307/C

RFID handheld reader for library use

L T Sendanayake and H Pasqual*
Department of Electrical and Computer Engineering, The Open University of Sri Lanka, Nugegoda

Nowadays most of the libraries in Sri Lanka use barcode systems to maintain management functions such as sorting, checking in and checking out of books. It is commonly adopted not only in Sri Lanka but also in many other countries. Though barcode systems have advantages like low cost and reliability, they involve some disadvantages as well; e.g. inability to change data after entering, limited data, can only be read one by one, not many at once.

In some instances even when a book is out of the particular bookshelf, the library system shows that the book is already available. Thus the barcode technique is difficult to be adopted for this type of situation in finding missing books. Moreover, use of printed tags to search books requires more time as it is necessary to check each shelf manually. If there is a technology better than barcodes and printed tags to avoid this difficulty, then it would greatly improve the efficiency of the library management. This design addresses the above issue and proposes a RFID handheld reader with which it would be easy to find the position of a book when it is placed in the wrong shelf.

This design involves a RFID reader module, RFID tags and a LCD with a microprocessor. According to the design the serial numbers of the tags are stored in the microprocessor's inbuilt memory as this is a prototype and easily adopted for a small library. The selected MFRC522 RFID Reader module operates at 13.56MHz and is based on ISO 14443. This standard RFID module is activated by sending commands using PIC 16F877A, and then only does it transmit data to the tag and collect data from the tag. RFID tag MIFARE_S50 - 13.56MHz is the sensor attached to books which contain a serial number. The serial numbers are read using Rfid_elechouse software and stored in the program memory to compare when the books are being checked. If there is a book which does not belong to the selected row, it is displayed on the LCD with the correct row number and book number and at the same time an indicator LED is flashed. This system is a handy tool for managing small scale library systems.

hemalipasqual47@gmail.com Tel: 0718138832