UNIVERSITI TEKNOLOGI MARA

AN AUTOMATED SHOPPING TROLLEY

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ABSTRACT

Despite significant advancements in modern technology, shopping cart design and innovation have remained unchanged. Manually pushing the shopping trolleys lead to collision and inconveniences. In addition, the security and human are at risk for shopping during the nighttime as well as they may lead to overspending without proper grocery management plan. This thesis presents an automated follow me trolley utilizing the Bluetooth, ultrasonic, counting system, and smart lighting system. The ultrasonic sensor utilizes in the following system and anti-collision system. The design was verified by using simulation via proteus software that show the LED turn on during the low-light intensity. Additionally, the motor worked well with the ultrasonic sensors' reactions. Despite the suggested arrangement, a further improvement can be built by including some features, such as a cashier-less system, to ensure sustainability and better labour costs.

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CHAPTER TWO
LITERATURE REVIEW

2.1 Introduction

This chapter will be presenting about the analysis and overview of past final year projects and paperwork which can be related to the current project. This acts as a comparison between how the past projects working methods, theories and gaps.

2.2 Literature

This section examines some comparable previous projects that have been introduced and carried out to provide inspiration and innovation towards the proposed system in this project.

The smart cart developed by [1] employs a map matching algorithm to track the object motion and fix mistakes made during the corners. The method utilizes k closest technique to minimize localization error while following the user's device. The algorithm makes sure the cart follows a predetermined path and remains clear of user-device faults or cumulative drift. Testing has revealed that the method increases precision and reliably forecasts values that are closer to the mean. In addition, the cart produced complies with ADA rules which is made specialized to handle slopes [1].

A human-following trolley built on a Raspberry Pi is described in Project by [2] . Ultrasonic sensors are used by the trolley to autonomously avoid obstacles and move forward. In addition, GPIO pins are used to control the robot's movement, which is accomplished using DC motors. The system utilizes a Linux-based and the ARM11 architecture. The study also presents the use of a robotic arm managed by a Raspberry Pi and an Android apps. Using a distinctive identifying tag, the robotic cart is intended to track and follow a target individual in an open setting. The vehicle has sensors that help it avoid obstructions, including a camera and an ultrasonic sensor. Ultrasonic sensors work by sending sound waves at a frequency that is