

## Patient Mitra: Health Card

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**Abstract—** Health cards are essential in the healthcare industry to keep track of an individual's medical history and health information. The objective of this research paper is to present a design and implementation of a health card in the IEEE format. The health card includes features such as an electronic health record, security requirements based on the technology of a unique QR code and unique patient identity number. The electronic health record is stored on a secure data base and can be accessed by authorized users, the registered and verified doctors and the particular patient. The unique QR code ensures that only the cardholder can access the health information. The health card can improvise the efficiency and quality of healthcare services also it can prove as a valuable tool for healthcare professionals.

**Keywords —** Electronic Health Card, Health Card, Healthcare, Health Information, QR Code)

### I. INTRODUCTION

Many developing countries like India, Bangladesh, Sri Lanka are facing difficulties in better health facilities in order to reach out to remote and rural parts of the country. The health care sector faces one of the major issues in India and thus the advanced and improvised technology is becoming more important now a days. The health sector has been revolutionized by the advent of technology. The development of an Electronic Health Card is one such example, it has become an increasingly important tool in healthcare system. An Electronic Health Card is a secure, portable, and easy-to-use device that stores a patient's medical information and makes it accessible to authorized healthcare providers in real-time. The Electronic Health Card is designed to store a variety of medical information, including personal information, medical history, lab results, medications, and immunizations. The Electronic Health Card will also provide patients with greater control over their medical information, allowing them to carry their medical history with them at all times.

After studying few research papers based on Electronic Health Card we were able to observe and analyze some points, few of them are mentioned ahead. These research works have been mainly carried out in the European countries[1][3]. These projects aim to improvise the connection between the mobile citizens of Europe and the national health care systems using advanced smart card technology[3]. Some of the projects have implemented a user-friendly chat-box to create more healthy relation between doctor and their patients[4]. Several electronic health cards have introduced highly secured encryption of data using encryption keys and digital signature keys which are stored on the system and are utilized to exchange secure and authorized data between clients and database servers[1][2][4]. Due to advancement in technology many health agency have also launched an electronic health card with unique features like storage where one can store nominal of their own premium insurance[5]. Instead

of single-server-environment-based authentication system there has been an introduction of mutual authentication and key agreement scheme for a multi-medical server environment[6]. Many papers have concluded that The use of an electronic health card will have several advantages, such as less administrative and paper processes, lower costs, fewer medical errors, more accurate case follow-up, patient information integrity, the removal of the problem of readable prescriptions, etc[7][1]. There are several projects with common features in terms of data encryption, data security, data privacy and accessibility of the health card.

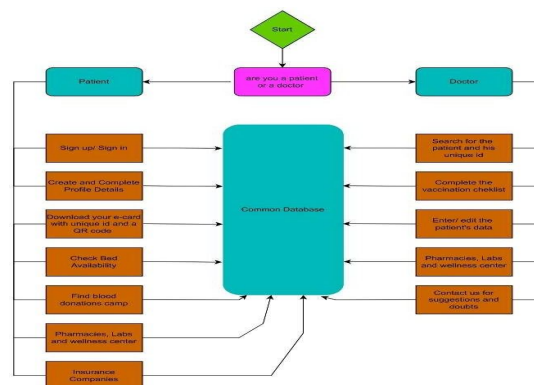
After studying the different research papers and identifying various unique features of each and every project related to Electronic Health Card we decided to design an Electronic Health Card which can be accessed using a unique QR code and a unique patient identity number. Every user will be provided with a unique QR code and a unique number on their health cards. The verified registered doctors can access all the information and data of the patient by entering the patient identity number. The system allows display of a limited data of the patient after scanning the QR code, hence the data will be protected and the patient can have his/her privacy. We decided to add this feature to our project for easy and fast accessibility of data. Since India is a developing country not only in terms of economy but also in terms of technology. These developing factors have led to use of many advanced technologies this also includes use of scanner for various purposes. Considering QR scanner a basic tool every hospital must have it for scanning medicines, bills, packages and many more things in hospital industry. This scanner can be used to scan the QR code present on our Health Card and access the information of the patient. The system consists of two functions. On one hand it allows the doctor to check administrative data of the patient and enter any required prescription. On the other hand it allows the patient to enter their personal information, medical data and many more mandatory details. In the future scope of this paper we have planned to add many new exciting features for both the patient and the doctor, creating it more user friendly and interactive. Features like booking an appointment with a doctor in a particular hospital, ordering medicines online from any near by pharmacy and reading health blogs, health news will be a useful and interesting feature for a patient. For doctors we will be adding features like accepting or declining an appointment, reading and posting health blogs and allowing them to interact with their patients online for developing a better bonding and relation with each other. Patient Mitra is a unique project which is going to be helpful in the Indian health sector.

