

## ABSTRACT

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*This study focuses on the development of novel solutions to address the security challenges of bicycles in the modern era. While bicycles have long been considered simple and affordable means of transportation, the surge in popularity of electric bicycles and the escalating concerns of theft indicate that conventional security systems such as steering Locks, padLocks, and chains have significant limitations. The escalating trend of bicycle thefts year by year serves as the primary motivation for this research. Leveraging technological advancements, this study aims to create an automated bike Locking system based on smartphones. This system is expected to offer a more reliable and effective solution to prevent bicycle theft. Through the utilization of proximity-based technology and smartphone connectivity, the system will automatically Lock the bicycle when the owner is outside a predetermined range. Furthermore, the system allows users to manually activate the Locking mechanism through a smartphone application. By integrating security features and sophisticated technology, this research strives to yield a positive impact by reducing the number of bicycle theft cases and ultimately creating a safer environment for bicycle owners.*

*Keywords: Automatic bike Locking, Bicycle Security, Smartphone and Proximity, Bike Theft, Security Technology.*