

ROAD ACCIDENT PREDICTION SYSTEM USING MACHINE LEARNING

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Abstract

Road accidents has constantly been one of the leading causes of dead and injury around the world, claiming numerous lives each year. The knowledge the driver has about their surroundings at the given time is invaluable to prevent disastrous road accidents. By providing the drivers information regarding the current danger level, allows them to make better decisions. Currently the system used to deliver information about accident-prone locations is through billboards. The research will focus on a software-based approach to tackle the said problem.

The system utilizes the current live information regarding the vehicle, weather conditions as well as other aspects related to vehicle collisions and prior collected data of road accidents to develop a warning system to the user. Spatial data analysis was carried out using Kernel Density Estimation method to identify potential road accident hot spots. Several machine learning algorithms were fitted and evaluated using relevant statistical approaches to be used in the system. A mobile application was developed to be used by the consumers as well. The system was tested and evaluated and found to deliver the necessary performance required. The system will have a positive impact in the domain of road safety to ease the lives of drivers and pedestrians alike.

Keywords: Machine Learning
 Spatial Data Analysis
 Statistical Analysis
 Accident Prediction
 Hot spot Analysis