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B-Lock: A Smart Door Lock System Using Bluetooth Technology

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Abstract: *The emergence of Bluetooth technology has significantly contributed to the development of secure, convenient, and efficient home automation systems. One of the most prominent applications is the integration of Bluetooth into smart door locks, allowing users to unlock doors without physical keys using mobile devices. This paper presents the design and implementation of a Smart Door Lock System Using Bluetooth. We explore the system architecture, working principles, security protocols, and implementation challenges. Additionally, we provide a basic example code for the development of such a system using an Arduino microcontroller and a Bluetooth module (HC-05/HC-06). The proposed system can enhance security by offering keyless entry and real-time monitoring while addressing potential concerns such as battery life, Bluetooth range, and security vulnerabilities.*

Keywords: Smart door lock, Bluetooth, IoT, Arduino, HC-05, Security, Mobile app, Authentication, Encryption

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