

Vehicle Speed Information

Vani Valsaraj
 Dept of Computer Science Engineer
 Nehru College of Engineering & Research Centre
 Palakkad, India

Abstract:- Road accidents have been very common in the present world with prime cause being careless driving. It is very necessary to identify the careless driver. However, with the advancement in the technology, different governing bodies are demanding some sort of computerized technology to control the driving speed of drivers. At this scenario, we are proposing system to detect vehicle speed been driven the given maximum speed of vehicles the respective roads or highway limits.

Keywords:- *Vehicle Speed, ITS, Accidents, Traffic.*

I. INTRODUCTION

A lot of variables decide the variations in traffic speed. Different region have different speed limits. Also, a dire need to reach the destination on time pushes the drivers to hit the pedal to the metal, whose consequences are speed limit violations. Even though most states have highway access, not all routes are completely well built and have access to highways. Some vehicles have the ability to reach above speed limit, but the driver might not hit the speed in fear of breaking the speed limit.

Over speeding vehicles are major issues for road safety and needs proper addressing to minimize the accidents. Excessive speed is a factor in one third of all fatal crashes. Various causes of road accidents show drivers negligence.

The main objective of my project is to be proactive, it is imperative to get information on traffic that includes any details about speed violations. The government agencies of each state would like to be well informed about traffic information, in order to come up with better solutions to solve traffic problems, which places need better roads and infrastructure. Building a driver profile can help Insurance agencies separate the good drivers from the bad. State motor department can punish or eventually cancel the driver license of regular traffic law offenders.

Exploratory analysis to determine the underlying characteristics of information that is potentially useful. Understanding characteristics of drivers and vehicles. Visualization of filtered data would summarize traffic information addition of interactive visualization such as line graphs, box plots etc.

II. RELATED WORKS

Many research paper have studied and proposed various techniques to detect the vehicle speed information.

The researcher in [1] put toward Intelligent Transportation System (ITS) which become the most popular one. The Yangon Bus System was the example which is used in research paper [1]. In [2], IoT based implementation is done to identify the road accidents. Here smart vehicle over speeding detector developed, Where the system contain Google maps and IoT module.

In [3] the authors show an example of Japan roads and the well-known way to detect the vehicle speed and road accidents in Niigatta Prefecture.

In [4] the researcher vehicle detection is done with the help of video and image processing and computer vision. In [5] the creator depicts the idea of Doppler Effect phenomenon approach and MATLAB which is used for image processing.

III. METHODOLOGY

In order to be proactive, it is imperative to get information on traffic that includes any details about speed violations. The government agencies of each state would like to be well informed about traffic information, in order to come up with better solutions to solve traffic problems, which places need better roads and infrastructure. Building a driver profile can help insurance agencies separate the good driver license of regular traffic law offenders.

Exploratory analysis to determine the underlying characteristics of information that is potentially useful, understanding characteristics of drivers and vehicles. Visualization of filtered data that would summarize traffic information and addition of interactive visualization such as line graph, box plots etc.

A. Tools

- Pandas to handle data frame.
- Csv: to export data frame to csv files.
- Seaborn, Matplotlib to visualize data.
- Pandasql to handle Sql Queries.

B. Data transformation

- New column is added to the data called violation speed.
Violation speed = Speed – Speed limit (miles per hour)
- Other added columns are: new timestamp, weekday, month, day, hour.
- These columns are extracted from the already existing timestamp data, in order to easily push it to the tableau software for data visualization.

C. Driver analysis

- We will find the best and worst drivers according to their average speed limit violations.
- We shall find other patterns like which drivers works most on weekdays and weekends.
- We shall find drivers who take highways the most.
- We shall find the busiest drivers.

IV. CONCLUSION

Tableau Worksheets was successful in finding out interesting trends. Hence the end users were able to make informed decisions Best and worst driver is find out. Traffic authorities can take necessary actions here.

Since this driver hit the road the most, Car insurance agency can keep a note on the state which have maximum number of speed violations and least number of highways, Hence the government can do something about necessary infrastructure development state has maximum average speed limit violations maximum speed violations .

In future work, elucidation for drunk and drive cases solution for emergency vehicle's speed control are detected and the solution for wheel grasp by gravity detector and solution for identifying accidents with the help of impact detectors.

ACKNOWLEDGMENT

I express my deep sense of gratitude and indebtedness to our institute "Nehru College of Engineering and Research center" for supporting me for this research.countless others who provided assistance and advice throughout the project. Finally, I would like to thank each and every one who helped me in the successful completion of this seminar.

REFERNCES

- [1]. T. Kyaw, N. N. Oo and W. Zaw, "Estimating Travel Speed of Yangon Road Network Using GPS Data and Machine Learning Techniques," 2018 15th International Conference on Electrical Engineering/Electronics, Computer, Telecommunications and Information Technology (ECTI-CON), Chiang Rai, Thailand, 2018, pp. 102-105, doi: 10.1109/ECTICon.2018.8619908.
- [2]. M. A. Khan and S. F. Khan, "IoT based framework for Vehicle Over-speed detection," 2018 1st International Conference on Computer Applications & Information Security (ICCAIS), Riyadh, 2018, pp. 1-4, doi: 10.1109/CAIS.2018.8441951.

- [3]. T. Yamazaki, "Analysis of Traffic Accident Occurrence in Niigata Prefecture of Japan using Open Data," 2019 IEEE International Symposium on Circuits and Systems (ISCAS), Sapporo, Japan, 2019, pp. 1-4, doi: 10.1109/ISCAS.2019.8702202.
- [4]. M. R. Haque, M. G. Moazzam, S. Islam, R. Das and M. S. Uddin, "Vehicle speed determination from video streams using image processing," 2016 International Workshop on Computational Intelligence (IWCI), Dhaka, 2016, pp. 252-255, doi: 10.1109/IWCI.2016.7860375.
- [5]. S. M. Malik, M. A. Iqbal, Z. Hassan, T. Tauqeer, R. Hafiz and U. Nasir, "Automated over speeding detection and reporting system," 2014 16th International Power Electronics and Motion Control Conference and Exposition, Antalya, 2014, pp. 1104-1109, doi: 10.1109/EPEPEMC.2014.6980657.