iJRASET
International Journal For Research in Applied Science and Engineering Technology



INTERNATIONAL JOURNAL FOR RESEARCH

IN APPLIED SCIENCE & ENGINEERING TECHNOLOGY

Volume: 11 **Issue:** IV **Month of publication:** April 2023

DOI: https://doi.org/10.22214/ijraset.2023.49988

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International Journal for Research in Applied Science & Engineering Technology (IJRASET)
ISSN: 2321-9653; IC Value: 45.98; SJ Impact Factor: 7.538
Volume 11 Issue IV Apr 2023- Available at www.ijraset.com

E- Health Card

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Abstract: ***This study focuses on the deployment of smart health cards and E- Healthcare to improve the standard of healthcare services through coordinated healthcare processes and IT. The administration of electronic medical records is made simpler and the privacy protection of sensitive data is improved using smart cards. A web application with a user- friendly interface was developed to store and manage patient medical records on cards and servers, reducing the risk of data loss due to card damage. The project exemplifies real- time database management, providing easy, efficient, and reliable data processing and management for healthcare providers.***
Keywords: Health Card, Database, Medical Records, QR Code

I. INTRODUCTION

Today, information technology is impacting nearly every industry, from transportation and manufacturing to education. The healthcare sector has seen a significant transformation thanks to the influence of information technology. Its use has resulted in improved patient safety, healthcare delivery, and communication between healthcare providers and patients. One notable application of information technology in healthcare is the management of patient records and data.

The proper management of health information is an essential aspect of the evolving healthcare system. A healthcare information management system is a software system that includes a set of procedures and programs designed to facilitate the input, storage, retrieval, updating, and manipulation of data while maintaining security. The use of QR codes, which stands for Quick Response code, is becoming increasingly popular as a paperless method for managing patient records.

To ensure adequate privacy and security of patient data, the Oracle Database provides patient credentials. The portable smart health card contains the entire medical record of the user, and the embedded QR code enables the user to access all health-related information associated with the cardholder.

The Oracle Database Management System simplifies the creation, retrieval, updating, and management of databases.

II. OBJECTIVES

1) Develop a multi-purpose web application and wearable smart health card that utilizes QR code functionality to securely transfer a patient's complete medical record, while ensuring privacy and security.
2) Enable healthcare providers to access patient health records electronically, including progress from admission to treatment and discharge, thus eliminating the need for paper-based records.
3) Ensure the security and privacy of patient data by implementing robust encryption and security measures in the digital platform.

III. LITERATURE REVIEW

In recent times, the advancement of technology has made it possible to collect and analyze large amounts of patient data to drive initiatives aimed at improving population health. Blockchain technology has been identified as having the potential to enable patients to easily and securely share health information anywhere, thereby enhancing the healthcare system's ability to serve population health. Accurate information is critical for measuring and improving healthcare outcomes.

Electronic medical records (EMR), a significant advancement, have helped the medical business significantly thanks to the application of information technology. EMR technology helps consolidate medical information into a single database, reducing paper costs and providing healthcare providers with easy access to relevant patient information such as medical history, medications, and insurance details. EMRs have a lot of potential for use in medicine, as they can provide patients with integrated records that include Laboratory and pharmacy information, as well as point-of-service data on Preventative services, diagnosis, treatment, and follow-up care. This represents a significant advancement in patient care, with the potential to improve the quality of care provided immediately if all clinicians use EMRs. For instance, it becomes easy to remind a doctor that a diabetic patient needs an eye exam or a hemoglobin test.

