ABSTRAK

PENGEMBANGAN *FRONTEND WEBSITE* PUMMA PEMANTAUAN DAN PERINGATAN DINI BENCANA TSUNAMI MENGGUNAKAN *LIBRARY REACTJS* DAN METODE SCRUM

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PUMMA (Perangkat Ukur Murah Muka Air laut) merupakan *website* sistem informasi pemantauan dan peringatan dini bencana tsunami berbasis IoT yang dikembangkan oleh tim U-TEWS Krakatau Universitas Lampung. Sistem ini menyajikan data *real-time* dari perangkat *monitoring* seperti PUMMA dan Buoy, termasuk informasi *battery voltage, device temperature, sea water level,* dan status perangkat. Namun, versi awal *website* masih memiliki kekurangan dalam desain antarmuka dan fitur *dashboard.* Penelitian ini bertujuan untuk mengembangkan *frontend website* PUMMA menggunakan *React JS* dan *Tailwind CSS* dengan pendekatan metode Scrum. Pengembangan dilakukan selama 8 minggu dalam 4 iterasi, dimulai dari implementasi *user interface* hingga integrasi *API.* Sistem yang dikembangkan mencakup fitur utama seperti tampilan *landing page,* daftar alat, *card status,* tabel, grafik, dan lokasi perangkat. Pengujian sistem dilakukan menggunakan metode *Blackbox Testing* pada 6 skenario tiap iterasi dan memperoleh tingkat keberhasilan 100%. Evaluasi kebergunaan menggunakan *System Usability Scale (SUS)* memperoleh skor 83,8 (kategori *acceptable, grade B, adjective rating excellent*). Pengujian *A/B Testing* menunjukkan bahwa *website* versi baru lebih disukai dengan skor rata-rata 96,6% dibandingkan versi lama sebesar 3,3%. Hasil penelitian menunjukkan bahwa pengembangan *website* PUMMA berhasil meningkatkan kualitas, kegunaan, dan pengalaman pengguna secara signifikan.

Kata Kunci: PUMMA, *React JS, Tailwind CSS, Scrum, System Usability Scale, Blackbox Testing, A/B Testing*

ABSTRACT

FRONTEND DEVELOPMENT OF THE PUMMA WEBSITE FOR TSUNAMI MONITORING AND EARLY WARNING USING THE REACTJS LIBRARY AND THE SCRUM METHOD

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PUMMA (Affordable Sea Surface Level Measuring Device) is an information system website for tsunami monitoring and early warning based on IoT, developed by the U-TEWS Krakatau team at the University of Lampung. The system presents real-time data from monitoring devices such as PUMMA and Buoy, including battery voltage, device temperature, sea water level, and device status. However, the initial version of the website had several shortcomings in terms of interface design and dashboard features. This study aims to develop the frontend of the PUMMA website using React JS and Tailwind CSS through the Scrum methodology. The development was carried out over 8 weeks in 4 iterations, covering the implementation of the user interface to API integration. The system includes key features such as a landing page, device list, status cards, tables, charts, and device location visualization. The system's functionality was tested using the blackbox testing method across 6 scenarios per iteration, achieving a 100% success rate. Usability evaluation using the System Usability Scale (SUS) resulted in an acceptance score of 83.8, categorized as acceptable, with a grade of B and an adjective rating of excellent. A/B testing results showed that the newly developed website version was preferred, scoring an average of 96.6%, compared to 3.3% for the previous version. The findings indicate that the PUMMA website redevelopment successfully enhanced the system's quality, usability, and user experience.

Keywords: PUMMA, React JS, Tailwind CSS, Scrum, System Usability Scale, Blackbox Testing, A/B Testing