

RFID-Based Intelligent Books Shelving System

Authors(s): Thein Moe Win, MJE Salami, Wahyudi Martono

Abstract

Searching and sorting misplaced books is a difficult task often carried out by the library personnel. Quite often, librarians are busy with searching misplaced books which are left in wrong locations by library users. It is quite difficult and almost impractical to place back all books to their assigned locations daily. To overcome this, radio frequency identification (RFID) based Intelligent shelving system has been proposed to provide an efficient mechanism of books management monitoring through wireless communication between the RFID reader and the books. It is quite essential for the proposed system to have a smooth motion for the RFID reader during the shelving operation; otherwise acquired data will have no value due to inconsistency in reading the tags. Consequently, in this paper, the performance of RFID reader motion and tags data management such as retrieving information, matching with database, sorting out the order and displaying the status of books locations are discussed. A prototype consisting of monitoring PC with embedded controller, two dc motors with drivers, RFID reader and aluminum frame stick on rack have been developed. The performance of the proposed system has been investigated and found to be satisfactory. And it has a lot of potential applications, especially in its ability to alleviate the intensive labors and efforts in shelving cbooks.

Keywords: Intelligent systems, Books, Radiofrequency identification, Sorting, Libraries, Monitoring, Personnel, Radio spectrum management, Wireless communication, Information retrieval

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