International Scientific Journal of Engineering and Management (ISJEM) ISSN: 2583-6129
Volume: 04 Issue: 06 | June – 2025 DOI: 10.55041/ISJEM04178
An International Scholarly || Multidisciplinary || Open Access || Indexing in all major Database & Metadata

"MEDICARD: Automated System for Generate Secure and Standard Healthcare Cards"

Adesh R.Borhade, Prof. Bisweswar Thakur

[1]*Adesh Borhade Master of Computer Application & Trinity Academy of Engineering, Pune*
[2] *Prof. Bisweswar Thakur Master of Computer Application & Trinity Academy of Engineering, Pune*

Abstract - In today's fast-paced and digitally driven healthcare environment, the need for efficient patient data management and quick access to medical records has become increasingly critical. *Medicard: A Medical Card Generator* is a proposed system designed to automate the generation of secure, standardized medical cards containing essential health information such as personal details, blood group, medical history, allergies, and emergency contacts. This system aims to bridge the gap between patients and healthcare providers by offering a portable and instantly accessible solution for vital medical information. The research explores the design, development, and implementation of the Medicard system using modern technologies, ensuring data accuracy, privacy, and compliance with medical data standards. By integrating QR codes and cloud-based storage, the Medicard enhances real-time access and reliability during emergencies or routine check-ups. This paper also discusses the potential impact on patient care, data portability, and healthcare digitization, especially in rural and underserved areas. The system is intended to be scalable, user-friendly, and adaptable for integration into existing hospital information systems.

Keywords: - *Healthcare Data, Digital Health, Health Informatics, Health IT System, Smart Health Card*

1.Introduction

Healthcare is one of the most vital sectors in any society, where timely access to accurate patient information can greatly improve the quality of medical services. In emergencies, the availability of critical data—such as blood group, allergies, medical conditions, and medication history—is essential for informed decision-making. However, this information is often not readily accessible, leading to delays or even life-threatening errors. To address this issue, this project proposes the development of a Medical Card Generator—a system designed to create personalized medical cards, in digital or physical form, containing structured and essential patient information. The system efficiently captures, stores, and retrieves data, ensuring it is always accessible to healthcare professionals when needed. By incorporating modern technology into medical information management, the Medical Card Generator enhances care continuity, reduces manual recordkeeping, and improves overall safety and convenience for both patients and providers. This report presents the objectives, methodology, scope, and development of the system, highlighting its potential benefits in real-world healthcare settings.

2. Methodology

2.1 Technology Stack

The development of the **Medicard** system is based on a simple yet effective technology stack aimed at delivering a user-friendly and secure platform. The front-end is designed using HTML5 and CSS3 to create a clean, responsive, and accessible user interface, while basic JavaScript is used for client-side interactivity and form validation. The back-end is powered by PHP, which handles the core application logic, user authentication, and integration between the user interface and the database. For data storage, MySQL is used as the relational database management system to securely store patient details, medical history, and admin information in a structured format. The system also includes a QR code generation feature using PHP QR Code libraries, allowing each medical card to be embedded with a stainable code linking to the patient's profile or emergency details. Security is ensured through the use of HTTPS, server-side input validation, and basic encryption techniques for sensitive data. Development and testing are carried out using tools like XAMPP for local server setup and php MyAdmin for database management, with version control maintained via GitHub. This technology stack offers a practical, cost-effective solution for implementing a medical card system that is both accessible and efficient.

2.2 Data Collection and Management

The **Medicard** system is designed to efficiently collect, store, and manage essential patient information for easy access and sharing. Data collection begins at the user registration stage, where personal details such as name, age, gender, contact number, and address are captured through secure web forms. Additionally, medical-specific information including blood group, allergies, and chronic diseases, past medical history, current medications, and emergency contact details are collected either manually entered by the user or updated by authorized healthcare personnel. All inputs are validated on both the client and server side to ensure data accuracy and completeness. Once collected, this information is stored in a structured format within

a **MySQL database**, enabling quick retrieval and easy modification when required. The database schema is designed to maintain relational integrity and includes tables for patients, medical history, user credentials, and generated QR codes. PHP scripts handle the interaction between the user interface and the database, allowing CRUD (Create, Read, Update and Delete) operations securely. Access to sensitive information is restricted using authentication mechanisms, and periodic backups are scheduled to prevent data loss. The system is also capable of exporting data in a printable medical card format, and the inclusion of a QR code ensures instant access to patient records during emergencies. This structured and secure approach to data collection and management forms the backbone of the Medicard system, ensuring reliability and usability in real-world healthcare environments.

