

Design and Development of Online Medical System

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Abstract: *Over the years, the health care system has significantly improved. However, with the technology available it is possible to integrate the medical services with online systems to make the patient's life more convenient. Our application, Life Care, will help a patient to find a specialized doctor as per their needs, availability, distance, and consultancy charges. It is designed especially for an emergency and reduce the patient's time in hunting for a specialized, doctor, smart technologies such as computers, smartphones, smart bracelets, smart medical devices can be used by medicinal organizations because of their enhanced usability, multiple uses, low costing, flexibility, mobility, reliability, and new capabilities. This encouraged health organizations to boost their demand for new healthcare technologies and enable users to multiple access medical services and improve the user experience.*

Keywords: Healthcare System, Online Medical System, Online Healthcare Services

I. INTRODUCTION

Visiting hospitals standing in queue for hours and waiting is an extremely hard and tiring process to overcome this problem. The health foundations need to develop web and mobile applications for healthcare communication environment to boost the connection effectiveness between patients and medical workers, while enhancing the maturity, quality, and safety of healthcare. Especially for those who live or work in faraway places or country side. The earlier method is time consuming and difficult because every time you have to visit hospitals just to book an appointment many a times people wont be able to go hospitals because of various reasons online medical care system can solve this problem. Existing studies have pointed out that online medical facility will help people more . As the number of service-oriented applications is increasing, the importance of dependability of them increases, too [1]. A successful healthcare system can only be carried out when the masses are involved in the process. To make this a reality the healthcare system should be accessible to everyone without making them stand in a long queue outside the hospitals and clinics. Over the years many systems and ideas have been implemented and imitated to achieve a possible online healthcare system. The main goal of this idea proposed is to encourage more people to use online services book appointments remotely wherever they are, whichever smartphone they are using to reduce the time consumption and make it more flexible and possible for the people

II. RELATED WORK

2.1 Existing Medical Systems

A. Implementation of MediCare Social Media System IEEE.

This current research aims to develop a social network oriented towards health management. The proposed healthcare solution provides a platform which facilitates the communication between various hospitals, clinics, and patients. The user registers, enters her/his data by using the personal computer or smartphone and medical data is collected from them by using various wearable devices, like intelligent bracelets. This system gathers information from several users regarding heart rate, blood pressure measurements by including wearable sensors and gathers information inside a database that offers the facility to create reports about users and transmit the patient's medical data towards the medical professional to whom he/she belongs. health status of their patients, including their medical advices. The proposed healthcare system is intended to ease the lives of people and patients, while saving precious resources, like income and time. It is a trustful software application

B. A Review - Role of Mobile Application for medical services

This paper describes Medical services or mobile services are the combination of to make user friendly relationship between patients and doctors. There are lots of barriers and problems are faced to providing health service to the patients. In India there is a provide the awareness of medical services .It is one kind of challenges, to providing services, investigation, quality, cost and key features. The goal of HSR is to provide information to improve health of patients or citizens. HSR is a multidisciplinary field that moves beyond basic and applied research, drawing on all the health professions and on many academic disciplines, including biostatistics, epidemiology, health economics, medicine, nursing, operations research, psychology, and sociology

