ML Proposal for Fuel conservation and economical driving.

Introduction

In recent years, fuel prices have increased multiple times, causing a huge demand for fuel conservation techniques for the daily commuter using personal transportation. This has led to huge potential in the automotive industry adopting Artificial Intelligence/Machine Learning to innovate new technologies to help conserve fuel consumption and therefore reduce increased spending of resources by the common man on petrol, diesel etc. Also this technology has come in handy due to rising temperatures and global warming around the world. Thereby serving the idea of economic sustainability, environmental conservation and fossil fuel conservation.

Idea

To engineer and develop a automated driving assistance system powered by machine learning aimed at optimizing fuel consumption and promoting economical driving behavior.

Objective

To develop real time monitoring system that tracks the daily consumption of fuel by the driver and also keeps track of vehicle performance metrics such as speed, acceleration and engine load. It will also consider the vehicle payload, i.e the number of passengers or luggage the vehicle can sustain to attain economic sustainability.

To implement ML algorithms that will suggest an efficient driving pattern to ensure safe and economic driving.

To analyze the driving patterns of other commuters, as well as use the satellite tracking system to monitor real time traffic on the road and to suggest and efficient speed to make sure efficient driving is enabled as well the driver’s arrival at the destination is achieved at a timely pace.

To create user-friendly interface via mobile application or dashboard display to employ suggestions.

Components:

Collect vehicle telemetry data using onboard sensors or third-party devices capable of capturing relevant driving parameters.

Augment the dataset with additional contextual information such as road conditions, traffic density, and weather conditions.

Employ supervised learning techniques to analyze historical driving data and identify patterns associated with fuel-efficient driving behavior.

Extract features such as speed variation, acceleration/deceleration rates, and engine load to characterize driving styles.