## II. METHODOLOGY

The methodology of our project goes as follows: We conducted a literature review to gather information about the already launched similar projects in the health industry. We studied different research papers and developed unique ideas and designs to be implemented in our project, the Patient Mitra. We analyzed the work and decided to add an unique feature to our project. We have added a QR scanner and a unique identity number which helps in accessing the information on the health card. We worked on developing a front-end and a back-end for the website of our project. This website can help us access the health card. The front-end has been developed using languages like HTML, CSS and JavaScript. We have been working on the back-end using SQL and Xampp for creating a data base. We have even deployed our website using repositories on GitHub.

A) Characterization of our project is as follows: Patient Mitra is an electronic health card which can be accessed through our website by the login credentials of both the doctor and the patient. The website includes a user interface for accessing patient information and a database to store and retrieve medical records. The website has highly secured encryption and authentication protocols which are used to ensure the protection of patient data.

B) Flowchart:



### III. RESULTS AND DISCUSSIONS

Patient Mitra, an electronic health card has served its purpose appropriately. It has helped to create a better connection between a patient and his doctor, it acts like a bridge between them. It has become more simpler for the hospitals to access the information, data and past records of a patient. Using the health card will lead to advancement in not only health industry but also in technology and economy. This has proven beneficial also for the patients as they can access their health information from anywhere anytime easily. The health card includes security and protection of users data and information therefore they can have their privacy protected. Doctors using the health card can save their time by directly accessing the patient record by scanning the QR code or entering the unique patient ID instead of opening and reading past records. It has also helped to store the Vaccination records very easily in form of a checklist. Patient Mitra has been a really helpful and reliable in the health industry.

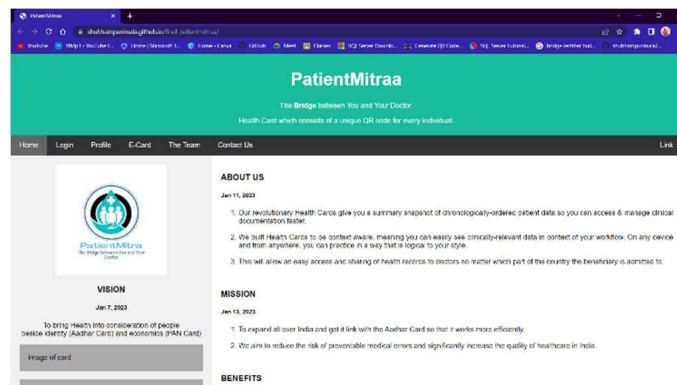


Fig 1: The home page stating our Vision and Mission

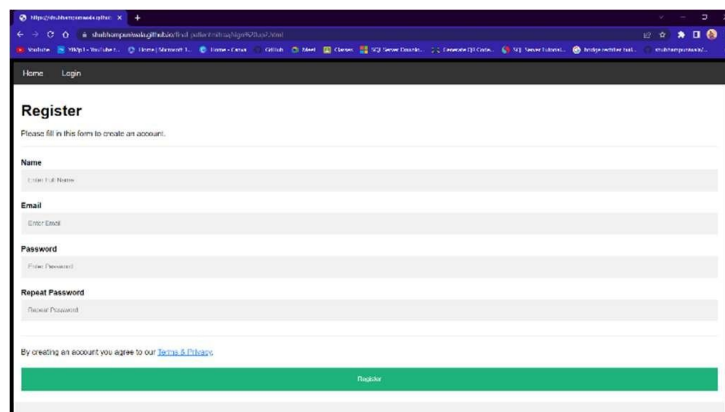


Fig 2: The sign up page



Fig 3: The login page

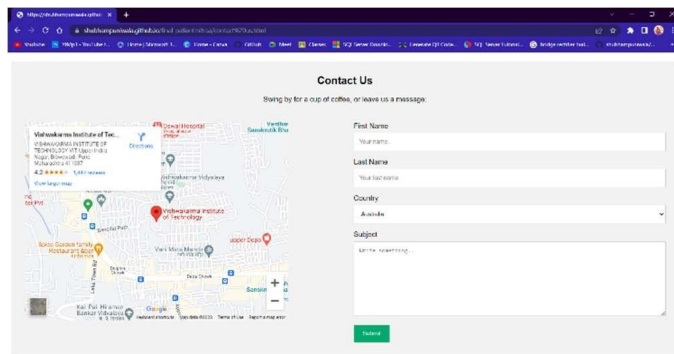


Fig 4: Contact us page with a Google map stating direction to meet us.

