

Abstract 50 – Paper ID: 037**VitalsVault: A Web-Based Platform for Chronic Disease Tracking and Intelligent Health Record Management**

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Abstract

Conditions categorized as chronic diseases, specifically including diabetes, hypertension, and various cardiovascular pathologies, demand a regimen that integrates perpetual observation with immediate medical intervention. Conventional paper-based health record systems, however, frequently lead to fragmented data and protracted diagnostic timelines. To counteract these deficiencies, VitalsVault introduces a secure, web-enabled chronic disease tracking and health record platform. This system unites patients, healthcare professionals, and advanced technologies within a singular digital environment. The platform facilitates real-time observation of vital signs—such as blood pressure, heart rate, temperature, and oxygen saturation—via IoT devices and wearable sensors. Crucially, all collected data are securely archived within an encrypted Electronic Health Record (EHR) system. By leveraging data-driven analytics, VitalsVault facilitates anomaly detection, automatically generates alerts for abnormal readings, and assists clinicians in personalized diagnosis and treatment planning. Its offline-first architecture ensures accessibility even in low-connectivity areas, enhancing usability and reach. A descriptive research design, supported by survey-based data collection and literature synthesis, validates the system's relevance and effectiveness in addressing issues like data fragmentation, delayed intervention, and limited patient engagement. The developed prototype successfully illustrates the potential of an integrated digital platform to markedly enhance chronic disease management. This capability is realized through instantaneous access to health metrics, fostering proactive care strategies, and consequently lowering the socio-economic impact on the health sector. In its final outcome, VitalsVault encourages the assimilation of digital health architecture in accordance with national e-health initiatives, thereby shifting healthcare delivery from a reactive stance to a preventive approach.

Keywords: Chronic disease monitoring, Electronic health records, IoT, AI in healthcare, Digital health platform, Preventive care