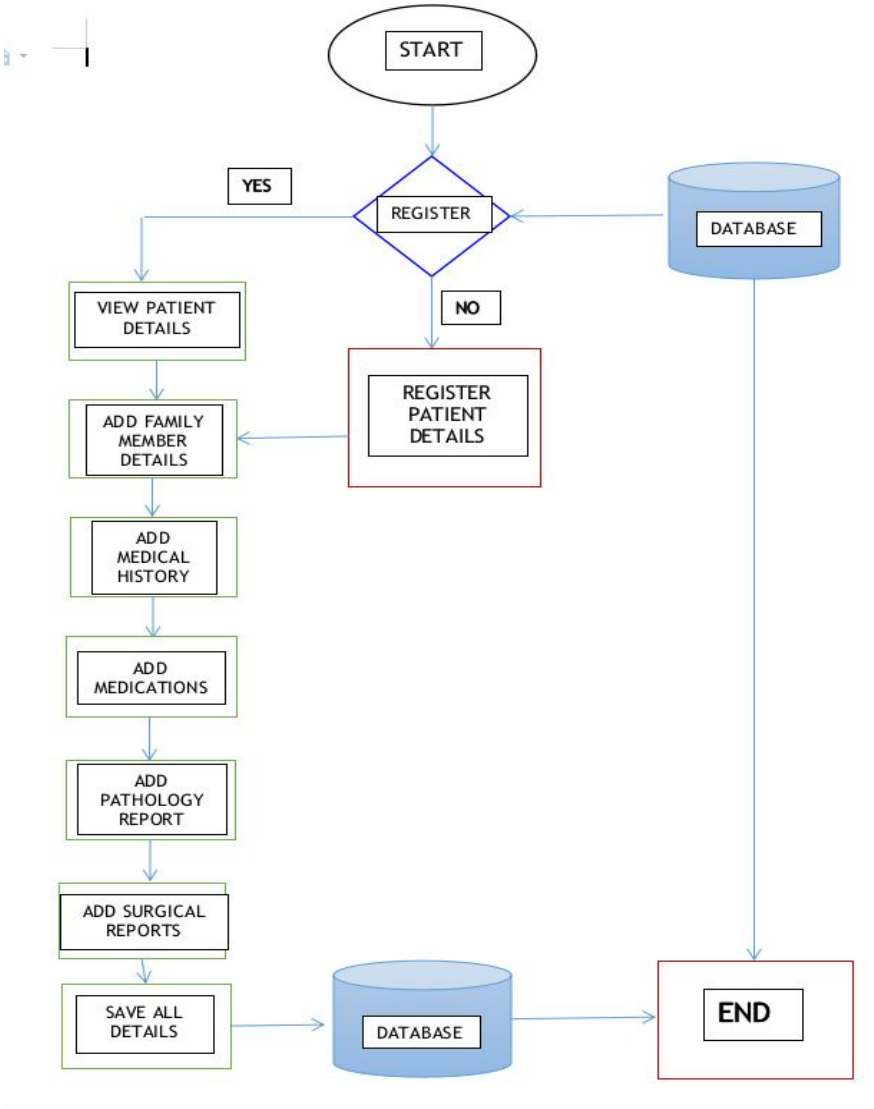
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Managing patient records and data is one of the most important uses of information technology in healthcare. The proper management of health information using software systems that ensure secure data entry, storage, retrieval, update, and manipulation is an essential aspect of the evolving healthcare system.

IV. METHODOLOGY

A graphical user interface was utilized to develop a web application for efficient storage and management of patient medical records on both cards and servers. The implementation of data protection and security protocols were ensured by providing patient access data on an Oracle database. The wearable smart health card includes the user's complete medical record, and the embedded QR code allows easy access to all the health-related information of the cardholder.

The use of smart cards in healthcare provides a secure and convenient method for storing and transmitting medical information, thereby improving the quality and availability of healthcare services. The APEX platform, which is a free and fully supported feature of Oracle Database, provides a comprehensive, integrated, and secure data platform that allows apps built with APEX to natively access and interact with the full power of Oracle Database.



Flowchart of Application's Operation

1) *STEP 1*- Create a database and web application to store medical history of patients.
2) *STEP 2*- Add patient's medical history, family history, allergies, medications, surgical andpathological reports etc
3) *STEP 3*- Scan QR to view, retrieve, update and delete data.

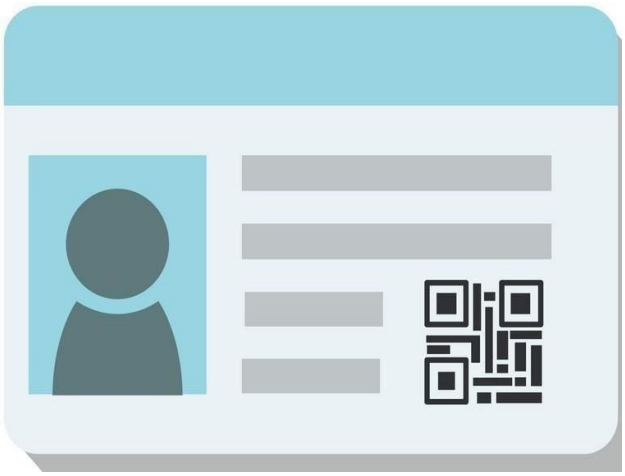


Fig. Sample card of user

V. SOFTWARE SPECIFICATION

A. *Oracle Apex*

To develop a comprehensive patient medical record management system that ensures data security and privacy, a web application with a user-friendly graphical interface was designed.

The application stores and manages patient medical records on both cards and servers, minimizing the risk of data loss due to card damage. Oracle database was utilized to ensure adequate data protection and security, and patient access data was provided to enhance the security of the medical records.

The wearable smart health card contains the entire medical record of the user, and an embedded QR code allows the user to view all the health-related information of the cardholder. The integration of smart cards into the healthcare system is expected to enhance the quality and availability of healthcare services by providing a secure and convenient medium for storing and transmitting medical information.

The application was built using APEX, a fully supported and free feature of Oracle Database, which is an integrated and secure data platform suitable for any scale- out implementation. The use of APEX enables the application to access and interact natively with the full power of Oracle Database, providing a solid foundation for data management and security.

