

## Abstract

Collaborative Traffic Monitoring (CTM) systems exploit the location information continuously collected from cars. Users collaborate by providing their location information to have a global picture of the current traffic in real-time. However, location is very sensitive information. Therefore, privacy is a major obstacle for the widespread usage of CTM systems. In this paper, we present our position for a novel system addressing the security and especially privacy problems of CTM systems. Existing CTM solutions generally use two different methodologies. The first one is the dedicated infrastructure approach, also called VANETs (Vehicular Ad Hoc Networks), where a dedicated infrastructure for communication is deployed. The second methodology utilizes existing wireless networks, such as GSM, GPRS, EDGE, UMTS and Wi-Fi. Our P<sup>2</sup>-CTM (Privacy Preserving CTM) approach combines the best parts of these two existing approaches. In order to address the privacy challenge in CTM systems, we propose a privacy preserving location update mechanism that meets the requirements of both traffic monitoring and map generation. A privacy metric is adopted to evaluate the location update mechanism. We also discuss the performance issues regarding the location update mechanism. We aim to have a sound indication for our system from the points of view of privacy, security and performance.