

RFID Middleware at UCLA WINMEC

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Introduction

Contactless RFID technology holds promise for object tracking, supply chain, smart payment and security management. Most RFID systems have their own unique hardware and software interfaces and are therefore not readily available in the plug and play mode. At UCLA-WINMEC, we have developed a unique RFID middleware platform and this platform is being implemented in software to make RFID system deployment easy and fast – heading eventually towards plug and play adaptability for existing hardware. RFID middleware is the software between various RFID readers and enterprise applications.

WINMEC RFID Middleware Platform

Using different design methodologies, middleware varies in its complexity, flexibility and performance. This can greatly affect the results of implemented RFID system. The structure of the RFID middleware platform developed in WINMEC is shown in Fig. 1. The design of the platform incorporates technical and business considerations and is implemented to optimize reliability, speed, scalability and flexibility of RFID systems that are developed on it. It is an object-oriented middleware design and combines the smart RFID data management scheme developed in WINMEC. It pre-processes received RFID data based on different policies to enhance the reliability, speed and scalability of RFID applications. Its architecture handles multiple readers with different protocols at the same time and provides unified interfaces to upper-layer applications. This makes it easy to be integrated into various backend data processing systems.

