

# **Mobile Traffic Sensing Approaches for Smart City**

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## **Abstract**

Traffic information is essential for traffic control, route planning, and policy-making in a smart city. Real-time traffic information such as average speed, vehicle density, and flow rate helps motorists choose a route wisely. Currently, most traffic information systems rely on a fixed sensing approach, where the traffic data are collected from fixed sensors such as inductive loop detectors and surveillance cameras. However, installing sensors in such a system usually takes a great deal of time and effort. In addition, it is extremely costly to install fixed sensors to cover a large area (e.g., city-wide coverage). Due to these limitations, a mobile sensing approach, where vehicles act as mobile sensors and collect traffic data as they travel, is much more appealing. Modern smartphones are equipped with a variety of sensors such as global positioning system (GPS) receivers, accelerometers, gyroscopes, cameras, and microphones. These sensors may be exploited to collect real-time traffic data. More importantly, smartphones are adopted by a large number of users. Therefore, any person with a smartphone can easily turn their vehicle into a mobile traffic sensor. In this talk, we will discuss various ideas on how to use the built-in sensors available on off-the-shelf mobile devices for sensing and acquiring traffic information.