

Title: Marker Free Visual Indoor Navigation System

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Abstract: We cannot use GPS for indoor navigation because of the unreachability of GPS satellite signals in indoor environments such as airports, hospitals, and shopping malls. We realize that it is worthwhile to develop an indoor navigation system that would not have dependencies on any kind of marker and GPS signal. As of now, various solutions such as infrared, ultrasound, Wi-Fi, Radio Frequency Identification, Low Energy Bluetooth beacons, and Marker based Indoor Navigation the system has been proposed for the same but all these methods require additional hardware installation that makes it expensive and difficult to scalable. In this thesis, we propose and implement the Marker free indoor navigation system that does not require any additional hardware installation that makes it cost-effective and easy to install in the indoor scenario.

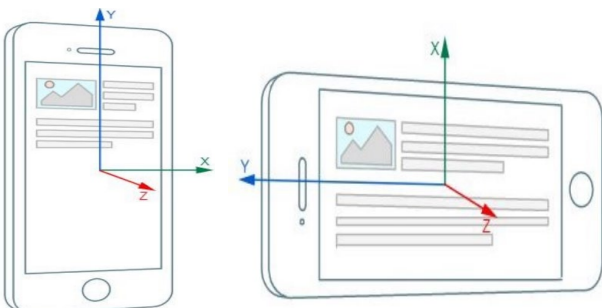


FIGURE 3.1: Default Orientation of Smartphone

FIGURE 3.2: Other Orientation of Smartphone



FIGURE 3.4: Hyper IMU Main Interface

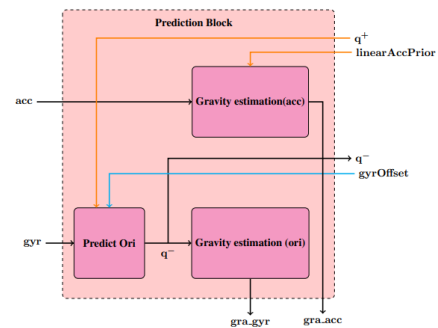


FIGURE 3.13: Expansion of Prediction Block

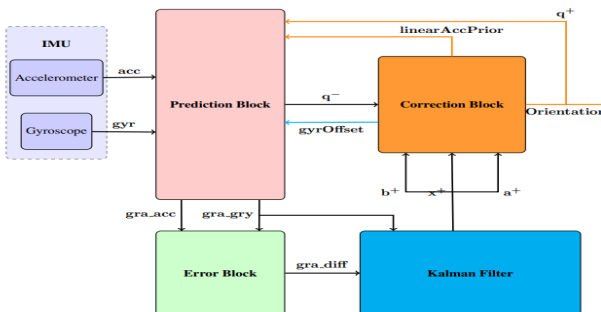


FIGURE 3.12: Block diagram of Orientation Estimation

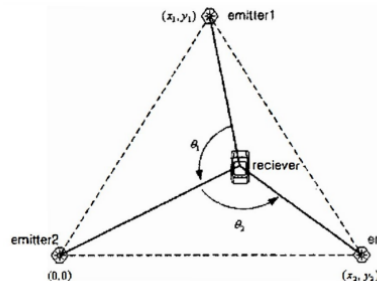


FIGURE 2.1: Proposed Infrared Positioning System



FIGURE 5.4: Setup for Video Recording

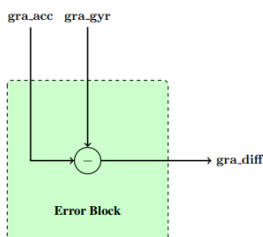


FIGURE 3.14: Error Block in Detail



FIGURE 5.1: TimeStamp Camera App Logo [3]



FIGURE 5.3: Real Time Stamp on a frame