September 19, 2017

Automated Capturing And Reporting Of Real World Data From Autonomous/Automated Vehicles

Matt Ruhstaller

Phillip Ames

Follow this and additional works at: http://www.tdcommons.org/dpubs_series

AUTOMATED CAPTURING AND REPORTING OF REAL WORLD DATA FROM AUTONOMOUS/AUTOMATED VEHICLES

ABSTRACT

A system and method are disclosed that automatically captures and reports real world data from autonomous/automated vehicles. The system includes sensors such as camera, GPS, microphone, accelerometer etc. that provide real-world tracking features in an automobile. The system may report the data to a reporting station to act on the reported data for a wide variety of applications. Cameras may detect billboards on a given route, which may provide information on ad impressions in the real world to ad buyers. The system might detect a pothole and relay its location, dimensions etc. to local authority who may take action to remove the hazard. The system may report a collision between other vehicles to ensure that emergency responders are notified. The system for automated capturing and reporting of real world data from autonomous/automated vehicles may provide feedback to businesses about the reach of their advertising or improve road safety.

BACKGROUND

Currently, autonomous vehicles collect information related to route, speed, objects around them and the like. But the implementation of various sensor data collected to prevent the hazards and method to warn other vehicles are not available.

DESCRIPTION

A system and method are disclosed that automatically captures and reports real world data from autonomous/automated vehicles. The system includes sensors that provide real-world tracking features in an automobile as shown in FIG. 1 that are configured to interact with various reporting stations that act on the reported data. The sensors may be a camera, a GPS, a
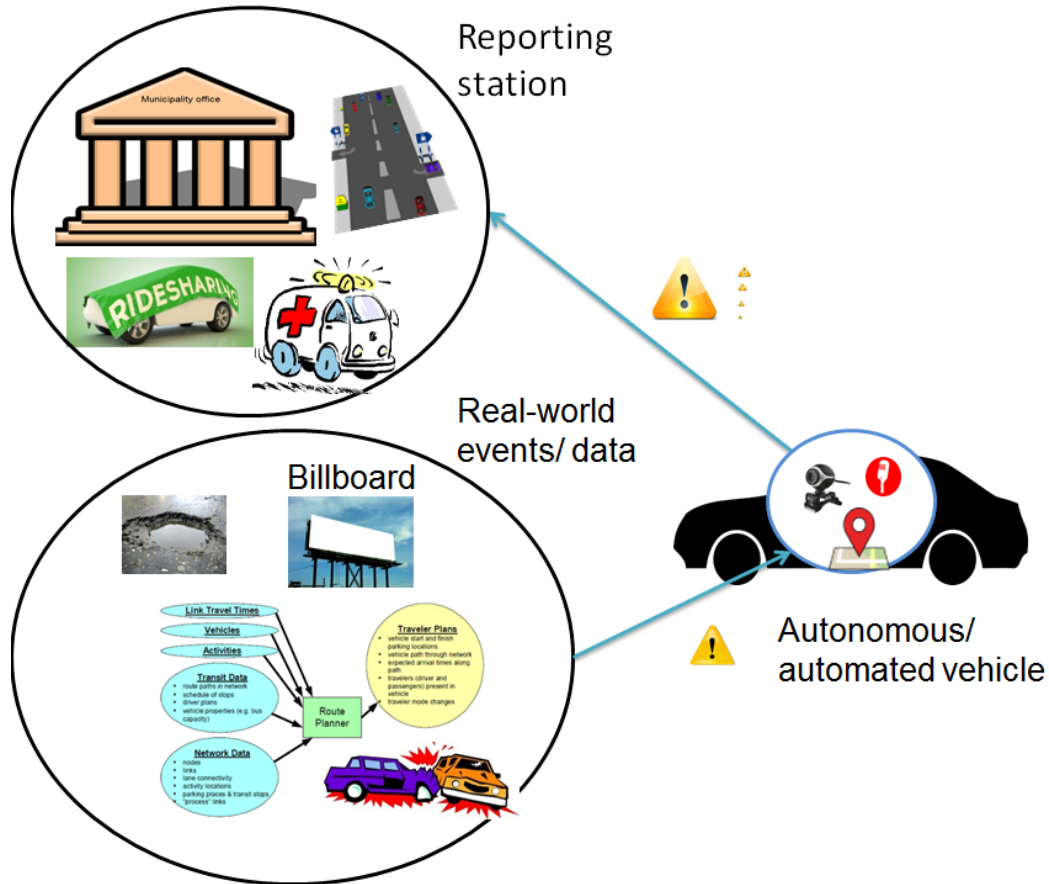
microphone, an accelerometer and the like.

FIG. 1: System for capturing and reporting of real world data from autonomous/automated

vehicles

The system collects data about the route, road conditions, hazards, and potential ad impressions from billboards or radio ads along the driven route. The system may use this information for a wide variety of applications.

The system may also use the information for advertisement purposes. For example, cameras on the car may detect billboards on a given route, which may provide information on ad impressions in the real world to the ad buyers. This information may be used to provide a "sponsored route", which may allow a ridesharing service to discount the cost of the ride in exchange for more real world ad impressions.

Microphones may detect radio ads that are played for purposes of impression tracking. Microphones may also detect (with permission of the user) conversations, and make suggestions to routes or destinations to the user.

Further, the system may find application in road safety, as demonstrated in the next few cases. The vehicle may be on a bad road where the system detects a pothole. Information as to location may be collected from the GPS, visual information of pothole dimensions may be collected from cameras, accelerometers, etc. The system may also utilize the data collected to inform other autonomous vehicles or route suggestion systems to caution other users. The system may report to the local municipal authority about the pothole and include detailed information about the hazard such as size, height, depth etc. The system may also measure behavior of other vehicles that may swerve to avoid the hazard. This informs the end user of the data of the severity of the problem, and may prevent accidents.

For instance, if a lane marking has faded, both autonomous and human drivers may find it difficult to determine the lane they are using. The system detects the location of such deviations and also informs other vehicles.

As another example, when a collision between other vehicles has been identified, the system ensures that emergency responders are notified about the occurrence of the accident so that they may begin the response procedures.

Road hazards contribute significantly to vehicle accidents and are dangerous. The system for automated capturing and reporting of real world data from autonomous/automated vehicles ensures road safety in general.