Global Positioning System (GPS) uses a global navigation satellite system (GNSS) made up of a network of a minimum of 24, but currently 30, satellites placed into orbit by the U.S. Department of Defence.

KEYWORDS: Hudways- Hudways concept of navigation, NOVA- Navigation based GPS, GNSS- Global Network Satellite System.

I. INTRODUCTION

There are 600 million people in the world who get behind the wheel of a car every day. Researches says, approximately 77% of them get distracted while driving — it could be just drinking coffee, talking to a co-passenger, reaching for the phone in compartment, changing a song on radio, and so on.. But the worst and most frequent distraction is our phone. We are always on the phone doing unnecessary task. We talk, read, type, tweet, check, post, upload, click and search... share pictures. We even do video conference calls while driving or watching an episode or song on YouTube while driving!

This is especially dangerous when driving in low visibility situation such as rain, fog, snow or just darkness... we are nearly driving blind and trying to multitask with checking directions on our smart phones. That is when bad things happen. According to USA Submit report which is based on official reports, 22% of all auto accidents happen because of a driver multitasking and/or low visibility conditions — that is 750 deaths a day worldwide.

The main problem is google map app or any other competitor is that it doesn't show clearly indication for turn it more focus on map insist of indication for turn. The main information which is actually useful to the driver is limited to just 30% of the screen on the smartphone which results increase of distraction as the drivers needs to see the small

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indication and places closely instead of focusing on the road. It may confuse the user for taking correct turn. So In HUDWAY: Car Navigator we will show the correct turn and indication and more user friendly GUI.

II. RELATED WORK

2.1 PROBLEM STATEMENT:

There are 600 million people in the world who get behind the wheel of a car every single day. As per current scenario and status of the road and drivers we will find that through various researches, approximately 75% of them get distracted while driving — it could be just drinking coffee, talking to a child in the back seat, be trying to reach at glove box and some storage pot like magic box and lots more for long drive but it cost many hard deficient results like saviour accident while we are driving. We are always on the phone. We talk, read, type, tweet, check and search... We do selfies and share pictures. We even do video conference calls while driving! Exactly this is very dangerous while we are driving our car during rainy session and whether like this and during this our dash board make some kind of false statement in the directions on our smart phones. That is when bad things happen. Actually based on too many official reports, 22% of all auto accidents happen because of a driver multitasking and/or low visibility conditions as we have discussed above of this section which cost at most 750 life all over the world in a day.

2.2 PURPOSE:

Navigation nowadays is one of the important part of daily routine. The application like google maps have done the navigation but Nova Navigator's main objective is to provide the navigation with ease of understanding. To achieve this purpose we will be using the concept of Heads-Up Display Concept. Heads-Up Display will be directly providing the users navigation on the windscreen of the car which will be easy to understand.

III. EXISTING SYSTEM

Existing System of any car navigation system yet followed some kind of un-complete task like it does not support any kind of OS and technology which is now our heart like android OS, because now a day all most everyone has Android OS in their phone. But we can't able get these facility in previous Application and software. Also it does not support Offline connectivity, but we proposed off-line connectivity in our newer version of Hyudway which gives you a very efficient connectivity while we are in add-hoc network environment.



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IV. PROPOSED ALGORITHM

A. Design Considerations:

Following are the algorithms used:

1. Dijkstra's shortest path algorithm:

It is an algorithm for finding the shortest paths between nodes in a graph, which may represent, for example, road networks. For a given source node in the graph, the algorithm finds the shortest path between that node and every other. It can also be used for finding the shortest paths from a single node to a single destination node by stopping the algorithm once the shortest path to the destination node has been determined. For example, if the nodes of the graph represent cities and edge path costs represent driving distances between pairs of cities connected by a direct road, Dijkstra's algorithm can be used to find the shortest route between one city and all other cities. As a result, the shortest path algorithm is widely used in network routing protocols

2. To Find speed of Vehicle using GPS:

To find the speed of the vehicle GPS is used. To find the speed of the vehicle a basic physics formula is used i.e. speed = distance / time. Here the distance is taken from the latest two GPS location in the form of longitude and latitude. Using the above formula the speed is calculated. As the earth is elliptical the formula stands partially correct.

B. Advantages of Proposed System:

- Very clear and precise.
- Very cost efficient.
- Very much available in the market as per demand.
- Handling is so simple and easy.
- No blur projection so clarity is so high.
- Subscription charge per year is so cheap.

V. IMPLEMENTATION

Implementation is the crucial and the most important part of any project. In this stage the Theoretical design and paper ideas are transformed into working system helping the user gain confidence about the software will help him to ease his work and make his life simpler. The implementation stage involves careful planning, in-depth knowledge about existing system and its constraint's on implementation, designing of methods to achieve a product with high quality.

4.1 Module Description

4.1.1 Heads up Display Navigation

The main problem is google map app or any other competitor is that it doesn't show clearly indication for turn it more focus on map insist of indication for turn. The main information which is actually useful to the driver is limited to just 30% of the screen on the smartphone which results increase of distraction as the drivers needs to see the small indication and places closely instead of focusing on the road. It may confuse the user for taking correct turn. So In HUDWAY: Car Navigator we will show the correct turn and indication and more user friendly GUI.

4.1.2 High Speed Alert

It's easy to fall into a herd mentality out on the open highway. There's safety in numbers, protection in conformity. Travel too slow and you'll incur the angry honks of your fellow drivers. Travel too fast and you'll attract unwanted attention from robotic speed cameras and police officers wielding radar guns. In HUDWAY: Car Navigator we are going to check the speed limit for particular road or highway to that of the car by the standards mentioned by the government to that of the car. If the speed of the car exceeds the

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standards mentioned the user will get a speed alert which will help to maintain the speed and to avoid flashing blue lights and wallet-busting tickets is to stick to the car speed limit.

