

## **Abstract**

This study mainly aims to find accurate directions in indoor environments by combining smartphone acceleration readings with WiFi received signal strength (RSS) readings. Patterns of user movement serve as the basis of this approach. These patterns are effectively utilized to detect user direction on the basis of the correlation between the RSS and acceleration values. A series of experiments was conducted to test the proposed approach. The proposed approach achieves 95% accuracy and thus shows great potential as a practical solution for estimating directions in indoor environments.

Keywords: acceleration, received signal strength, line of sight, non-line of sight, direction.

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