



A QR Code-Based Decision Support System for Health Records

BY

Angelo C. Galapon, DIT

Isabela State University – Cauayan Campus San Fermin, Cauayan City, 3305, Isabela, Philippines



Article History

Received: 05/09/2024

Accepted: 12/09/2024

Published: 14/09/2024

Vol – 3 Issue – 9

PP: - 01-02

Abstract

This research introduces a QR code-based decision support system tailored for managing health records. The system harnesses QR codes for streamlined storage and retrieval of health information, facilitating prompt access to pertinent data for healthcare providers and patients alike. The system's design integrates user-friendly interfaces and robust security protocols to uphold the confidentiality and integrity of health records. The system's effectiveness and usability were evaluated, highlighting its potential to enhance health record management in healthcare environments. The findings indicate that the system offers a viable solution for improving the efficiency and accessibility of health records, thereby benefiting healthcare providers, patients, and healthcare systems as a whole.

Keywords: Decision support system, Health records, Healthcare Technology, QR codes

INTRODUCTION

The management of health records is a critical aspect of healthcare delivery, impacting the quality and efficiency of patient care. With the advancement of technology, there has been a growing interest in utilizing innovative solutions to streamline health record management processes. One such solution is the use of Quick Response (QR) codes, which offer a convenient and efficient way to store and access health information.

This research focuses on the development and implementation of a QR Code-Based Decision Support System (DSS) for managing health records. The system aims to enhance the accessibility and usability of health information, ultimately improving decision-making processes in healthcare settings. Johnson et al. (2019) investigated the use of QR codes for patient identification and found that it helped reduce errors and improve patient safety. By leveraging QR codes, the system provides healthcare providers with quick and easy access to patient health records, enabling them to make more informed decisions regarding patient care.

This research seeks to contribute to the field by developing a comprehensive QR Code-Based DSS for health records. Smith and Brown (2020) highlighted their potential benefits in improving efficiency and accuracy in health record management. The system will be designed to integrate seamlessly into existing healthcare infrastructure, providing a user-friendly interface for healthcare providers to access and manage patient health records. This research aims to demonstrate the potential of QR codes in transforming health record management and improving healthcare delivery.

OBJECTIVES OF THE STUDY

1. To determine the issues in the current process, focusing on challenges related to collecting patient information, monitoring patient history, accessing real-time data, and analyzing and reporting patient data.
2. To assess the developed system using ISO 25010, focusing on its functionality suitability, reliability, performance efficiency, usability, security, and maintainability.

METHODOLOGY

Research Design

This study used descriptive research design and Extreme programming (XP) is an agile model used in the software development process.

The goal of extreme programming is described as a software-development discipline that organizes people to produce higher-quality software more productively and introduces a number of principles as well as practices on top of the agile programming framework.

Data Analysis

Analysis in statistics is mainly used to find tendencies in set of data. This data analysis method had been used to determine if there is a correlation between certain factors.

Considering the problems to be solved by this study, the analysis of the response of the respondents to questionnaire is the key source to solve these problems.



RESULTS AND DISCUSSIONS

- The issues in the current process, focusing on challenges related to collecting patient information, monitoring patient history, accessing real-time data, and analyzing and reporting patient data.

Indicators	Mean	Descriptive Interpretation
Patients' Information	4.86	Very Much a Problem
Monitoring Patients' History	4.71	Very Much a Problem
Accessing Real-Time Data	4.57	Very Much a Problem
Analyzing & Reporting Patient's Data	4.71	Very Much a Problem
General Weighted Mean	4.71	Very Much a Problem

The table reveals the General Weighted mean 4.71 in the current process focusing on challenges related to collecting patient information, monitoring patient history, accessing real-time data, and analyzing and reporting patient data which shows in the Descriptive Interpretation as Very Much Problem.

- Assessment of the developed system using ISO 25010, focusing on its functionality suitability, reliability, performance efficiency, usability, security, and maintainability.

Indicators	Mean	Descriptive Interpretation
Functionality Suitability	4.62	Strongly Agree
Reliability	4.71	Strongly Agree
Performance Efficiency	4.67	Strongly Agree
Usability	4.52	Strongly Agree
Security	4.19	Agree
Maintainability	4.52	Strongly Agree
General Weighted Mean	4.54	Strongly Agree

The table shows the General Weighted mean 4.54 in the assessment of the developed system using ISO 25010, which reveals in the Descriptive Interpretation as Strongly Agree.

CONCLUSIONS

- The QR Code-Based Decision Support System (DSS) for health records offers an efficient method for managing health information. It simplifies the storage, access, and analysis of health records,

ultimately enhancing decision-making in healthcare settings.

- The developed QR Code-Based DSS for health records provide quick and secure access to health information, with its user-friendly interfaces and security measures, makes it a valuable tool for healthcare providers.

REFERENCES

- Azeez, N., & Raaj, G. S. (2021). Blockchain in healthcare: A systematic literature review, synthesizing frameworks, architectures, and application areas. *Computers, Materials & Continua*, 68(3), 3469-3498.
- Smith, A., Brown, J., & Jones, K. (2019). The use of QR codes to improve medication adherence in patients with chronic conditions: A systematic review. *Journal of Medical Internet Research*, 21(12), e15146.
- Jones, S., & Brown, D. (2020). Empowering patients through mHealth: A strategy for implementing user-centered design. *Journal of the American Medical Informatics Association*, 27(3), 479-483.
- ISO/IEC 25010:2011. *Systems and software engineering—Systems and software Quality Requirements and Evaluation (SQuaRE)—System and software quality models*.
- Agarwal, R., & Kaur, R. (2021). QR codes in healthcare sector: A review. *Journal of King Saud University-Computer and Information Sciences*.
- Yadav, R., Singh, M., & Kumar, A. (2020). Design and development of QR code-based health information management system for hospitals. *International Journal of Information Management*, 53, 102091.
- Kasthuri, A., & Kannan, G. A. (2017). A study on the application of QR code technology in health care management. *2017 International Conference on Innovations in Information, Embedded and Communication Systems (ICIIECS)*. IEEE.
- Yang, X., Zhang, H., & Li, C. (2022). A novel electronic health record system based on QR code and blockchain in a smart hospital. *Future Generation Computer Systems*, 122, 191-200.