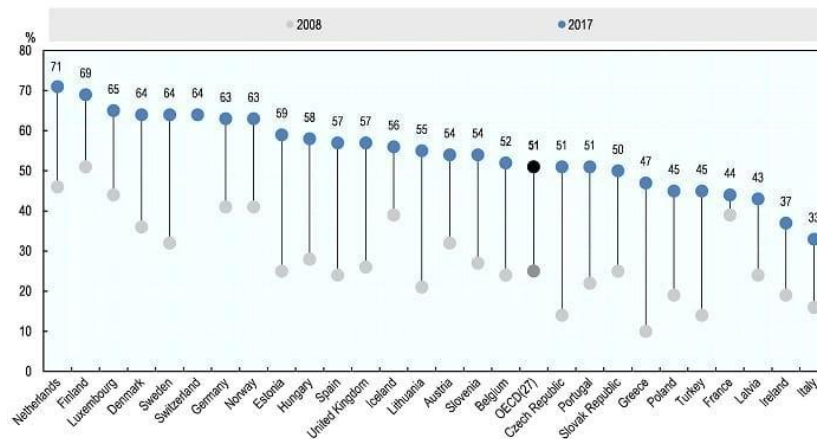


Figure 1: The Proportion of adults seeking health information online

C. Life Care: GPS Based Medical Emergency Solution

This Paper Works on the inability to get to a patient's medical history during an emergency can lead to death. The doctor or hospital needs to get an authenticated certificate to access the data on the system. it is significant that the framework is precise in diagnosing since it manages the life of an individual where a slight blunder of medications or treatments cannot reverse death. There are different strategies for implementing an expert system. the exceptional unique features and functionalities of an online framework for finding specialized doctors. It tends to find all the vital information about a specialized doctor. It further clarifies why this system, which is available on the web and is likewise accessible as a mobile phone application for both Android and iOS platforms. the community continues to develop, various misfortunes, and unexpected situations are becoming more and more common. Therefore, it is necessary to set up a medical emergency system, the purpose of which is to limit the risk of injury, death, and suffering of patients, reduce medical expenses, and reduce the financial burden on families.

2.2 Scope and Limitations of Online Medical Systems

A. Hospitals and Clinics System

PROS

- Ease: Hospital System is the most common and easiest way for the patients. Uneducated people can also take treatments. You don't need any phone or laptop for accessing the healthcare system and for booking appointments
- Less Costly: As there is no external device and resources involved it is cost effective only the human resources are needed.

CONS-

- More Time Consuming: It is a very sluggish process. As patients must stand in a long queue.
- Less Secure: Patient's data is not secure as traditionally, patient's record have been papers and have been used to store patient care data. .It can easily get lost, misplaced or stolen

Telemedicine PROS-

- Middle of the night care for babies and children.
- Cost Effective: Telemedicine appointments typically cost less than in-person visits do Easy access to specialists.

CONS

- It doesn't allow doctors to take blood or urine samples.
- Doctors can't use a stethoscope to listen to your heart or breathing
- Doctors also rely on visual assessments, which may be harder to perform virtually

B. Online Medical System

PROS-

- Mobility: As this system works on the Internet it can be accessed from any part of the globe.
- Swift: This system works faster because at the same time multiple patients can book appointments. The patients using an application on their phones laptops thus not making them stand in a queue.

CONS-

- Complexity: The user interface is complex thereby making it difficult for the user to understand the concept of internet medical facility
- Risk of miscommunication. Electronic glitches are a possibility

III. IMPLEMENTATION

3.1 Background

The proposed system consists of software component. The Modules used in our project will help the user to register. In register we have three options doctors patients and hospitals. They can login using the login page by filling out their credentials. You can filter the hospitals and medical systems according to their locality using the Google Maps API used in that area suggested approach may be helpful for finding the best doctors and health care systems according to their need and interest. The MySQL used will help us to store the medical history of the patients also. The Admin block will help the doctors to identify their patients and their medical history. We also used an emergency section for accidental cases by which hospitals can be prepared for the patients and the patients can be brought to the nearest medical services in case of emergency. We have provided the option of ratings so that we can rate the hospitals and doctors. We can also search the doctors and hospitals

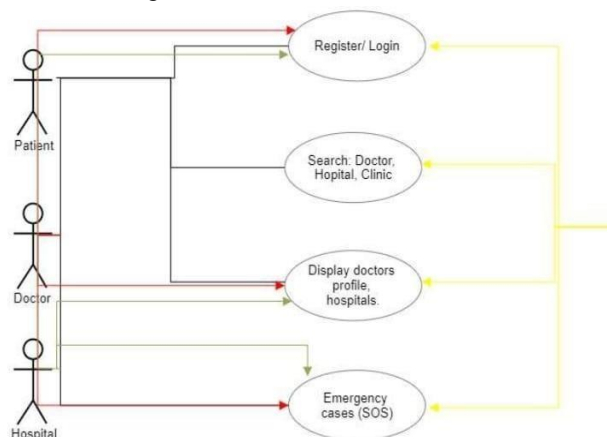


Fig 2. Main Stages of Online Medical System

IV. DESIGN OF THE LIFE CARE MEDICAL SYSTEM

The system consists of three phases: -

- Registering the doctors, hospitals and patients
- Login Phase
- Booking appointments, finding doctors and rating phase



Fig 3. Phases of Online System

V. SCENARIO FOR A POSSIBLE ATTACK

5.1 Weakness of Online Medical System

During our research, we uncovered many potential vulnerabilities that Internet medical system poses. The act of putting information onto the internet inherently exposes it to attack in a way that physical storage does not; attacks can originate from anywhere, at any time. Many critics use this to say that Internet medical facility is inherently insecure and can never be made useful, but most vulnerabilities can be negated or mitigated with proper implementation, and in many cases traditional healthcare also have flaws. It should be mentioned that to be considered the superior system, Internet medical systems does not have to be free of flaws; it just has to be better than traditional methods.

