# UNIVERSITI TEKNOLOGI MARA

# DEVELOPMENT OF A PROTOTYPE SEMI-AUTOMATIC BICYCLE HANGER

**AIMAN ASYRA BIN AZHAR**

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# ABSTRACT

This project aims to address the limitations of manual bicycle hangers by developing an innovative automatic bicycle hanger system. The objective is to design and fabricate a secure and stable product within a budget of RM 300, which enhances the ease and security of bicycle storage. The existing manual hangers lack flexibility in accommodating different bicycle sizes and weights, pose a risk of damage to the bicycle, and make the storage process physically demanding. By utilizing motorized components and advanced design principles, the automatic hanger system will provide a user-friendly solution, specifically targeting bicycle owners facing challenges in crowded spaces. The project will employ a design-based approach, encompassing research, conceptualization, prototyping, and testing. The expected result is a functional automatic bicycle hanger system that improves storage efficiency, accommodating standard-sized bicycles, and enhances convenience and security in bicycle storage, contributing to a practical and affordable solution for bicycle owners

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# INTRODUCTION

## 1.1 Background of Study

Nowadays, the bicycle has become the most important transport to use daily and research has shown that 70% of the community stated that they were willing to use micro mobility for their daily commute, for example bicycle [1]. The bicycle seems like a basic form of transportation, but it is really a complex solution to help the environment [2]. It isbecause some of the benefits of using a bicycle are reducing carbon emissions, solutions to urban traffic problems and giving better health went using it [3].

Even bicycle are solutions to ensure a sustainable world for everyone, but it also havethe issues to store it. It is because when every home has 1 or more bicycle, there is the problem to storing the bicycle effectively. Other than that, some issues are owner of bicycle facing, which is not user friendly, not secure because increase the risk of accidents and there is probability to bicycle being damaged when storing.

To avoid such disadvantages, people has invented a product that use to store bicycle efficiently and providing a secure, space efficient and easy to use it. The product is a bicycle wall hanger which is user friendly has become solutions in crowded urban environments. Eventhood there is the solutions, but it also has limitations when using this product. The problem is the user must use many energies to do the storing process when using this product.

Furthermore, it is the purpose semi-automatic bicycle hanger has been designed, to become more user friendly and encourage greater bicycle usage and contribute to a more organized and efficient urban environment. The aim of this project is expected to be a semi-automatic bicycle hanger that is easy to operate, secure, and space efficient.