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**IOT-BASED AQUAPONIC SYSTEM
FOR IMPROVED CROP AND FISH
YIELD**

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ABSTRACT

This project is to improve the inefficiencies and negative environmental impacts associated of traditional fish farming methods by proposing an IoT-based aquaponic system. Existing aquaponic systems lack precision in terms of control and monitoring, limiting their potential to enhance crop and fish yields. To overcome these limitations, the project used IoT technology to monitor and control crucial aspects of the system, including water quality, water levels, and fish food. The methodology involves using the Arduino Uno as the microprocessor and the NodeMCU ESP8266 as the Wi-Fi module, along with other sensors such as pH sensors, water level sensors, and temperature sensors. The system also used a water pump, LED lights, an automated feeding system, and Blynk for monitoring the system. Through real-time monitoring and remote-control capabilities, the IoT-based aquaponic system aims to optimize the aquaponic system to create optimal conditions for plant and fish growth. In summary, this project proposes an innovative and sustainable for agriculture and aquaponics by leveraging IoT technology. By providing precise control and monitoring, the IoT-based aquaponic system has the potential to significantly increase productivity and sustainability while reducing resource usage and negative environmental effects.

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CHAPTER ONE

INTRODUCTION

1.1 Chapter 1

This chapter aims to offer context regarding the genesis of the project concept. This chapter includes the following: background information, goals, problem description, work scope, project significance or contribution, and summary.

1.2 Introduction

The global need for sustainable and efficient agricultural due to concerns about resource scarcity and environmental degradation. Traditional methods of farming, such as aquaponic systems, often suffer from inefficiency as they lack the ability to remotely monitor their systems. By integrating current technology with traditional aquaponic systems, users can enhance productivity while minimizing waste. Hence, the creation of the 'IoT-Based Aquaponic System for Improved Crop and Fish Yield,' utilizing contemporary technology to transform less efficient traditional aquaponic systems, is studied in this thesis.

The main idea for this thesis is to combine IoT technology into the aquaponic system. The ability of IoT to collect, connect, and analyze real-time data from various devices and sensors is undeniable. By integrating IoT into the aquaponic system, this project has the potential to optimize the system to reach the fullest extent.