Construction of an Automated Parking System Model Using Mitsubishi PLC

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***Abstract*—This thesis presents the construction of an automated parking system model using Mitsubishi PLC. The work includes the design and implementation of a system that can automatically park and retrieve vehicles. The system utilizes PLC for control and monitoring, with detailed analysis of the PLC model and its application in the parking system. The design process is described, including the selection of PLC, system monitoring, and the implementation of vehicle movement and control mechanisms. The system can automatically park vehicles in the nearest available spot and retrieve them based on user input. The control system is fully automated, utilizing PLC for precise vehicle movement and positioning. The design focuses on the use of PLC MITSUBISHI, with a detailed analysis of its hardware and programming. The system is fully functional but acknowledges the need for improvement in terms of equipment quality and aesthetics.**

***Index Terms*—PLC, Mitsubishi, Automated Parking, Control System, Sensor, Relay**

I. Introduction

The thesis provides an overview of the development history and general introduction of smart parking technology. It evaluates various automated parking solutions, ultimately selecting a system that uses Mitsubishi PLC for control. The design process is detailed, including the selection of PLC, system monitoring, and the implementation of vehicle movement and control mechanisms. The student gained knowledge in PLC programming, sensor usage, and the operation of automated parking systems. The system is fully functional but acknowledges the need for improvement in terms of equipment quality and aesthetics [1]. Published articles on the methods and subject of this project provide context for this English summary [4], [5], [6], [7]. Published articles on the methods and subject of this project provide context for this English summary [8], [9]. Published books on the methods and subject of this project provide context for this English summary [10].

II. Methods

The methods section covers the analysis and selection of PLC, the design of the monitoring and control system, and the selection of components such as sensors, relays, and drivers. The system is designed to automatically park and retrieve vehicles, with detailed descriptions of the control algorithms and system operation. The student analyzed the PLC MITSUBISHI model, including its hardware and programming. The system is designed to operate in a fully automated manner, utilizing PLC for precise vehicle movement and positioning. The student implemented the system using WinCC (TIA Portal) for monitoring and control [1].

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III. Results

The thesis describes the practical model and control algorithms. The system can automatically park vehicles in the nearest available spot and retrieve them based on user input. The control system is fully automated, utilizing PLC for precise vehicle movement and positioning. The student implemented the system using WinCC (TIA Portal) for monitoring and control. The system is fully functional but acknowledges the need for improvement in terms of equipment quality and aesthetics. The student designed the system to operate in a fully automated manner, utilizing PLC for precise vehicle movement and positioning [1].

IV. Discussion

The discussion focuses on the advantages and disadvantages of the system. The advantages include the fully automated control system and the use of PLC for enhanced functionality and longevity of components. The disadvantages include the use of older equipment that may be noisy and less aesthetically pleasing. The student acknowledges the need for improvement in terms of equipment quality and aesthetics. The system is fully functional but acknowledges the need for improvement in terms of equipment quality and aesthetics [1].

V. Conclusion

The thesis concludes that the designed system meets the requirements of the project. The student gained knowledge in PLC programming, sensor usage, and the operation of automated parking systems. The system is fully functional but acknowledges the need for improvement in terms of equipment quality and aesthetics. The student designed the system to operate in a fully automated manner, utilizing PLC for precise vehicle movement and positioning [1].

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