

ABSTRAK

Kapal patroli merupakan komponen vital dalam mendukung tugas operasional Ditpolairud Polda Sumatera Selatan, terutama dalam menjaga keamanan perairan dan penegakan hukum. Sistem pemeliharaan yang masih bersifat manual menimbulkan berbagai kendala, seperti keterlambatan pencatatan, ketidakakuratan data, dan kesulitan menentukan prioritas perawatan. Penelitian ini bertujuan untuk mengembangkan aplikasi berbasis *web* guna mengelola pemeliharaan kapal secara efisien dan terstruktur, serta membantu pengambilan keputusan dengan menerapkan metode *Simple Additive Weighting* (SAW). Aplikasi dikembangkan menggunakan metode *Waterfall*, mulai dari analisis kebutuhan, perancangan dengan UML, implementasi menggunakan *framework Laravel*, hingga pengujian dengan *black-box testing*. Fitur utama aplikasi meliputi pencatatan *sparepart*, penilaian teknisi, penentuan prioritas pemeliharaan menggunakan *Simple Additive Weighting* (SAW) dengan pendekatan pembalikan nilai, dan pelaporan dalam format PDF. Hasil implementasi menunjukkan bahwa aplikasi dapat meningkatkan efisiensi pengelolaan data, mempercepat pengambilan keputusan, dan mempermudah penjadwalan perawatan *sparepart* kapal. Dengan sistem ini, kesiapan operasional kapal patroli dapat lebih terjaga dan risiko kerusakan dapat diminimalkan.

Kata Kunci: Pemeliharaan Kapal Patroli, Sistem Pendukung Keputusan, *Simple Additive Weighting* (SAW), Aplikasi Web

ABSTRACT

Patrol boats are a vital component in supporting the operational duties of the South Sumatra Regional Police's Ditpolairud, especially in maintaining water security and law enforcement. Maintenance systems that are still manual in nature cause various obstacles, such as delays in recording, inaccurate data, and difficulty determining maintenance priorities. This research aims to develop a web-based application to manage ship maintenance in an efficient and structured manner, as well as assist in decision making by applying the Simple Additive Weighting (SAW) method. The application was developed using the Waterfall method, starting from requirements analysis, design using UML, implementation using the Laravel framework, to testing using black-box testing. The main features of the application include recording spare parts, technician assessment, determining maintenance priorities using Simple Additive Weighting (SAW with a value reversal approach, and reporting in PDF format. The implementation results show that the application can increase data management efficiency, speed up decision making, and simplify maintenance scheduling for ship spare parts. With this system, the operational readiness of patrol ships can be better maintained and the risk of damage can be minimized.

Keywords: Patrol Vessel Maintenance, Decision Support System, Simple Additive Weighting (SAW), Web Application