Assessment of particle filter and Kalman filter for estimating velocity using odometery system

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Purpose - The purpose of this paper is to propose multisensory integration for train positioning application, to support recent automatic train control systems and also moving block signaling systems. Design/methodology/approach - Reducing the cost and at the same time improving the reliability and accuracy of the overall positioning system, are primary goals of the researches going on in this field. Findings - This paper designs and evaluates two different algorithms of Kalman filtering (KF) and particle filtering (PF), on a set of low cost positioning systems, as tachometers, Doppler radar and balises. Originality/value - This paper's research outcomes introduce considerable improvements upon the results when compared to the current utilization of the stand-alone tachometer and Doppler radar sensors, and slight improvements in comparison with the KF algorithm, and also upon results in recent publications on the subject