Design of a Software Support System for Fault Diagnosis, Repair, and Maintenance of Ford Ranger Vehicle Electrical Systems

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***Abstract*—This thesis presents the design and implementation of a software support system for diagnosing, repairing, and maintaining the electrical systems of Ford Ranger vehicles. The system was developed to assist technicians in troubleshooting and managing various electrical components and diagrams. The software was tested and met the basic requirements set forth, but it lacks advanced features such as remote support and search functions. The system includes a database design and data organization, focusing on basic troubleshooting and management of electrical components and diagrams. Future development plans include enhancing the system with these features and implementing online repair support and payment options. The limitations of the software include its limited functionality, primarily focusing on basic troubleshooting and management of electrical components and diagrams. The thesis concludes that the developed software system has met the basic requirements for diagnosing, repairing, and maintaining the electrical systems of Ford Ranger vehicles. However, there is potential for further development to improve its functionality and usability.**

***Index Terms*—software, diagnosis, repair, Ford Ranger, electrical systems**

I. Introduction

The thesis introduces the concept of fault diagnosis and its reliability, providing a general overview of diagnostic systems. It specifically focuses on the electrical systems of Ford Ranger vehicles, detailing the basic systems and components, and the design of a software support system for technicians. The introduction covers the importance of accurate and efficient diagnosis in the automotive industry, emphasizing the need for reliable diagnostic tools. The thesis aims to develop a software system that can assist technicians in diagnosing and repairing electrical issues in Ford Ranger vehicles. The system is designed to provide a user-friendly interface for accessing and managing electrical diagrams and component information [1]. Published books on the methods and subject of this project provide context for this English summary [5]. Published books on the methods and subject of this project provide context for this English summary [6], [7], [8].

II. Methods

The author designed and implemented a software system to support the diagnosis, repair, and maintenance of Ford Ranger vehicle electrical systems. The system includes a database design and data organization, focusing on basic troubleshooting and management of electrical components and diagrams. The database contains information on various electrical components, their functions, and diagrams. The software was tested to ensure it met the basic requirements set forth, but it was found to be limited in functionality, primarily focusing on basic troubleshooting and management of electrical components and diagrams. The system was developed using standard programming techniques and tools, and the database was designed to store and organize the necessary information for technicians to perform their tasks effectively [1].

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III. Results

The software was tested and met the basic requirements set forth, but it was found to be limited in functionality, primarily focusing on basic troubleshooting and management of electrical components and diagrams. The system includes a database design and data organization, focusing on basic troubleshooting and management of electrical components and diagrams. The database contains information on various electrical components, their functions, and diagrams. The software was tested to ensure it met the basic requirements set forth, but it was found to be limited in functionality, primarily focusing on basic troubleshooting and management of electrical components and diagrams. The system was developed using standard programming techniques and tools, and the database was designed to store and organize the necessary information for technicians to perform their tasks effectively [1].

IV. Discussion

The limitations of the software include its limited functionality, primarily focusing on basic troubleshooting and management of electrical components and diagrams. The system includes a database design and data organization, focusing on basic troubleshooting and management of electrical components and diagrams. The database contains information on various electrical components, their functions, and diagrams. The software was tested to ensure it met the basic requirements set forth, but it was found to be limited in functionality, primarily focusing on basic troubleshooting and management

of electrical components and diagrams. The system was developed using standard programming techniques and tools, and the database was designed to store and organize the necessary information for technicians to perform their tasks effectively. Future development plans include enhancing the system with advanced features such as remote support and search functions, and implementing online repair support and payment options. These enhancements are expected to improve the functionality and usability of the system, making it more useful for technicians in the field [1].

V. Conclusion

The thesis concludes that the developed software system has met the basic requirements for diagnosing, repairing, and maintaining the electrical systems of Ford Ranger vehicles. However, there is potential for further development to improve its functionality and usability. The limitations of the software include its limited functionality, primarily focusing on basic troubleshooting and management of electrical components and diagrams. The system includes a database design and data organization, focusing on basic troubleshooting and management of electrical components and diagrams. The database contains information on various electrical components, their functions, and diagrams. The software was tested to ensure it met the basic requirements set forth, but it was found to be limited in functionality, primarily focusing on basic troubleshooting and management of electrical components and diagrams. The system was developed using standard programming techniques and tools, and the database was designed to store and organize the necessary information for technicians to perform their tasks effectively. Future development plans include enhancing the system with advanced features such as remote support and search functions, and implementing online repair support and payment options. These enhancements are expected to improve the functionality and usability of the system, making it more useful for technicians in the field [1].

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