

Rover car outdoor localization for navigation tracking using differential global positioning system estimation

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ABSTRACT

GPS is a technique that has become very popular for outdoor positioning. Due to the error in satellite signal, the GPS receivers determine the accuracy of a current location with about 100 m in latitude and 156 m in longitude. Autonomous vehicles depend on positioning accuracy in navigation tracking. Inaccuracy of positioning will cause the autonomous vehicles moving in dangerous way. So in this paper, Differential Global Positioning System (DGPS) experiment will be introduced to improve the accuracy of the positioning data. In the experiment, reference station and rover station will receive the positioning data from GPS satellites and the positioning data collected from reference station will be used to calculate the errors and the errors correction will then be transferred to rover station to improve the accuracy of positioning data. The results obtained will be discussed based on the range and average of positioning errors and the Differential Global Positioning System (DGPS) improvement at different time.

KEYWORDS

GPS; DGPS; Autonomous; Localisation; Navigation; Tracking

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