

Chapter 43

Application of RFID Technology in Banking Sector

Lotfollah Forozandeh Dehkordi
Payame Noor University, Iran

Ali Ghorbani
Payame Noor University, Iran

Ali Reza Aliahmadi
University of Science & Technology, Iran

ABSTRACT

Nowadays, the banks are using new technologies to provide better services to customers. One of these new technologies is RFID. In this chapter first a brief introduction presented about RFID technology and its components. Then, some applications of RFID in banking sector such as RFID applications in the cheques between banks, reducing the manual operation, customer relationship management, tracking and tracing, money transferring system, countering counterfeiting, contactless smart cards, people identification, phone banking, establishing security, checking purpose and so on are explained. Finally some of the barriers to technology acceptance by the customers and some methods to data protection and increasing security in RFID systems are described.

INTRODUCTION

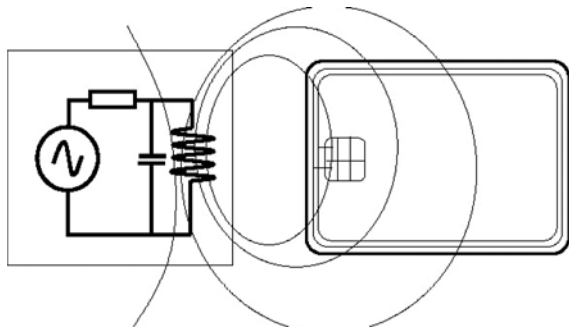
Technological developments particularly in the area of information technology are revolutionizing the banking industry. With the development of this technology, Commercial banking is undergoing rapid change.

Radio frequency identification (RFID) is a seemingly simple technique. Data is stored in

RFID tags that are attached to objects or located in Smart cards, and this data can be read using radio signals and presented on a display by using a suitable reader. The data can then be transmitted automatically to an information technology (IT) system for further processing (Hasen & Gillert, 2008). The appeal of this technology is its convenience and efficiency offered to both the consumers and the merchants. (Banks, Pachano, Thompson & Hanny, 2007)

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Figure 1.



RFID's ability to perform as an auto-identification technology was first utilized by the Royal Air Force in World War II to differentiate between friendly and enemy aircraft. Friendly planes were equipped with bulky "active" RFID transponders (tags) energized by an attached power supply and interrogated by an RFID transceiver (reader). Applications today rely on similar communication between RFID tag and reader, although the tags (miniscule microchips attached to antennae) are generally "passive," powered by an electromagnetic field emitted by the reader. Radio signals inform nearby readers of a serial number stored on the tag that uniquely identifies any item bear-

ing the tag. (Angell & Kietzmann, 2006). Table 1 shows RFID application fields.

The Auto-ID Center, established in 1999 as an academic research project at the Massachusetts Institute of Technology, developed the architecture for creating a seamless global network of all physical objects (www.autoidlabs.org/about-thelabs.html). The technology has since been transferred to EPC global (www.epcglobalinc.org), which oversees development of standards for electronic product code (EPC) tags. These tags are used for every imaginable item—from clothes to medicine, electronics, food, motor vehicles, books, door locks, and airplanes—revolutionizing logistics and supply-chain and inventory management worldwide. (Angell & Keitzmann, 2006)

ELEMENTS OF RADIO FREQUENCY COMMUNICATION

The communication takes place between two devices: a reader that needs the information and a tag that has the information. Before we dive into the physics of communication, let's get on

Table 1. RFID application fields

	RFID Application Fields	Description
Mainly Object Tagging	A. Logistical Tracking & Tracing	Solely identification and location of goods and returnable assets (e.g., pallets or containers)
	B. Production, Monitoring and Maintenance	Smart systems in combination with RFID-Technology to support production, monitoring, and maintenance of goods and processes
	C. Product Safety, Quality and Information	Applications to ensure quality (e.g., sensors to monitor temperature) and product safety (e.g., fight against counterfeiting)
Tagging with Reference or Potential Reference to Individuals	D. Access Control and Tracking & Tracing of Individuals	Single function tags for identification and authorisation applications for entry control and ticketing
	E. Loyalty, Membership and Payment	Smart Card based identification and authorisation systems for multifunctional applications (e.g., loyalty, payment, and banking systems)
	F. eHealth Care	Systems for hospital administration and smart systems to support and monitor health status
	G. Sport, Leisure and Household	Sports applications, rental systems (e.g., cars or books), smart home
	H. Public Services	Systems mandated by law or to fulfill public duties (e.g., ID-Cards, Health Insurance Cards, Road Tolling Systems)

Reference: B. Gampl, M. Robeck, M. Clasen

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