

***A Website-Based Decision Support System for Selecting the Best Motorcycle Spare Parts
Using the AHP Method at the Lumintu Jaya Motor Workshop***

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ABSTRACT

The wide selection of motorcycle spare parts often leaves customers confused about which option best suits their motorcycle type, usage needs, and budget. This study aims to develop a Decision Support System for motorcycle spare part recommendations at Lumintu Jaya Motor using the Analytical Hierarchy Process method to make the spare part selection process more objective and structured. This system evaluates spare part alternatives based on several criteria: Price, Material Quality, Durability, Performance, and Ease of Installation. In a case study using 10 alternative motorcycle spare part data sets, the Analytical Hierarchy Process method was used to determine the priority weights of the criteria and generate a ranking of spare part recommendations. Test results showed that the system's calculations matched manual calculations using Microsoft Excel with 100% accuracy. Furthermore, functionality testing using the black-box testing method demonstrated that all key system features performed as required with a 100% success rate. These results demonstrate that the developed Decision Support System is capable of assisting workshops and customers in selecting motorcycle spare parts more objectively, efficiently, and in accordance with user needs.

Keywords: Decision Support System, Motorcycle Spare Part Recommendation, Analytical Hierarchy Process, AHP, Website.