2.3 Application Features

- **User Registration and Authentication:** Secure sign-up and login system for patients to create and manage profiles.
- **Medical History Input:** Easy-to-use forms to record blood group, allergies, chronic illnesses, medications, and other vital health data.
- **Automated Medical Card Generation:** System generates a personalized medical card displaying essential information.
- **Personal Information Management:** Users can enter and update personal details like name, date of birth, contact info, and emergency contacts.
- **Data Retrieval and Search:** Healthcare professionals can search patients by name or ID and view or update medical records quickly..
- **Admin Dashboard:** Allows authorized staff to manage user accounts, approve registrations, and monitor system activities.
- **Access Control:** Role-based permissions ensure sensitive data is accessible only to authenticated and authorized users.

2.4 Middleware Logic

- **Request Validation:** Checks and validates all user inputs from front-end forms to prevent errors and security vulnerabilities.
- **User Authentication:** Verifies user identity during login and maintains session management for secure access.
- **Role-Based Access Control:** Restricts or permits actions based on user roles (patient, healthcare provider, admin).
- **Response Formatting:** Ensures consistent data formatting and communication between front-end and back-end.
- **Session Management:** Maintains user sessions to track active users and prevent unauthorized access**.**
- **Request Validation:** Validates all incoming data from forms and API calls to ensure completeness, correct data types, and prevent malicious input.
- **User Authentication:** Authenticates users via login credentials, manages secure sessions or tokens, and supports password encryption and recovery
- **(RBAC):**Differentiates between patients, healthcare providers, and administrators, enforcing permissions to restrict data access accordingly
- **Security Enforcement:** Implements HTTPS for secure data transmission, encrypts sensitive data before storage, and prevents common web vulnerabilities (SQL injection, XSS, CSRF)..

Performance

Optimization: Manages efficient database queries, caching strategies, and load balancing to ensure responsiveness.

3.Results and Discussion

The Medicard system effectively generates personalized medical cards containing vital patient information in both digital and printable forms, enabling quick and accurate access to medical details. User testing showed that patients could easily register, input their medical history, and retrieve their cards without difficulty, while healthcare providers could access patient data rapidly, reducing delays in critical situations. The database performed efficiently with smooth data storage and retrieval even under multiple user access. Security measures like HTTPS and input validation successfully protected sensitive information, and role-based access control ensured data privacy by restricting unauthorized access. Although the system met its goals, it relies on stable internet connectivity, which may limit use in areas with poor network access. Future enhancements could focus on offline accessibility and mobile platform support to improve convenience. Overall, Medicard provides a practical, secure, and scalable solution for managing essential healthcare data for both patients and medical professionals.

International Scientific Journal of Engineering and Management (ISJEM) ISSN: 2583-6129
Volume: 04 Issue: 06 | June – 2025 DOI: 10.55041/ISJEM04178
An International Scholarly || Multidisciplinary || Open Access || Indexing in all major Database & Metadata

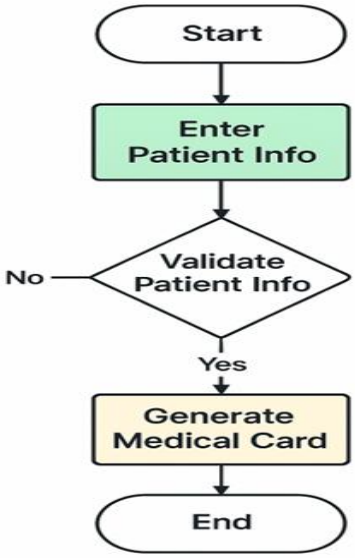

Fig -1: Flow Chart Diagram

- The process begins with the user (patient or admin) entering personal and medical details such as name, age, blood group, medical conditions, and contact information through a structured form on the system.
- Once the data is submitted, the system checks the inputs for completeness, correctness (e.g., valid age or blood group), and any missing or incorrect fields. If errors are found, the user is prompted to correct them before proceeding.
- The install prediction model accurately estimated whether an app would reach 100K+ installs based on its rating, supporting marketing and development strategies.

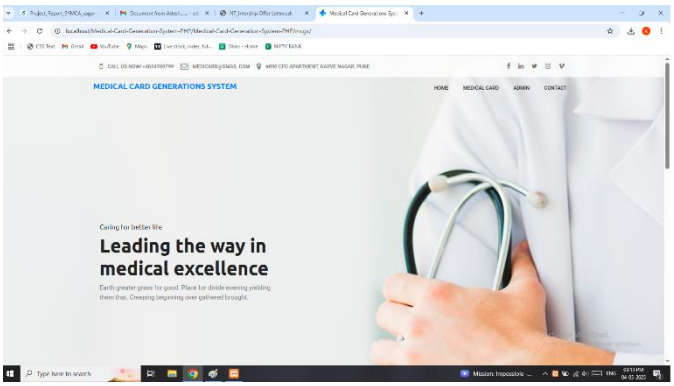

Fig -2: Home page

The image Welcome to Medicard – Your Personal Medical Card Generator**.** This platform is designed to help individuals securely create and manage personalized medical cards that contain essential health information such as blood group, medical conditions, allergies, and emergency contacts. Whether for routine check-ups or unexpected emergencies, having quick access to accurate medical data can make a critical difference. Medicard simplifies this process by allowing you to enter your details, validate the information, and instantly generate a downloadable or printable card that you can carry or store digitally. Easy to use, secure, and accessible—Medicard is your step toward smarter healthcare management.

