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FINAL YEAR PROJECT (EEE368)

EV CHARGING ROUTE THROUGH THINGSPEAK APPLICATION

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DIPLOMA IN ELECTRICAL ENGINEERING (POWER)

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ABSTRACT

This project aims to design and implement a sophisticated Arduino-based system to effectively locate available charging stations for electric vehicles (EVs). Central to this system is the integration of advanced sensors that can accurately identify the presence of EVs at charging stations. The user interface is enhanced through the strategic use of red and green LEDs, providing a clear visual indication of the occupancy status of charging stations. The red LEDs signify occupied stations, while the green LEDs denote available ones, simplifying decision-making for EV drivers. Complementing this visual cue is a prominent LCD display that furnishes detailed information about the status of each charging station. The display uses "YES" to indicate occupied stations and "NO" to convey availability, ensuring clarity and facilitating quick decision-making. An integral component of this system is the incorporation of a Wi-Fi module, allowing users to remotely access real-time information about the availability of charging stations through their mobile devices. This feature enhances user convenience, enabling them to plan and optimize their charging sessions efficiently. The experimental results showcase the system's proficiency in accurately identifying EVs and delivering precise information about charging station availability. Looking forward, the project envisions future developments to further enhance the system's capabilities. One potential avenue for improvement involves the integration of GPS technology to provide users with navigation assistance to the nearest available charging station, thereby streamlining the charging process and optimizing overall user satisfaction. These ongoing developments aim to contribute to the evolution of smart and user-friendly electric vehicle charging infrastructure, ultimately encouraging the widespread adoption of eco-friendly transportation choices.

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CHAPTER 1

INTRODUCTION

1.1 Background

The contextual framework underlying the creation of an Internet of Things (IoT)-capable Smart Electric Vehicle (EV) charging route is explored in the background portion of this thesis. A revolutionary age in the automotive industry is heralded by the growing emphasis on sustainable mobility on a worldwide scale and the ascent of electric vehicles. There is a pressing need for creative alternatives since traditional charging infrastructure has issues with user accessibility and efficiency. In light of this, the project seeks to overcome these obstacles by fusing cutting-edge technology, such as ESP32 microcontroller and infrared (IR) sensors, to provide an intelligent and adaptable EV charging system.