

The Data Alignment Method between GPS and IMU based on ICP for Indoor Positioning

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Abstract— We propose a method to align IMU data with GPS data to measure precise data indoors. While GPS can provide absolute coordinates, it has problems with signal strength reduction and measurement failure in indoor environments. Compared to GPS, IMU data offers high precision and less location constraint. In contrast, it does not have absolute coordinates, and cumulative errors can occur. Measurement of absolute coordinate in indoor can demand in various fields such as factories, and related research has been studied. Previously, combining GPS and IMU data was commonly used to complement real-time errors. In this paper, we propose a method that aligns IMU data with outdoor GPS data to measure indoor absolute coordinates. Simulation results confirm the successful alignment of these two datasets.

Keyword— IoT, Positioning, Communication, Location Estimation, Database



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