Mobile RFID/NFC Linkage Based on UHF/HF Dual Band's Integration in U-Sensor Network Era*

Namje Park**

Department of Computer Education, Teachers College,
Jeju National University, Jeju, Korea
namjepark@jejunu.ac.kr

Abstract. This paper analyzed the standard statuses of NFC that is promoted internationally. Also, the mobile RFID related technologies that offer similar services as NFC were also analyzed to understand the potential linkage to NFC and the requirements for the linkage. In addition, the introduction of dual tag and the code system linkage suggested a linking method to maximally use the existing infrastructure and the requirement satisfaction was analyzed. Lastly, based on the analysis, the future direction for the new standard design was suggested.

Keywords: Mobile RFID, NFC, UHF, Dual Band, Sensor Network.

1 Introduction

In the international competition where various advanced technologies are rapidly developing, an in-depth analysis and prediction on the international standardization and domestic application of advanced technologies and international standards as well as leading the international standardizations for Korea to acquire an international competitiveness. The recently emerged 13.56MHz substitution no-touch close range wireless communication technology, NFC will be widely applied in practical life, such as mobile transportation card or credit card transactions with the integration with Smartphones in the future. Therefore, the nations and companies are attempting to gain the leading power in this technology, especially focusing on the standardizations. When the NFC technology is utilized in the future, it will be connected to various technology standards, such as mobile RFID and it is important to understand the most pressing areas for standardization. Next, the developed standardizations should be understood around the world to find the additional targets and promote the standardizations.

Korea also needs to reflect such international standardization trends of NFC standardization and also create an appropriate connection platform for Korea through a comparative analysis with the domestic standardization of mobile RFID technology.

* This work was supported by the Korea Foundation for the Advancement of Science & Creativity(KOFAC) grant funded by the Korean Government(MEST).
** Corresponding author.

James J. (Jong Hyuk) Park et al. (eds.), *ITCS & STA 2012*,
LNEE 180, pp. 265–271, DOI: 10.1007/978-94-007-5082-1_33

In addition, the new standardizations need to be reflected internationally in an active manner. For these reasons, this report provides the foundation for domestic distribution of related technologies and standardizations by connecting the two technologies through the analysis of NFC system international standardization activities and trends with mobile RFID technology.

2 Mobile RFID and NEC

2.1 Mobile RFID/NFC Linkage Technology

Mobile RFID/NFC linkage technology means a provision of integrated 2 existing mobile RFID services by developing the 900MHz mobile RFID reader and the NFC reader/tag into one SoC to be put on a USIM card.

The mobile RFID technology can be divided into the ISO/IEC 18000-6C and ISO/IEC 29143 based 900 MHz technology and the ISO/IEC 18092 based 13.56 MHz technologies from the NFC forum. The 900 MHz based mobile RFID reader and 13.56 MHz based NFC reader/tag can be put on the USIM card in the SoC manner to enable the mobile RFID service using the existing 3G cell phones. This enables the global mobile RFID development that used the data scale for the interface and application among the 900 MHz substitution international standardized RFID reader, NFC standard module, and the handheld device.

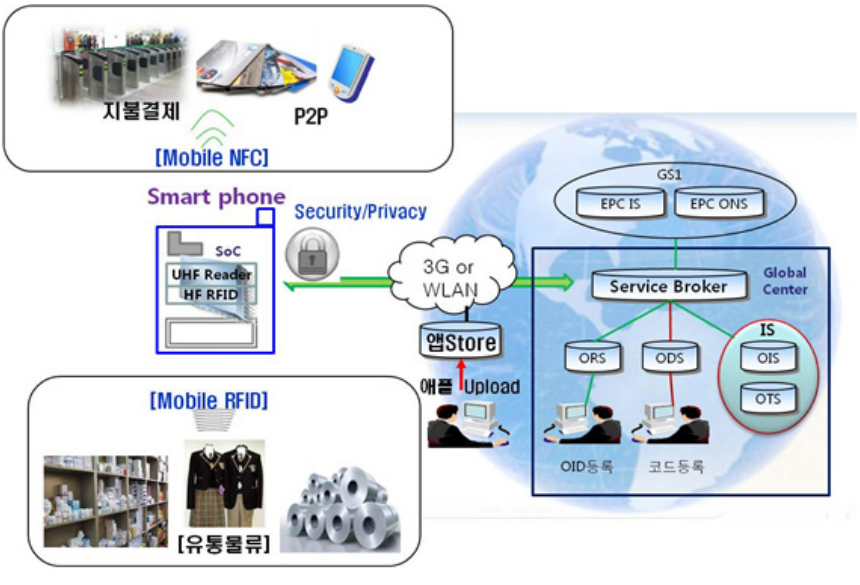

Fig. 1. UHF/HF Dual Band Mobile RFID and Application Concept Map