VI. FUTURE SCOPE

1) We can create an application for this E-card and can develop a software.
2) In that application different features can be added like payment method and notification alert.
3) We can also add GPS which will show the nearest hospitals, Labs, pharmacy.
4) During emergency a feature will be added which will automatically send message to the ambulance.
5) The application can also order the medicine from the pharmacy.

VII. RESULT

1) In case of urgent operations this health card helps the patient to provide doctor accurate medical history for better treatment.
2) It provides us Paperless experience which helps the doctor to check the patient instantly.
3) After putting all the details and saving it, we can view, retrieve, update, and delete data by simply scanning the QR code which make the patients report up to date. With the help of E-card all the medical process will be easy.

VIII. CONCLUSION

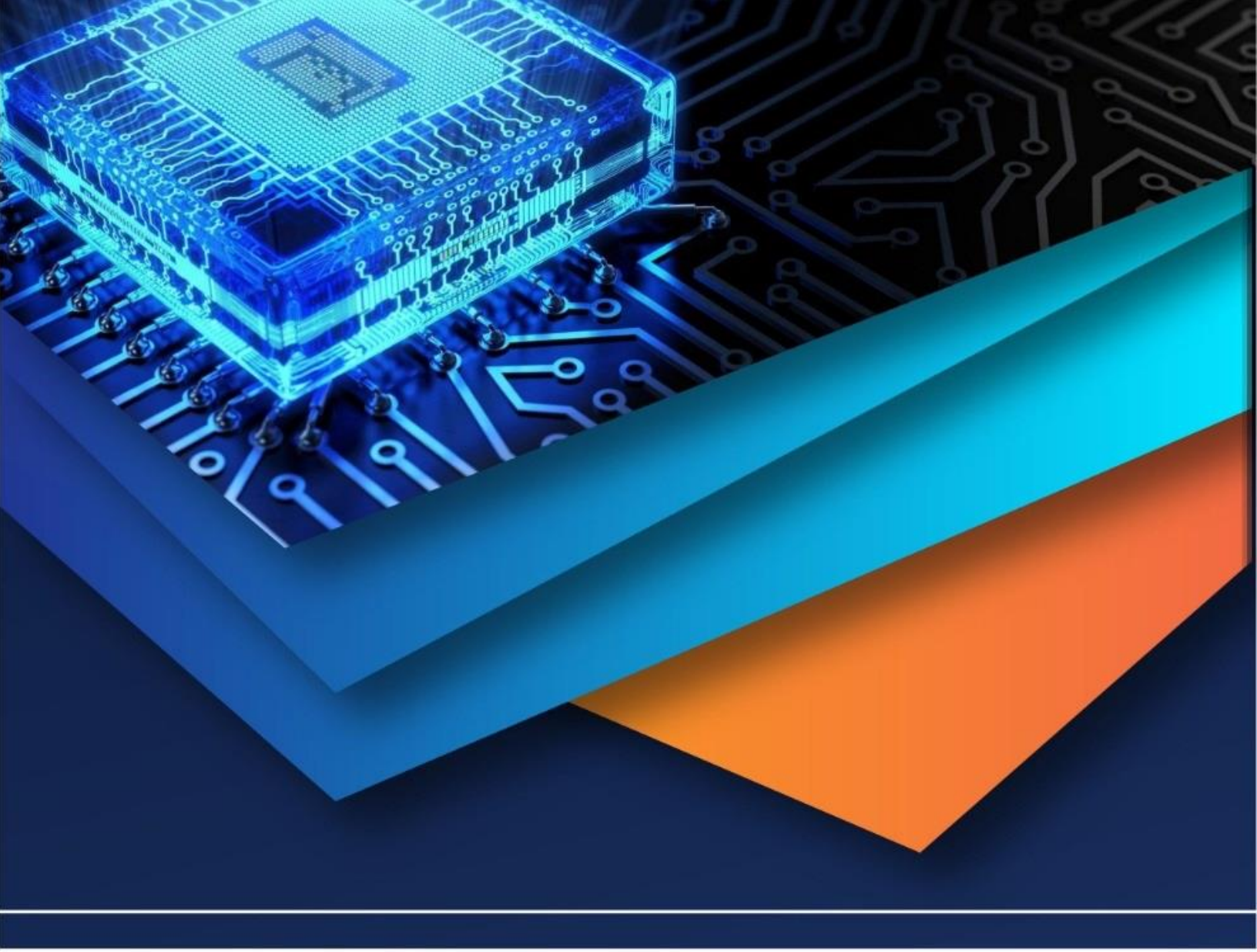
The use of a health card, specifically an electronic health card, can improve the accuracy and efficiency of medical treatment in urgent situations. The health card allows for instant access to the patient's medical history, a paperless experience, and easy retrieval, updating, and deletion of data through the use of a QR code. Overall, the use of an E-card can streamline the medical process and make it easier for patients and doctors alike.

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