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| **Title:** | Enhanced Security and Efficiency in Attendance Management: A Novel RFID and Arduino Integrated System | | |
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| **Published Journal Name:** | Journal of Engineering Research and Reports | | |
| **Type of Publication:** | Journal | | |
| **Volume:** | 26 | Issue | 5 |
| **Publisher:** | Asia Pacific Publishers | | |
| **Publication Date:** | 1.4.24 | | |
| **ISSN:** | 2582-2926 | | |
| **DOI:** | 10.9734/JERR/2024/v26i51134 | | |
| **URL:** | https://journaljerr.com/index.php/JERR/article/view/1134 | | |
| **Other Related Info.:** | Page 59-65 | | |
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| **Abstract:** |  |
| The advent of Radio Frequency Identification (RFID) technology has ushered in a new paradigm in the domain of automated attendance systems, offering a sophisticated yet user-friendly approach to personnel management. This paper presents a comprehensive study on the design and deployment of an RFID-based attendance system powered by the versatile Arduino platform, elucidating its operational tenets, system architecture, and practical implementations. At the heart of the system lies the MFRC522 RFID reader, which synergizes with an Arduino microcontroller to facilitate the identification and logging of attendance data. The system is enhanced by the inclusion of an SD Card Module for data storage and a Real-Time Clock (RTC) Module to ensure accurate timestamping of attendance events. The seamless integration of these components results in a robust mechanism that not only simplifies the attendance tracking process but also fortifies the security framework by leveraging unique identifiers for each user. The study spans the detailed process of assembling the hardware, crafting the software in the Arduino Integrated Development Environment (IDE), and meticulously testing the integrated system to affirm its efficacy. The resulting attendance system embodies a significant stride towards refining attendance management practices, eliminating the shortcomings of manual tracking while providing a scalable and reliable solution adaptable to various organizational settings. | |