

INTISARI

ANALISIS KINERJA *WEBSITE MONITORING* GETARAN MOTOR MESIN BERBASIS *INTERNET OF THINGS* DI *SET TOP BOX* SEBAGAI SERVER

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Perkembangan *Internet of Things* (IoT) mendorong penggunaan sistem *monitoring* berbasis sensor di industri, salah satunya untuk pemantauan getaran mesin secara *real-time*. PT Inamas Sintesis Teknologi menerapkan *website monitoring* getaran berbasis IoT yang dijalankan pada *Set Top Box* (STB) sebagai mini server untuk menekan biaya dan konsumsi daya. Penelitian ini bertujuan menganalisis kinerja *website monitoring* tersebut. Metode penelitian dilakukan melalui pengujian performa layanan web menggunakan Apache JMeter dengan parameter *response time*, *concurrent user*, dan *error rate*. Pengujian *Quality of Service* (QoS) jaringan menggunakan Wireshark dengan parameter *throughput*, *delay*, dan *packet loss*. Selain itu, dilakukan analisis penggunaan CPU dan memori pada perangkat server. Hasil penelitian menunjukkan bahwa rata-rata *response time* dari empat *endpoint*, yaitu *login*, *profile*, *serial number*, dan *node* sebesar 4648 ms. Nilai rata-rata *Time to First Byte* (TTFB) pada keempat *endpoint* sebesar 50,94 ms. Sistem mampu menangani hingga 20 *concurrent user* dengan *error rate* sebesar 0,00%. Hasil pengujian *Quality of Service* (QoS) menunjukkan rata-rata *delay* sebesar 27,6925 ms dengan kategori *Excellent*, rata-rata *packet loss* sebesar 4,85%, serta *throughput* tertinggi mencapai 9,8 Kbps pada *endpoint login*. Pengujian penggunaan CPU menunjukkan nilai rata-rata sebesar 29,16%, sedangkan penggunaan RAM memiliki rata-rata sebesar 50,03%. Berdasarkan hasil pengujian tersebut, performa layanan web, kualitas jaringan, serta penggunaan sumber daya sistem pada perangkat STB dapat terukur melalui parameter *response time*, *throughput*, *delay*, *packet loss*, CPU, dan memori selama proses pengujian berlangsung.

Kata kunci: *Internet of Things*, *Set Top Box*, mini server, *website monitoring*, analisis kinerja.

ABSTRACT

PERFORMANCE ANALYSIS OF AN INTERNET OF THINGS-BASED MOTOR VIBRATION MONITORING WEBSITE ON A SET TOP BOX AS A SERVER

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The development of the Internet of Things (IoT) has encouraged the use of sensor-based monitoring systems in industry, one of which is real-time machine vibration monitoring. PT Inamas Sintesis Teknologi implements an IoT-based vibration monitoring website running on a Set Top Box (STB) as a mini server to reduce operational costs and power consumption. This study aims to analyze the performance of the vibration monitoring website. The research method was conducted through web service performance testing using Apache JMeter with response time, concurrent user, and error rate parameters. Quality of Service (QoS) testing was performed using Wireshark with throughput, delay, and packet loss parameters. In addition, CPU and memory utilization analyses were carried out on the server device. The results showed that the average response time of four endpoints, namely login, profile, serial number, and node, was 4648 ms. The average Time to First Byte (TTFB) value across the four endpoints was 50.94 ms. The system was capable of handling up to 20 concurrent users with an error rate of 0.00%. The QoS test results showed an average delay of 27.6925 ms categorized as Excellent, an average packet loss of 4.85%, and the highest throughput of 9.8 Kbps on the login endpoint. CPU usage testing showed an average value of 29.15%, while RAM usage had an average value of 50.03%. Based on these test results, web service performance, network quality, and system resource utilization on the STB device were measured through response time, throughput, delay, packet loss, CPU, and memory parameters during the testing process.

Keywords: Internet of Things, Set Top Box, mini server, website monitoring, performance analysis.