

# Android-based Navigation System for Elderly People in Hospital

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**Abstract—** With the increase in the number of elderly people, a guidance system that can be used for medical examination in hospitals becomes to attract attention. As a position estimation technology for indoor guidance, a Wi-Fi positioning system has been studied. However, Wi-Fi radio waves are not available in the hospitals because that affect operations of medical equipment. In this paper, we propose a new realtime indoor guidance system using Personal Handy-phone System (PHS) and Android device for visitors in hospitals. Our proposed system utilizes a combination of Received Signal Strength Indication (RSSI) of PHS and Dead Reckoning based on sensors of an Android device in order to estimate a user's indoor position without affecting operation of medical equipment. Through the experimental evaluation, we have clarified that the proposed system has successfully guided subjects to the destinations with accuracy of 93.3[%].

**Keyword—** Indoor Position Estimation, PHS, RSSI, Dead Reckoning, Android



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