

ABSTRAK

RANCANG BANGUN KEAMANAN BRANKAS DATA BERBASIS IOT MENGUNAKAN TEKNOLOGI SIDIK JARI DI PT KILANG PERTAMINA REFINERY UNIT III PLAJU

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**PROGRAM STUDI D-III TEKNIK KOMPUTER
POLITEKNIK NEGERI SRIWIJAYA**

Keamanan data merupakan aspek krusial dalam operasional industri, khususnya di lingkungan strategis seperti PT Kilang Pertamina Refinery Unit III Plaju. Penelitian ini bertujuan merancang dan membangun sistem keamanan brankas data berbasis Internet of Things (IoT) dengan integrasi teknologi autentikasi biometrik berupa sidik jari. Sistem ini dirancang untuk meningkatkan keamanan fisik terhadap akses tidak sah serta mempermudah monitoring secara real-time melalui jaringan IoT. Perancangan mencakup penggunaan mikrokontroler, sensor sidik jari, modul konektivitas internet, serta platform pemantauan berbasis web. Hasil pengujian menunjukkan bahwa sistem mampu mengenali sidik jari secara akurat, mengontrol akses brankas dengan baik, dan mengirimkan notifikasi status secara langsung ke server monitoring. Dengan implementasi ini, diharapkan keamanan data yang tersimpan secara fisik di lingkungan kilang dapat ditingkatkan secara signifikan melalui teknologi modern yang efisien dan andal.

Kata kunci: Keamanan data, IoT, sidik jari, brankas pintar, autentikasi biometrik, Pertamina Plaju.

ABSTRAK

DESIGN AND CONSTRUCTION OF IOT-BASED DATA SAFE SECURITY USING FINGERPRINT TECHNOLOGY AT PT KILANG PERTAMINA REFINERY UNIT III PLAJU

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DIPLOMA III IN COMPUTER ENGINEERING

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Data security is a critical aspect of operations in strategic industrial environments, particularly at PT Kilang Pertamina Refinery Unit III Plaju. This study aims to design and develop a data vault security system based on the Internet of Things (IoT), integrated with fingerprint biometric authentication technology. The system is intended to enhance physical access control and enable real-time monitoring through IoT connectivity. The design incorporates a microcontroller, fingerprint sensor, internet connectivity modules, and a web-based monitoring platform. Testing results demonstrate that the system accurately recognizes fingerprints, effectively controls access to the vault, and provides real-time status notifications to the monitoring server. With this implementation, physical data security at the refinery site is expected to be significantly improved through efficient and reliable modern technology

Keywords: Data security, IoT, fingerprint, smart vault, biometric authentication, Pertamina Plaju.

