

## "Radio Frequency Identification (RFID) Technology and its Application in Higher Education (Case Study)"

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### Abstract:

With the rapid technological advancements, modern technologies have played a significant role in enhancing the quality and efficiency of education. Thus, it has become essential for Egyptian universities to keep up with continuous progress and adopt the latest technologies to offer a distinguished experience for students and faculty members while improving academic performance. One of the most prominent modern technologies is "Radio-Frequency Identification" (RFID), a wireless communication method (using magnetic fields or electromagnetic waves) that provides instant information. With significant advances in electronic chip technology and cost reductions in the 21st century, RFID has been applied in various fields, including education. This research reviews RFID technology with a case study at Nile University, Egypt's first non-profit research university to implement RFID. The study investigates its impact on enhancing the educational process, improving interaction and communication between students and university staff, and evaluating its efficiency in tracking lab equipment, managing inventory, monitoring laboratory samples, ongoing work, and supply chain operations. The study also examines the challenges faced by the university administration during its application. The research problem stems from the lack of optimal use of modern technologies in managing higher education institutions. The findings highlight that RFID is a valuable innovation for educational institutions aiming to enhance campus security, streamline administrative processes, and boost academic performance. The technology has proven particularly effective in asset tracking, inventory control, and access management. The study recommends that educational institutions prioritize employing the latest technologies according to their specific needs.

**Research Problem:** "Radio Frequency Identification" (RFID) technology is one of the most famous and latest technologies in many fields. How can RFID technology be used in the field of university education? Many questions arise that need to be answered, including: 1-What are the modern capabilities of RFID technology? What is its role in the field of university education? 2-Has RFID technology contributed to facilitating and providing distinguished services to university education institutions?

**Importance of the research:** The use of modern technologies in a strategic and integrated manner has a major role in improving the quality of higher education. University education institutions must also be aware of technological developments and use them in ways that are consistent with the nature and objectives of education, the needs of students and teachers, and their university vision and mission. RFID technology is one of the most famous modern technologies that plays an effective role in developing university education services. The use of modern technologies in improving the quality of higher education is not limited to students only, but can also enhance the experience of faculty members, assistant staff, administrative staff, and students. Through a case study of Nile University, which uses this technology, which contributes to a better understanding of the positive effects of using technology to enhance educational quality.

**Research objectives:** . 1- Identify the nature of RFID technology. 2-Explore the role of RFID technology in improving the quality of higher education, as higher education is a dynamic and changing environment, and universities face many challenges in providing a distinguished experience for students (case study on Nile University).

**Research hypotheses:** 1-Technological progress has a positive impact when used effectively in educational institutions. . 2-RFID technology contributes to improving and developing university education services

**Research methodology:** The study follows the descriptive approach and Case Study Using RFID

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Technology "Nile University"

**Results:**

1-RFID technology is a valuable technological innovation for educational institutions that want to improve campus security, simplify administrative functions, and enhance academic performance. The use of RFID technology has proven its distinction and ease in some university sectors. 2-RFID technology provides tools for managing university entry, classrooms, libraries, inventory and assets effectively and allows for the organization of tasks accurately and quickly. 3-When all fixed assets in universities are equipped with RFID tags, computers connected to the Internet can recognize and inventory them, and items attached to the tags can be identified, tracked and controlled globally and automatically as necessary after they are distributed around the world, especially in the technological revolution we are living.

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