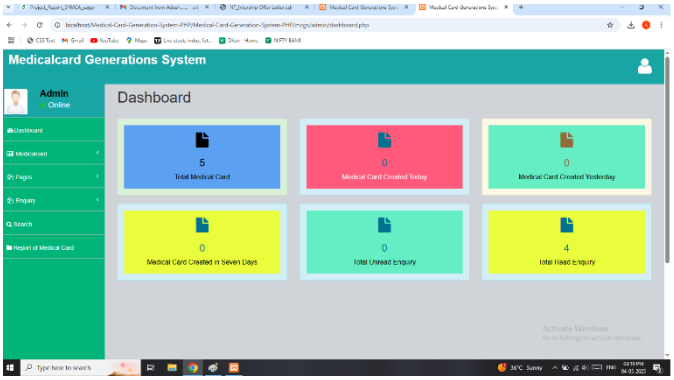

Fig -3: Dashboard

The Medicard Dashboard provides a quick overview of system activity, including the total number of medical cards generated, cards created today, and those scheduled or expected to be created tomorrow. This helps administrators and healthcare staff monitor usage trends, track daily operations, and manage patient data more efficiently with real-time updates and clear insights.

3. Conclusions

In conclusion, the Medicard system offers a reliable and user-friendly solution for managing essential patient health information through personalized medical cards. By streamlining data entry, validation, and card generation, it improves the accessibility and accuracy of critical medical records. The system enhances patient safety, supports faster decision-making for healthcare providers, and reduces reliance on manual recordkeeping. While there is scope for future improvements such as mobile integration and offline support, the current implementation successfully demonstrates the potential of simple digital tools in improving healthcare information management.

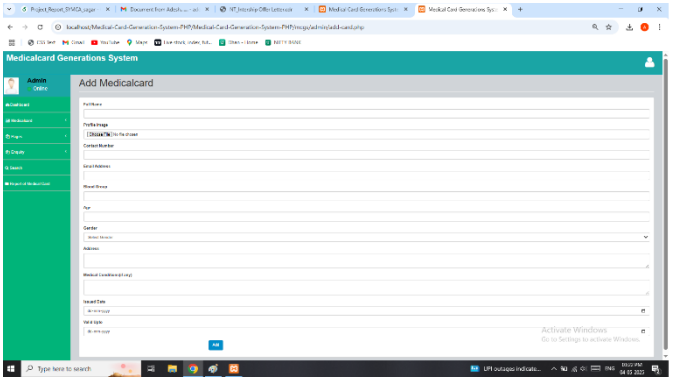

Fig – 4 .Add Medical Card

The Medicard system includes a well-structured Medical Card Diagram that visually represents the key components displayed on a generated medical card. This diagram outlines essential patient details such as name, age, blood group, medical conditions, allergies, current medications, and emergency contact information, all arranged in a clean, readable format. The design ensures that healthcare professionals can quickly scan and understand the patient's critical health data at a glance. By standardizing the layout and ensuring all necessary fields are clearly marked, the medical card not only enhances usability but also supports better decision-making during medical consultations and emergencies.

ACKNOWLEDGEMENT

The author thanks Prof. Bisweswar Thakur and Trinity Academy of Engineering for their guidance and support throughout the project.

REFERENCES

[1] Mozilla Developer Network (MDN). (2023). HTML5 Forms.
[2] D. Jain, D. Arora. (2021). Healthcare Information Systems: A Review of the Current State and Future Trends. *Journal of Healthcare Engineering*, 2021, Article ID 991220.
[3] World Health Organization (WHO). (2020). Personal Health Record (PHR)-A Way to Empower Patients. Retrieved from https://www.who.int/health-topics/ personal-health-records.
[4] ISO. (2016). *Health informatics — Electronic health record — Definition, scope, and context* (ISO/TR 20514:2005).International Organization for Standardization.
[5] Kulkarni, A., & Joshi, A. (2020). *Design and Implementation of Smart Health Card System*. International Journal of Computer Applications, 176(37), 1–5.
[6] Md. Zubair, & Khan, S. A. (2021). *Role-Based Access Control in Healthcare Information Systems*. Journal of Medical
0.

Adesh Borhade is a postgraduate student pursuing a Master of Computer Applications (MCA) degree at Trinity Academy of Engineering, Pune, India. He has a keen interest in web development, healthcare technologies, and database systems. As part of his academic work, he developed *MediCard – A Medical Card Generator* using PHP, HTML, and CSS. The project focuses on simplifying medical data storage and retrieval through a user-friendly interface. His goal is to leverage technology to solve real-life problems in the healthcare domain.