4.1.3 Battery Indicator

While navigating through long distances it is important to keep updates of the battery status of the user's phone. To help know the user about the battery status of the phone battery indicator is used. Navigating eats up a large amount of battery as the phone uses data and GPS together co-ordinating to navigate.

VI. ARCHITECTURE

The diagram shown below; presents the general architecture. We build the project based on the assumption that users use their Android phones in the environment with wireless network and having the ability of getting GPS location. GPS will be used for automatic localization since android phones are usually equipped with GPS. Map Activity in red is the core and the start of application. Map Activity imports Google Map as the map, and retrieves information of POIs from remote Server. Map Activity calls Map Overlay to add POIs mark to Google Map.

Google Map is chosen as the map of navigation guide, as consider it is easy to be implemented on the platform of Android. Both Android and Google Map are released by Google. And we can provide navigation maps not only for a specific navigation but also almost all the cities in the world since Google Map show map of the whole world. Therefore, we can provide the service of navigation guide for many cities only if there is relevant database containing the information of points of interest in cities.

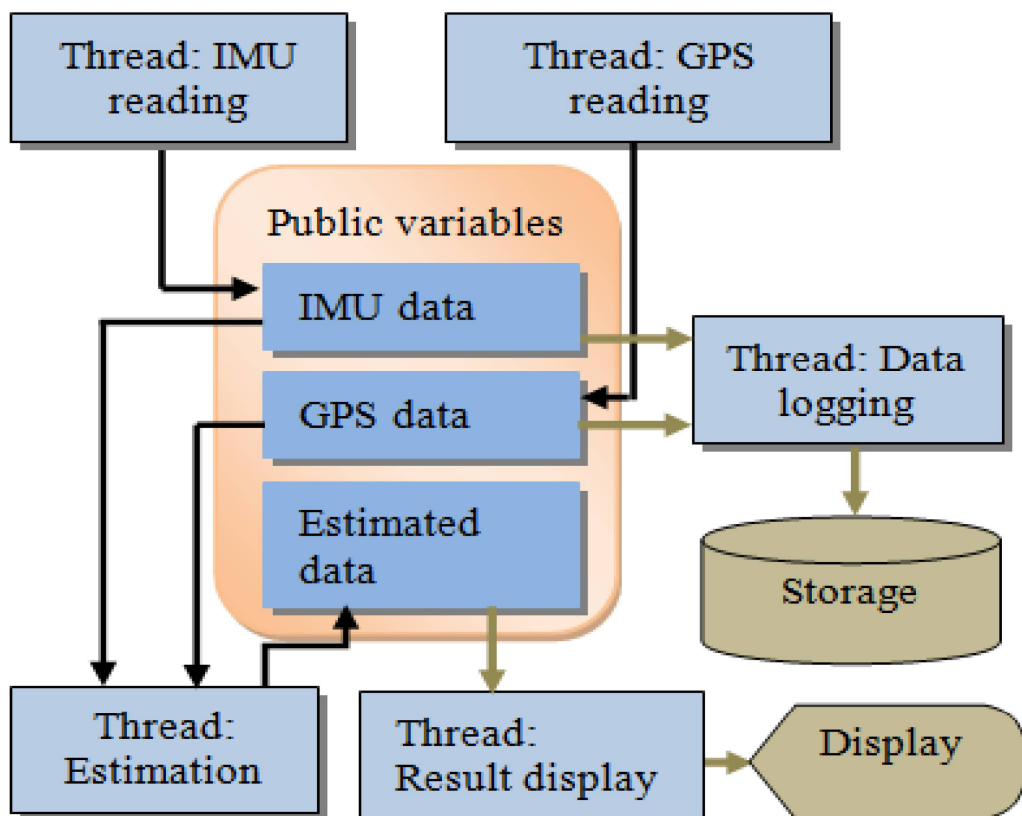


Fig.....Architecture of Hyudway Car Navigation.



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VII. SOFTWARE & HARDWARE REQUIREMENT

- Operating system : Windows 7.....
- Coding Language : Java-script, Android,
- Data Base : Firebase Database, Cloud based DB.
- System : Pentium IV 2.4 GHz.
- Hard Disk : 40 GB.
- Floppy Drive : 1.44 Mb.
- Monitor : 15 VGA Colour.
- Mouse : Logitech.
- Ram : 512 Mb.

VIII. CONCLUSION AND FUTURE WORK

'Hudway'-Car Navigation is currently being used under android mobiles. Considering the current market of mobile phone's we would like to implement it in iOS, windows and other OS to increase the usage of our app and cater to all major mobile phone markets. We are also planning to make our application embedded. Currently we are not using any type of hardware devices except mobile phone. By embedding our application into the hardware devices like (Arduino Chip or Raspberry Pie) we will provide a better interface to our user. By extending our project on hardware scope, we will display navigation sign on the hardware which will be consisting for a bright led screen and a visor which will be adjustable to suit all the transport vehicle like car, bus etc. eliminating the use of smartphone and saving battery for the day of usage. The hardware will also contain gps tracker and will be always ready to serve the user. More likely we will be using different color combination in order to provide a sharp images that will be visible in day lights also and customizable according to user needs. This will eliminate our drawback which is not visible in daylight. Using the hardware we will be able to use the device in bright day light and even in the bright lights of the other vehicle on the opposite lane.

We have investigated realization of navigation guide over Android. The investigation covers basic functions of navigation guide there are functions such showing map, showing POIs on map, showing direction, showing user's location on map and so on. Moreover, I try to integrate current innovation technologies as many as possible to help user navigate with safety, comfort, ease and simplicity. This will help less distraction of user while driving preventing any accidents by a minor percentage helping a world to be a much safer place to drive in.

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