



E HEALTH CARD -A WEB BASED HEALTHCARE SYSTEM

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ABSTRACT: The E-Health Card system is a web-based platform designed to store and access patient medical information securely. The project aims to reduce dependency on paper-based reports by creating a digital health identity for every patient. The system allows patient registration, login, health card generation, report upload, doctor access and emergency information display. It is developed using HTML, CSS, JavaScript, PHP as backend technology and MySQL as the database. The system improves the accessibility, accuracy and reliability of medical records, making it suitable for small clinics and hospitals. This paper presents the system architecture, database design, implementation approach and results.

Key Words: Digital Healthcare, E-Health Card, Django Framework, Health Information System, Medical Records Management, Healthcare Digitization

1.INTRODUCTION

Healthcare systems mainly rely on paper files, manual reports and physical prescriptions. These documents can be lost, damaged or become inaccessible during emergencies. Patients also find it difficult to carry previous reports when visiting different doctors or hospitals.

The objective of this project is to provide a digital solution that stores the patient's medical history in one centralized platform. Doctors can access important

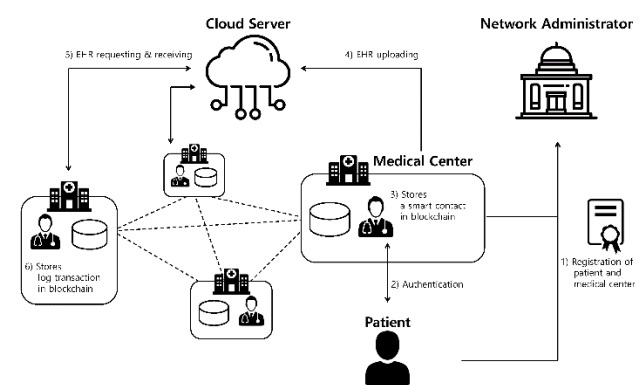
information such as blood group, allergies, past diseases and uploaded medical reports within seconds. The system is simple, lightweight and suitable for real healthcare use.

2. LITERATURE REVIEW

Many existing systems provide electronic health records but most are complex, costly or made for large hospitals. Several studies highlight the need for a simple, user-friendly digital platform for small hospitals. Chatterjee & Dey (2019) discussed benefits of EHR systems such as accuracy and accessibility. Varshney (2020) presented a rural healthcard system showing improvement in patient identification. Ghosh (2018) highlighted the importance of security and data protection.

These studies show that a practical PHP-MySQL based web system can solve basic healthcare record management issues.

3. SYSTEM ARCHITECTURE AND DESIGN



The E-Health Card system follows a simple three-tier architecture suitable for web-based applications. The architecture consists of the Client Layer, Application Layer,

and Database Layer. Each component communicates securely to store, retrieve, and manage patient health information.

System Components (as shown in the diagram)

1. Patient (User)

- Registers using a web form
- Logs in using credentials
- Health Card
- Uploads medical reports
- Shares QR code during emergency

2. Medical Center (Doctor / Hospital Panel)

- Doctor logs in
- Searches patient using Health Card ID
- Views full medical history
- Downloads or checks reports
- Adds notes/diagnosis (if allowed)

3. Cloud Server / Web Server (PHP Server)

- Handles all requests from patient & doctor
- Performs authentication
- Processes report uploads
- Sends/receives data from MySQL database
- Generates unique Health Card ID

4. Database (MySQL)

- Stores all patient profiles
- Stores doctor data
- Stores uploaded reports (file path)
- Stores emergency information
- Maintains secure, structured tables

5. Network Administrator / Admin Module

- Manages patient & doctor accounts
- Checks system logs
- Updates master data
- Ensures system security and backup

4. IMPLEMENTATION DETAILS

❖ Frontend Implementation

The frontend is developed using:

- HTML5 – For structure and input forms
- CSS3 / Bootstrap – For responsive layout

- JavaScript – For form validation and user interaction

Patients and doctors interact with the system using simple web pages for login, registration, report upload, and viewing medical history.

❖ Backend Implementation (Python)

The backend of the system is developed using Python, which handles all operations such as authentication, health card generation, report processing, and communication with the database.

