

An Efficient Analysis of Road Accident using Text Mining

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Abstract:- There is nothing more valuable than a human life in the world. Road accidents has killed more people than anything else in the world. There are millions of people being killed by road accidents around the world every year. In this dissertation work, the focus is on the causes of road accidents as to what are the reasons that cause these dreadful accidents and how can we lead to a solution which can be limit or minimize these accidents. In this work, we have taken thousands of road accidents records which will be useful to understanding the major causes of road accidents and how those accidents can be resolved. There are various cause because of which the accidents are caused. From Overspeeding to Drink and Drive, we have tried to cover all the causes which are somehow involved in road accidents. To understand the patterns of road accidents we need Data and to gain some useful information from Datasets there is a concept called as Data Mining.

Keywords— Facial Expression Recognition (FER), multimodal sensor data, emotional expression recognition, spontaneous expression, real-world conditions

I. INTRODUCTION

This dissertation work is based on Data Mining domain. In Data mining, the large amount of dataset is taken (more than 5 years, 10 years of data) and we try to uncover some useful and hidden information from the data is made free from noise. This process is called as pre-processing of the data. Now the data is free from all the inconsistencies. Next step is to transform data into a common format which makes it an appropriate form for applying data analytics and data mining. After this step, we apply different data mining techniques such as Classification, Clustering and Rule Association Mining to extract hidden and useful information from the huge dataset. Once we have the hidden information, we can visualize the same using Pie-chart, Bar-chart, etc. The whole process is also termed as Knowledge Discovery.

The main objective of this application is to provide a solution for accident detection and prevention of human life safety. The application has been divided into four modules based on functionalities.

The module is designed to build up an integrated system to cover various aspects of android based Automatic vehicle Accident Detection by Using Android application. The application is designed using Road Accident Using Text Mining.

II. LITERATURE REVIEW

The authors have performed an analysis on road accidents in India. Different classification algorithms have been applied on Open Government dataset to classify accident causes into different classes. The limitation in this work is that no Training has been provided to the system where it can make predictions with any new dataset.

The authors have performed research work on causes of road accident.

No training or testing has been done on real time data. Causes Support Model have been applied to understand causes of road accidents. There are different classification algorithms such as K-NN, Naive Bayes, which are not been applied to understand the real causes of accidents. No performance parameters have been applied to check how well and correct the system is performing.

In this work, the authors have done a research work on road accidents using different data mining techniques. Only survey has been done and no implementation has been performed using any data mining tool. K-means Clustering has been applied to cluster different causes of accidents. No real time data has been used. Also, the accuracy achieved is low.

In this paper, the authors have applied correlation analysis and exploratory visualization techniques to understand the causes of road accidents in Rajasthan State of India. In this paper, only clustering has been applied and no real causes has been uncovered for road accidents. The authors have focused on the type of road in State highways and districts which have been concluded to be in bad condition and

being the causes for road accidents in state. There have been no performance measures taken in this research work.

III. ANALYSIS AND DESIGN OF THE APPLICATION

A. EXISTING WORK

Using appropriate system methods to improve safety measures is a remarkable challenge, particularly when the sum of existing records often increases. From the present circumstance, you can choose some existing studies that mainly address local traffic accident data. Iraq is one of the nations with high traffic accident deaths and casualties. In the past 3 years, traffic accidents in Iraq resulted in an average of 24,000 deaths per day (three people per hour), and about 240,000 people were injured every year. This fact prompted a group of writers to classify the most noteworthy affecting the severity of driver injury in these road traffic accidents. Not able to detect the accident, so we can't able to save the people quickly. Death rate might increase because of no technique to detect the accident. Village area and remote area people are heavily affected.

B. Proposed Work:

The proposed model for accident zone detection system can prove to be an important aid in constructing smart transport systems in near future if implemented properly. Also the system can be used by the owners of the transport companies etc to monitor the accident location using the web app. These features can also help in case of vehicle theft etc.

It can also overcome the issue of lack of automated system for the detection of the site of accident. It is very useful to avoid the accident easily.

C. Advantages:

- Easily find the accident location with the help of Data Mining
- Treatment also get early, so we can save the lives as possible as soon.

IV. SYSTEM IMPLEMENTATION

A. User: User can view the accident zone by giving the travel location. If the user give the travel route, I.e. source place and destination place, the system shows the accident zone between source and destination places.

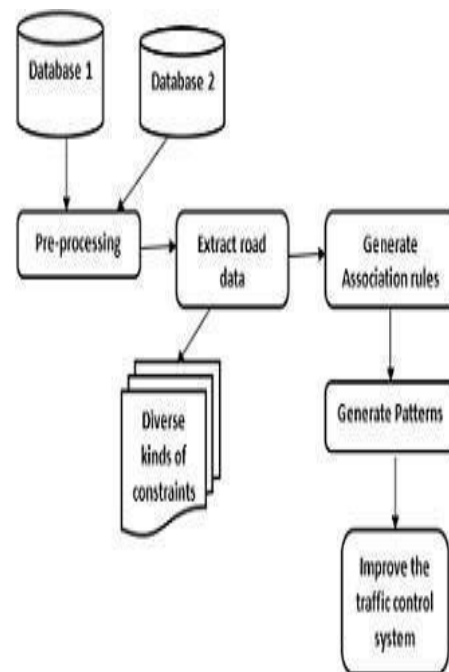
B. Admin: Admin can handle the over all process of this application, through this module, the admin can add the locations. The admin can input the data sets, that means, admin can add the accidents details by giving the route details and accident happened place.

C. Generate Accident Report: In this module the admin can generate the accident report. Those reports are categorized by accident zone and dangerous zone. Accident zone is a place of accidents happens few time and few deaths and injure. Dangerous zone is a place of accident happens many times and many deaths and injures.

D. Characteristics of Accident Report: The Characteristics of accident reports are categorized by accident zone and dangerous zone. Accident zone is a place of accidents happens few time and few deaths and injure. Dangerous zone is a place of accident happens many times and many deaths and injures.

E. Stored in databases: All data are stored in the data base previously.

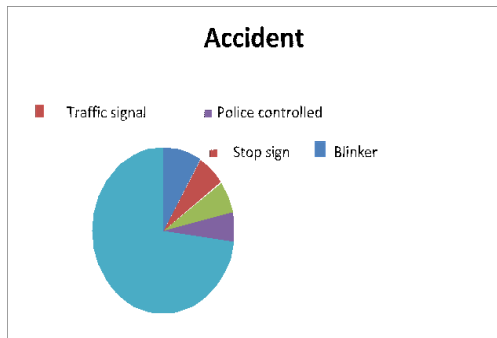
V. ARCHITECTURE DESIGN



VI. RESULT & DISCUSSION

It can be seen that the largest number of accidents occurred in uncontrolled areas, causing 128,263 accidents in traffic control police control areas, and the number of reported accidents was 1,66,158.

The below figure shows the pie chart of the accidents in the urban as well as rural area where the road is controlled by traffic or police.



Accidents in controlled area

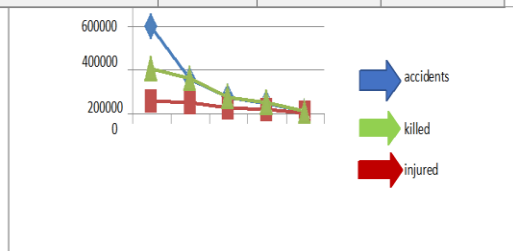
VII. CONCLUSION

From the statistical results, it can be seen that the rural mortality rate is higher, while the city is lower. Statistical analysis also includes other limiting factors such as the age of the vehicle, the type of vehicle, the age group of the person, and the category of road users. The predicted data results are displayed in a graphical representation. Graphical representations help the public understand accident metrics that help reduce mortality.

Accidents based on the Age of Vehicles

The below table and the corresponding figure shows the data regarding the age of vehicles involved in the accidents. During the year, fewer than five-year-old vehicles had the highest number of accidents in the country (3,94,198), of which 56,329 were dead and 2,030,042 were injured.

Age of vehicle	Accidents	Killed	injured
Less than 5 years	394198	56329	203042
5-10 years	137370	49536	160642
10-15 years	74149	23775	72982
15 years & above	45358	17073	47391
Age not known	10598	3921	10238



Graphical representation of age of vehicles

Persons killed in Road Accidents in terms of Road User Categories:

The road is used by two categories namely vulnerable road users who are largely unprotected like pedestrian bicycle riders and two wheeler riders. The second category are the drivers.

The above table and the figure shows that the major causality is affected to the vulnerable road users since they are the one who are more exposed. They have the highest tendency towards accidents.

Accident on based on Type of vehicle

Road Users	No of persons killed
Pedestrian	15746
Bicycles	2585
Two wheelers	52500
Auto rickshaws	7150
Cars, taxis, vans, bus	26923

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