

RoadMonitor: An intelligent road surface condition monitoring system

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Abstract. Well maintained road network is an essential requirement for the safety and consistency of vehicles moving on that road and the wellbeing of people in those vehicles. On the other hand, guaranteeing an adequate maintenance by road managers can be achieved via having sufficient and accurate information concerning road infrastructure quality that can be as well utilized concurrently by the widespread means of users' mobile devices both locally and worldwide. This article proposes a road condition monitoring framework that detects the road anomalies such as speed bumps. In the proposed approach, the main indicator for road anomalies is the accelerometer sensor in addition to the gyroscope around gravity rotation as a cross-validation method to confirm the detection results that were gathered from the accelerometer.

Keywords: Road monitoring; Smartphone; Wireless Sensor Network; Accelerometer; Speed bumps; Path holes