**Road Accident Analysis**

**Abstract**

Road traffic accidents are one among the world's leading causes of injuries and fatalities and hence represent an important field of research towards the use of traffic accident analysis and prediction techniques and the determination of the most key factors contributing to road traffic accidents. This paper aims to provide an overview of road accident data sources, data analysis techniques, various algorithms used to build road accident forecasts, and also their suitability to the types of data being examined with the ease of interpretation. The paper also summarizes the operational problems of road traffic, identifies the risk factors, the efficacy of road safety measures when they contribute to the statistical analysis of the severity of motor vehicle accidents and offers an assessment of future methodological approaches. In this review, different gaps in the road traffic accident area were found and further fields of research have been mentioned.

## Introduction

As a result of Road Traffic Accidents around the world, the lives of about 1.35 million people are cut short annually. About 20 to 50 million people experience nonfatal injuries due to these accidents and many are disabled permanently. Road traffic accidents are causing significant economic impacts on victims, thereby to the whole nation, by costing around 3% loss of the gross domestic product. Thus, traffic accident has emerged as a topic of discussion and analyzing traffic accident data, becoming a major concern for researchers in search of coherent methods for road accidents forecasting. The main aim of accident data analysis is to identify the factors affecting road traffic accident occurrences, thus mitigate the main issues in the area of road safety. The effectiveness of accident prevention methods depends mostly on the genuineness of the gathered and estimated data and the suitability of the analysis methods.

The statistical methods which are used to conduct the research study will give valid and reliable results if the researcher knows the basic concepts of it. Various statistical methods will have their unique assumptions when analysing the accident data in different studies. So, to decide the appropriate method, their assumptions should be taken into account. Also, the selection of wrong statistical methods may lead to invalid conclusions of road accident analysis. This indicates for getting the proper insight into the traffic problems, interpretations of accident data analysis results are crucial. Thus, sufficient understanding of statistical tools/methods is also very significant in creating quality research in road accident data analysis. Sometimes it may be difficult for the researchers to find the appropriate statistical methods to be implemented while considering the given set of accident data as well as the objectives of the study.

## Road accident data sources

There are several road accident data sources and an essential one is the data from the Government agencies. Here the data indexes are produced, gathered and made accessible to the public by government authorities. The police department, traffic department and traffic policy-making agencies include the Government agencies. The data collection is done through First Information Reports of Police dept., General Insurance company databases and Hospital records etc.

**Steps In Project**

* Requirement Gathering
* Stakeholder in Project
* Raw Data Overview
* Connecting Data with Power BI
* Data Cleaning
* Data Pre-processing
* Data Modelling
* Background Design in Power Point
* Data Visualization
* Dashboard Reporting
* Gathering Insights
* Publishing
* Export (optional)

**Requirement**

Clients wants to create a Road Accident Dashboard for year 2021 and 2022 so that they can 5.8K have insight on the below requirements:

* Primary KPI: Total Casualties and Total Accident values for Current Year and YoY growth.
* Primary KPI: Total Casualties by Accident Severity for Current Year and YoY growth.
* Secondary KPI: Total Casualties with respect to vehicle type for Current Year.
* Monthly trend showing comparison of casualties for Current Year and Previous Year.
* Casualties by Road Type for Current year.
* Current Year Casualties by Area/ Location & by Day/Night.
* Total Casualties and Total Accidents by Location.

**Stakeholders**

* Ministry of Transport
* Road Transport Department
* Police Force
* Emergency Services Department
* Road Safety Corps
* Transport Operators
* Traffic Management Agencies
* Public
* Media