



AIS: A Web Based Product Management System for Personalized Product Recommendation

UNDERGRADUATE THESIS

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ABSTRACT

The highly competitive automotive industry requires companies to enhance customer loyalty, especially through after-sales service. However, a major challenge arises from generic after-sales strategies that often fail to meet the specific needs of customers, causing confusion in finding relevant products and leading to dissatisfaction. The main objective of this project is to design and develop a web-based product management system that effectively increases customer satisfaction and loyalty by providing personalized product recommendations. The methodology used for system development is the Software Development Life Cycle (SDLC), which includes stages of problem identification, requirements analysis, design, implementation, and testing. The system's technical architecture will integrate the Laravel (PHP) framework for web application development with a Python-based analytics engine to process diverse customer data such as purchase history and vehicle usage patterns using machine learning algorithms. Key functionalities include a personalized recommendation engine, analytics dashboards, and the capability to analyze potential customer churn. The expected result is a scalable and centralized intelligent platform that not only strengthens customer loyalty but also optimizes inventory management and provides data-driven business insights, thereby increasing operational efficiency and revenue.

Keywords—Product Management System, Personalized Recommendation, Machine Learning, After-Sales Service, Automotive Industry, Customer Loyalty, Customer Churn, Laravel

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