UNIVERSITI TEKNOLOGI MARA

SMART PARKING SYSTEM WITH BLYNK MONITORING

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Contents

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ABSTRACT

The smart parking system has emerged as a game changer. This intelligent system aims to optimize parking space utilization, enhance user convenience, reduce traffic congestion and improve environmental sustainability. The solution improves the entire parking experience, decreases search time, and reduces traffic congestion by delivering real-time updates on parking availability and directing cars to vacant spots. It also helps to enhance air quality and environmental sustainability by lowering emissions through effective parking management. Administrators can make educated judgements and execute successful parking rules if they can analyze parking occupancy patterns and trends. Furthermore, the Smart Parking System's connection with other smart city infrastructure encourages the creation of smarter and more sustainable cities. Although this approach necessitates early investment and infrastructure construction, the long- term advantages outweigh the expenses. The Smart Parking System is an important step towards tackling the issues of urban parking and determining the future of urban transportation.

CHAPTER 1- INTRODUCTION

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Parking has become a big difficulty for both drivers and municipal leaders as cities continues to develop and the number of cars on the roadways grows [1]. Securing an available parking spot in a big city may be time-consuming and annoying and it frequently causes overcrowding and noise [2]. To solve these difficulties, technological advancements have prepared the path for a game- changing solution: the Smart Parking System. To offer an intelligent and effective parking management system, a Smart Parking System makes use of sophisticated technologies such as the Internet of Things (IoT), data analytics, and real-time monitoring [3]. It attempts to optimize parking space use, improve the entire parking experience for drivers, and increase traffic flow inside metropolitan areas [4].

This innovative approach incorporates a number of components, including sensors, communication networks, and software applications. Sensors embedded in parking places detect the presence or absence of cars and transmit this data to a centralised management system [9]. The data is then processed by the system, which provides both drivers and parking operators with real-time updates on parking availability. Smart Parking Systems provide several advantages to both vehicles and towns. It means less time wasted circling in search of a parking place for cars [5]. Drivers may easily discover and book available parking spaces in advance using mobile applications or digital signs [9], reducing anxiety and boosting efficiency. Cities can also benefit from smart parking technologies. Cities may minimise traffic congestion and associated environmental consequences by managing parking spots effectively [6]. Real-time data analytics enable administrators to make smart parking policy decisions, such as modifying price depending on demand or identifying locations with high parking infraction rates [11]. While the initial investment and infraction rates [11]. While the initial investment and infrastructure development required for the adoption of a Smart Parking System are significant, the long-term advantages surpass the expenses. The system offers a flexible and adaptable solution that can be tailored to the specific demands of various cities and parking facilities [7]. It not