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## THESIS TITLE:

### RFID SENSOR BASED SERVICE FOR HYPERMARKETS IN JAKARTA: AN IMPLEMENTATION OF IN-STORE STOCK MANAGEMENT SYSTEM USING OMNIKEY CARDMAN 5321

**Herman Yosef Wibowo 0900827660**

**Abstract**

**Objectives.** In-store stock item is the main asset for hypermarkets. It is important to maintain the stock level for every item in the aisles to prevent out of stock. The process to count the current stock level in the store can be done electronically using RFID technology, so that the store staff does not have to manually count the items. This thesis objective is to design such system and develop a prototype using Omnikey CardMan 5321 RFID reader.
**Method.** To do this thesis, the author use research study and develop prototype. The author conducts research on RFID technology and design system that can support the business requirement. Furthermore, Omnikey CardMan 5321 RFD reader is utilized by the author to support prototype that will be developed by the author.
**Result.** RFID can automate item detection in hypermarket from distant place. This can be done by equipping the store aisles with RFID reader and attach RFID tag to the items. The reader will detect the tag and identify the item automatically. The prototype already support the system design, unfortunately the reader cannot support its full functionality. The reader cannot perform multiread, thus the prototype cannot show the advantage of RFID based system compared to barcode based system. Omnikey CardMan 5321 is unsuitable for the prototype because it can only detect one tag at a time. Furthermore, the antenna is not strong enough, resulting reading area of only 2-4 cm away from the reader.
**Conclusion.** RFID technology is safe and reliable to maintain in-store stock level. The RFID system performance depends greatly on the reader and the tag. If the reader cannot perform multiple read and only have short reading range, the RFID based system cannot show its advantages.

Keyword: RFID, Hypermarket, In-store stock, Buffer stock