A novel method of automatic vehicle detection based on active magnetic theory

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Abstract: This paper presents a novel method of automatic vehicle detection based on active magnetic theory to provide traffic information and inform drivers making better route decisions. The active magnetic detector contains an emission antenna and a receiver sensor. The emission antenna radiates AC magnetic field continuously. When a vehicle body moves over the detector, eddy current is formed in the vehicle body and the eddy current generates eddy magnetic field, then the magnetic field around the receiver sensor is changed. The detector confirms a vehicle body by measuring whether the magnetic field around is changed or not. The method can detect cars at a rate of 96%. Especially, the baseline drift problem which always appears in geomagnetic vehicle detector has been solved by using adaptive baseline updating method in this paper.

Author Keywords: Active magnetic theory; Adaptive baseline updating; Automatic vehicle detection; Eddy magnetc field

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