

Intelligent Navigation and Voice Control System Design

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Abstract

This research was to make an intelligent car navigation and voice control system, which was obtained by using a Digital-Signal-Processor (DSP) TMS320C6711 and applying Kalman Filter technology to integrate Inertia Navigation System (INS), Global Positioning System (GPS), and Geographic Information System (GIS), Global Satellites for Mobile Communication System (GSM) as well as a voice recognition and control module. The intelligent system can preserve the advantages as well as avoid the disadvantages of both systems. The lost tracking conditions of GPS were also performed, the results showed that the longer the GPS locked, the better the errors of INS were calibrated. In addition, we also developed a voice-recognition and control module, and applied two DC motors to drive vehicle shafts and linkage structures for direction and movement control; such that the car can be controlled by the proposed embedded intelligent system with voice command.

Keyword : Integrated GPS/INS/GIS/GSM/DSP system, Kalman filtering, smart voice control system