Attacks on the Server

Organizations are increasingly vulnerable to internet attacks, which endanger daily operations and compromise patient data. Given the sensitivity of patient data, healthcare providers need to be extra cautious against cyber-attacks. Professionals in the healthcare sector need to spare time from their busy and hectic schedules to train or skill themselves against cyber threats so that care is not compromised. Professionals in the healthcare industry are willing to spend more on cybersecurity. There are several reasons why the healthcare sector is currently the one most frequently targeted by cyberattacks, including the enormous demand for patient data and occasionally dated technology.

According to data released recently by a cyber security think tank, the healthcare sector in India has experienced 1.9 million cyber-attacks so far this year as of November 28. Attacks were launched from a total of 41,181 different IP addresses, most of which were found in China, Pakistan, and Vietnam. The All India Institute of Medical Sciences (AIIMS) New Delhi, the premier government-run hospital in India, was forced to resort to manual operations and shut down many of its servers recently as a result of a significant cyber- attack. AIIMS, which had previously declared aspirations to digitise all services by April 2023, denied reports that hackers demanded Rs 200 core as ransom.

Medical data is a lot wealthier

As opposed to just one piece of information that could be discovered in a financial breach, healthcare data frequently encompasses all of a person’s personally identifying information, making it lucrative on the black market. These attacks frequently result in the privacy and data of hundreds of thousands of patients being violated or taken by those with ulterior motives. An analysis claims that a healthcare data record might be worth up to \$250 on the black market, whereas the next-highest value record is only \$5.40. (a payment card). It is crucial that healthcare business IT workers do not undervalue this security concern and that actions are taken to preserve this data due to the value of the data and the allure of financial gain. The majority of these breaches can be ascribed to hackers and dishonest insiders who gained access through outside providers. According to an institute, the costs of rectifying a breach are projected to be \$740,000, and the cost of the attack rises by more than \$370,000 if a third party is responsible. According to research, ransomware (a newly popular method utilised in recent assaults like the Colonial Pipeline and JBS USA hacks) or SQL injection attacks are the most frequent attack routes.

5.2 Strengths of Online Medical System

For all its drawbacks, Online Medical System has many PROS as well. As previously mentioned, when properly done Online medical system or telemedicine Internet is more good against traditional medical system, and it has many outright superiorities too. These include less paper work, improves patient experience.

Online Consultation

Consult doctors 24*7. Connect immediately with a 24*7 specialist or choose to video visit a particular doctor. It provides 100% safe consultation. Patients can search for doctors online based on medical specialty, locality, symptoms, name of doctors and clinics

Medical access for people in rural areas

Country living has many benefits, but fast access to medical care isn't always one of them. For people who live many miles from the nearest medical facility, telemedicine provides a way to meet with a doctor quickly.

Doctors get to stay home too

During the pandemic, many medical offices have closed or reduced their hours. Cybersecurity tools such as virtual private networks have enabled doctors and therapists to treat patients safely from their home offices. This access also allows doctors and patients to connect after hours and on weekends.

This saves time and allows people to stay off the road when driving conditions are less than optimal, such as during a snowstorm or hailstorm. It has become even more essential during the coronavirus (COVID-19) pandemic. Fears of spreading and catching the virus during in-person medical visits have led to a greater interest in, and use of, technology to provide and receive health care.

Convenience It can save time. For example, patients can schedule their own appointment with their care provider online. and they do not even need to leave their home if they can arrange an online consultation (by video link, for example).

Doctors have less paperwork and can share information securely and easily with colleagues

VI. CONCLUSION

The medical sector has been advancing to deliver more modernized and efficient health care services. Like other industries, the health care sector should be digitized. An application is developed, where the general population will be using our application to store their own medical information and access it whenever and from anywhere. The system consists of registered specialized doctors under enrolled hospitals. The doctors offer medical treatment and prescribe medications during the appointment. Our system provides a link to virtual communication between patients and doctors. In real world OPD patients are facing number of significant problems like appointment, registration, searching OPD locations, finding medicals, way to visit and lengthy process for consulting with doctors. Another major improvement with respect to time, is the complete avoidance of the recreation of files that are already existing. The Patient e-Files system will be a beneficial addition to the medical field. It will be beneficial not only to the medical personnel and the patients but also the medical facilities (both public and private) and the country at large. The functionalities being implemented will take the current solutions a step further and better the delivery of healthcare. Future works will see the website being developed which will be able to run on mobile devices.

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