Major Python backend functionalities:

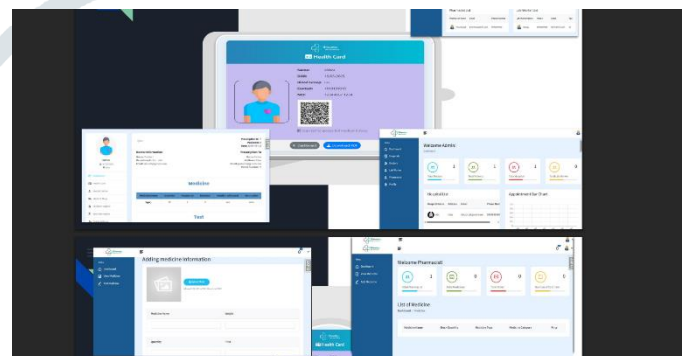
- ✓ User authentication
- ✓ Health Card ID generation
- ✓ File upload and validation
- ✓ Database insertion and retrieval
- ✓ Emergency information retrieval
- ✓ Doctor-side search functionality

❖ Database Implementation (MySQL)

MySQL is used as the relational database to store:

- Patient details
- Doctor details
- Uploaded reports (file path)
- Emergency information

5. RESULTS



The proposed Web-Based E-Health Card System was successfully developed and tested. The system performed all the intended operations efficiently, including patient registration, health card generation, secure login, report upload, and doctor access. The test results showed that the system accurately stored and retrieved patient information from the database within a few seconds.

The system was tested on multiple devices such as laptop and mobile browsers, and it worked smoothly without major errors. The user interface was simple and easy to navigate for patients and doctors. The database operations like insert, update, and fetch were executed correctly using Python backend and MySQL.

The system also generated a unique Health Card ID for every patient and allowed emergency access using the QR code. Overall, the results indicate that the system is reliable, fast, and suitable for small clinics and healthcare centers.

6. ADVANTAGES

1. Easy Access to Medical Records:

Patients and doctors can access health information anytime through a web browser without carrying physical files.

2. Centralized Data Storage:

All patient records are stored in one secure database, making it easy to search, update, and retrieve information quickly.

3. Reduces Paperwork:

The system eliminates traditional paper-based health cards and reduces manual record handling in hospitals and clinics.

4. Faster and Accurate Data Retrieval:

Doctors can retrieve patient history, reports, and medical details within seconds, improving treatment speed.

5. Secure and Reliable :

User authentication, encrypted storage, and unique Health Card IDs ensure that patient data remains safe and accessible only to authorized users.

6. User-Friendly Interface

The system is designed to be simple and easy to use for both patients and medical staff, requiring minimal technical knowledge.

7. Emergency Access via QR Code

Essential health information like blood group, allergies, and medical conditions can be accessed immediately during emergencies using a QR code.

8. Works on Any Device

Being web-based, the system runs smoothly on laptops, tablets, and mobile phones without installation.

9. Efficient Report Management

Patients can upload lab reports, and doctors can view them instantly, removing delays and reducing physical storage problems.

10. Suitable for Small Clinics and Hospitals

The system is lightweight, easy to deploy, and can be used by small healthcare centers without high technical requirements.

7. FUTURE SCOPE

The proposed E-Health Card system can be enhanced in various ways to make it more efficient, scalable, and suitable for real-world healthcare environments. Since the system is web-based, several improvements can be easily added in future versions:

1. Mobile Application Integration:

A dedicated Android/iOS app can be developed so that patients and doctors can access the system directly from their phones.

2. Cloud-Based Storage:

Moving the database and reports to cloud storage (AWS/GCP/Azure) will improve scalability, security, and speed.

3. Multi-Hospital Connectivity:

Future versions can connect multiple hospitals and clinics so that a patient's medical record is accessible anywhere.

4. Advanced Authentication:

Two-factor authentication (OTP/E-mail verification) can be added for enhanced security.

5. QR Code-Based Emergency Access:

QR code scanning can be expanded to allow quick emergency treatment by instantly showing patient allergies, blood group, and chronic conditions.

6. Appointment and Prescription Module:

Doctors can provide digital prescriptions and patients can book online appointments through the system.

7. Data Analytics Dashboard:

Adding analytical charts can help hospitals track diseases, patient visits, and trends.

8. Integration With Government Health Services:

The system can be linked with Ayushman Bharat Health ID or other government health platforms.

9. Real-Time Notifications:

SMS/Email alerts for report uploads, prescription updates, and appointment reminders.

10. Improved File Management:

Automatic categorization of reports (blood tests, x-ray, prescriptions) for easier access

8. CONCLUSIONS

The web-based E-Health Card system successfully replaces traditional paper health records with a secure and centralized digital platform. The system enables patients and doctors to access medical information quickly and accurately from anywhere using a simple web interface. By integrating modules such as patient registration, report upload, doctor access, and emergency information, the project improves the overall efficiency of healthcare management. The use of Python/PHP and MySQL ensures reliable data storage and fast processing. This system is suitable for small clinics and can be extended further with cloud integration, multi-hospital networking, and mobile application support. Overall, the project demonstrates how web technologies can make healthcare more organized, accessible, and patient-friendly.

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