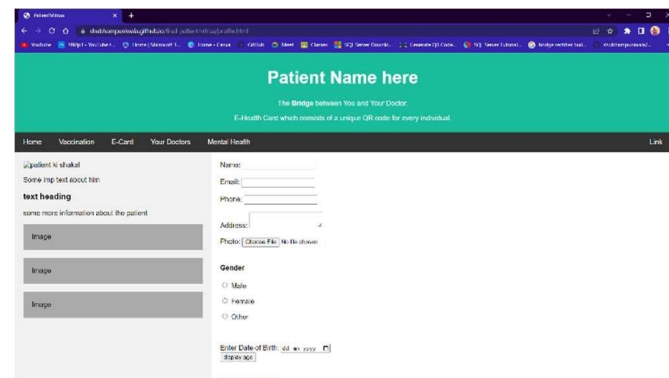


Fig 5: Profile input page

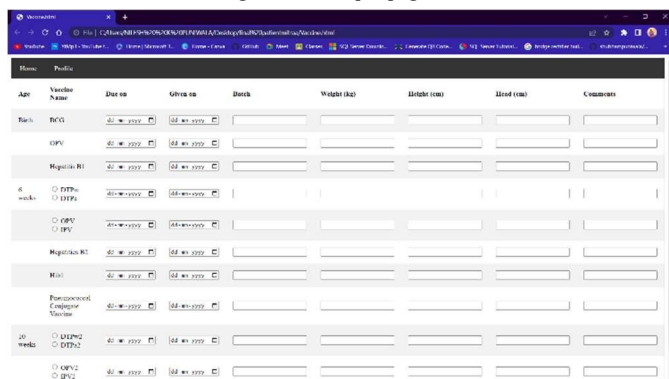


Fig 6: Vaccination Check list

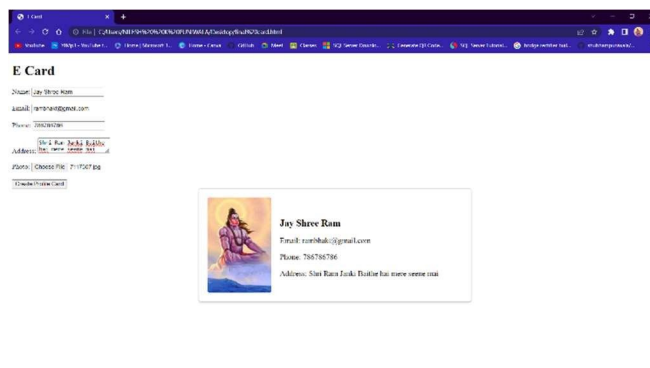


Fig 7: A generated card



Fig 8: Generated QR Codes  
(The user can choose any one according to his preference)

#### IV. FUTURE SCOPE

The future scope of our Patient Mitraa is vast and promising. With the continuous advancement of technology, electronic health cards are likely to play even more critical role in the healthcare industry. We have planned to work further on this project by adding new features like linking of user's Aadhaar card and PAN card to our electronic health card which will make it even simpler for the users to access their information and data. Successful linking of the Aadhaar card and PAN card will provide us with a huge platform to implement our project. We are even going to add pages like bed availability in hospitals, blood donations, pharmacies, labs and other wellness centers. The pharmaceutical page aims to reduce frauds which happens for commission on selling the drugs. We even aim to add insurance companies so that it becomes easy for the user to check which insurance he can claim in which hospital. The last addition to our project will be launching a mobile based application for even better and easy access of a patient's data and information.

#### V. CONCLUSION

Patient Mitra is a project which will bring changes and improvement in the health sector. The platform serves a bridge between a patient and his doctor. It's not only beneficial to doctor's but also to patient's. The proposed Electronic Health card system would be successful when people will understand the advantages of this Electronic Health card system and about the need of this technology for advancing the current healthcare system in India. With the advancement of technology, the future of health cards looks promising, and they will continue to play a vital role in the healthcare industry.

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