Project Abstract

A REAL TIME EVENT MONITORING SYSTEM USING SPARK STREAMING

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OVERVIEW

Event Monitoring is the process of collecting, analyzing, and signaling event occurrences to subscribers such as operating system processes, active database rules as well as human operators. An event monitoring system helps us in achieving these operations. These event occurrences may stem from arbitrary sources in both software or hardware such as operating system, database management systems, application softwares and processors.

PROBLEM STATEMENT

The number of road accidents has increased considerably since last decade with an yearly increase in number of deaths and injuries. Some of these deaths can be attributed to the long response time required to reach an accident. This is due to the fact that the process of determining the location of an accident made by a communication between a person in the accident or a person near the accident and an emergency personnel as well as sending the nearest emergency service and/or police officers needed for reporting the accident can be quite lengthy. Moreover, the persons in a given accident may need an urgent treatment and the delay in response time can increase the severity of the accident.

The main objective of this project is to reduce the time required to report an accident and to determine its location more precisely. This will reduce the time required for the police and the emergency personnel to reach the accident location. The proposed idea will make the location identification automatic and hence will be more precise and take less time.

PROJECT DESCRIPTION

Sensors are attached to vehicles which send a continuous stream of real-time data containing relevant information about the position and speed of the corresponding vehicle. The underlying algorithm will look for certain anomalies in data such as a sudden drop in the speed of vehicle to predict a potential case of accident corresponding to which an event will be triggered which will send a notification to the nearby traffic officer and hospital for a potential accident scenario. In addition we can also monitor the speed of the vehicle and we can notify the driver to slow down the pace of his vehicle. We are using Spark's streaming technology for this purpose.

GOALS OF PROJECT

The project addresses the following goals:

- Monitoring real-time GPS data to identify possible accidents.
- Monitoring sensor data for keeping a check on speed limits.
- Triggering an event in case of anomaly or potential accident.

Spark streaming is used to handle real time data input from vehicular sensors.

TARGET USERS

- Traffic police who will be constantly monitoring the system for accidents and speed limit alerts.
- The emergency personnel/Hospitals to reach the accident location.

TECHNICAL REQUIREMENTS

1. Python
2. Spark Streaming
3. HTML for user interface.
4. Google Maps/Open Street Maps integration