

UNIVERSITI TEKNOLOGI MARA

**IOT BASED INTELLIGENT
SHOPPING CART WITH BILLING
SYSTEM**

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ABSTRACT

The IoT-based Intelligent Shopping Cart with Billing System revolutionizes the grocery shopping experience, alleviating the time constraints and inconveniences associated with traditional checkout queues. In response to the increasing demand for streamlined and efficient shopping processes, this innovative project integrates cutting-edge technologies such as RFID, Arduino, and IoT. The system utilizes RFID technology to allow customers to navigate seamlessly through the store, eliminating the need for waiting in long queues at checkout counters. The core components include Arduino and ESP8266, with RFID readers and push buttons for user input, and outputs displayed on an LCD, LED indicators, and the customer's mobile phone. Leveraging the power of IoT, the project ensures that the final billing information is conveniently accessible on the customer's mobile device. By automating the payment process, this smart shopping cart empowers customers to have a more efficient and enjoyable shopping experience. In essence, this project signifies a significant technological advancement in the retail sector, harmonizing RFID, Arduino, and mobile technology to create a more convenient and time-saving shopping journey for customers.

Keywords – Shopping cart, Arduino, RFID, IoT, ESP8266.

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TABLE OF CONTENT

| | Page |
|---------------------------------------|-------------|
| AUTHOR'S DECLARATION | 1 |
| APPROVAL BY SUPERVISOR | 2 |
| ABSTRACT | 3 |
| ACKNOWLEDGEMENT | 4 |
| TABLE OF CONTENT | 5 |
| LIST OF TABLES | 7 |
| LIST OF FIGURES | 8 |
| | |
| CHAPTER ONE: INTRODUCTION | 9 |
| 1.1 Research Background | 9 |
| 1.2 Problem Statement | 10 |
| 1.3 Objectives | 10 |
| 1.4 Scope of Work | 10 |
| 1.5 Project Contribution | 11 |
| | |
| CHAPTER TWO: LITERATURE REVIEW | 12 |
| 2.0 Introduction | 12 |
| 2. Summary Of Research Projects | 12 |
| 2.2 Table Of Related Research | 17 |
| | |
| CHAPTER THREE: METHODOLOGY | 19 |
| 3.0 Introduction | 19 |
| 3.1 Hardware Developmenet | 20 |
| 3.1.1 Block Diagram | 20 |
| 3.1.2 Components | 21 |

CHAPTER ONE

INTRODUCTION

1.1 Research Background

Internet of things (IoT) is a system of linked devices that communicates and exchanges data with the cloud and other IoT devices. IoT devices, which can include consumer goods and both digital and mechanical machinery, are often incorporated with technology such as sensors and software [10]. As known before, the shopping concept was manually by using a human energy to work and scan each item at the same time it had occur the human error while scanning. So, when the IoT was introduces, the retail market is moving towards a model in which cashier are unneeded [12].

Internet of Things (IoT) technology is integrated into an intelligent shopping cart with a billing system to offer a smart shopping experience. The cart transmits real-time data to a central system and automates item tracking thanks to sensors like barcode and RFID scanners. By offering individualised product recommendations, automated billing, and help navigating the store, this solution improves client convenience. It creates digital or printed receipts, supports a number of payment options, and expedites the checkout process. Retailers can make better decisions and gain vital insights on customer behaviour and inventory management thanks to the technology. Nevertheless, the fact that it offers substantial advantages including improved customer satisfaction and time efficiency, security issues, integration difficulties, and upfront investment expenses are drawbacks. All things considered, this creative approach has the power to transform retail, optimising procedures and modernising the purchasing experience.