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ArsenalSync: A Smart Firearm Security System

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Abstract: *Unauthorized access to firearms is a critical security threat, leading to misuse, theft, and accidents. ArsenalSync is an advanced gun security system designed to prevent unauthorized usage while ensuring seamless access for authorized users. The system integrates a RFID sensor, ESP32 microcontroller, Bluetooth communication, and a motorized locking mechanism to enhance firearm security. Upon activation, the RFID sensor verifies the user's identity and sends authentication data wirelessly via ESP32 modules. If an unauthorized individual attempts to use the firearm, the system notifies the registered owner through a mobile application, offering options to lock, disable, or apply countermeasures to the weapon. The motorized locking mechanism ensures that the firearm remains inoperable until authorized access is granted. Additionally, the system features an automatic locking mechanism post-usage, enhancing security in high-risk environments. ArsenalSync is specifically designed for military, law enforcement, and personal firearm safety, ensuring robust security while maintaining accessibility for legitimate users.*

Keywords: Gun security, ArsenalSync, firearm safety, RFID authentication, ESP32, Bluetooth communication, motorized locking, unauthorized access prevention, real-time notification, defense technology

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