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FINAL YEAR PROJECT (EEE358)

**IOT INTEGRATED ADVANCED
INVENTORYMANAGEMENT SYSTEM**

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**DIPLOMA IN ELECTRICAL
ENGINEERING (POWER)**

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ABSTRACT

This study proposed an IoT-based smart inventory system designed to streamline inventory management processes and enhance efficiency. The motivation behind this project stems from the limitations of manual inventory management systems, including errors, lack of real-time information, and security vulnerabilities. The problem statement revolves around the need for an automated and secure inventory management solution. The objectives of the project are to automate inventory processes, provide real-time monitoring, prevent overloading, enable remote access, and enhance inventory security. The system includes RFID technology, motion and weight sensors, WiFi, a motor, an LCD display, and alert systems. These components are integrated into a cohesive system. RFID tracks items, motion sensors detect insects, weight sensors prevent overloading, WiFi enables remote monitoring, the motor controls the inventory door, and the LCD display shows stock levels. The alert systems notify users of insects and overloading. The results demonstrate successful implementation, enabling automated inventory management, real-time monitoring, and remote data access. The system effectively detects insect presence and prevents overloading, ensuring inventory stability and safety. The study's novelty lies in the integration of multiple IoT components into a comprehensive inventory management system where it revolutionizes traditional inventory management with its IoT-based smart inventory system. It boosts efficiency, minimizes errors, and empowers businesses with real-time monitoring and automated features. Ultimately, it improves productivity and profitability, offering a novel solution to inventory management challenges.

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CHAPTER 1

INTRODUCTION

1.1 Background

Efficient inventory management stands as a linchpin for operational success across industries. Conventional inventory systems, heavily reliant on manual processes, have demonstrated inherent limitations over time. These limitations encompass a spectrum of challenges, including human errors in data entry, inaccuracies in stock counts, delayed or outdated information, and vulnerabilities in security protocols. The insufficiencies of these traditional systems have spurred a burgeoning demand for innovative, technology-driven solutions capable of addressing these critical issues.

The advent of Internet of Things (IoT) technology has emerged as a beacon of promise to revolutionize the landscape of conventional inventory management. IoT-based systems offer a paradigm shift by interlinking physical assets with digital frameworks. These systems promise real-time visibility, automated data acquisition, and sophisticated analytics. By integrating sensors, devices, and connectivity, IoT systems facilitate a seamless flow of information, transforming the way inventory management practices are conducted

The convergence of IoT with inventory management addresses the shortcomings of manual systems, ushering in an era of proactive, data-driven decision-making. The transition from manual to automated processes represents not just an evolution but a revolution in how businesses manage their inventory, optimize operations, and enhance overall efficiency.