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Final Year Project Report

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Introduction

This project aims to develop a real-time OBD-II (On-Board Diagnostics II) data monitoring systems for most vehicles on the market. I would like to interface a live data monitoring screen into the vehicle so the user receives data on the go this data would later be used for example for preventative maintenance or find cause of an issue that arises with the vehicle. OBD – II uses in car sensors to receive data that may not naturally show up on the cars on board display unit. My project would allow users to more closely monitor those sensors such as engine RPM, coolant temperature, boost pressure etc... I decided to create this project because of my passion of cars and wanting to take care of my car better through using this device to save money time and prevent stress not knowing what is exactly wrong with my car.

Functional Summary

The main goal of this project is to provide a real-time OBD-II (On-Board Diagnostics II) data monitoring system that improves user vehicle management. Through the system's live data monitoring interface, customers can obtain necessary information on the performance and well-being of their car. The system's primary features include:

Real-Time Monitoring: This feature allows users to view real-time data from multiple in-car sensors, including boost pressure, coolant temperature, and engine RPM, providing quick insights into how well the vehicle is doing.

Preventative Maintenance: The system enables users to track vital metrics over time, allowing for early detection of potential issues. This proactive approach helps in scheduling maintenance before problems escalate, ultimately saving time and money.

Diagnostic Support: In the event of a vehicle issue, users can utilize the data collected to identify the root cause, streamlining the troubleshooting process and reducing reliance on mechanics.

User-Friendly Interface: The live data display is designed for easy navigation, ensuring that users can quickly access the information they need without distractions while driving.

Enhanced Vehicle Care: By creating a deeper understanding of the user's vehicle's systems, users can take better care of their cars, leading to improved longevity and performance.

Assumptions

Vehicle Compatibility: It is assumed that most vehicles on the market are equipped with the OBD-II port and sensors. The systems are expected to work as effectively as possible with most petrol and diesel vehicles manufactured after the year 1996

Users Technical Proficiency: Users are assumed to have basic understanding of their vehicles systems and technology. They should be comfortable the device to their vehicle and navigating the user interface. (Plenty of video tutorials on majority of cars and their OBD-II connection point location)

Data Accuracy: It is assumed that the data retrieved from the vehicle's OBD-II system is accurate and reliable. The system does not account for potential sensor malfunctions or discrepancies in data reporting.

User Environment: The system assumes that users will maintain a safe driving environment and not get distracted by the live screen instead focusing on the road.

Functional Requirements

System Context: