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Medvias – Virtual Health Assistant for Preventive Healthcare

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Abstract - The Internet has long served as a valuable source of medical information for both patients and healthcare professionals. In recent years, its role has expanded beyond just data access to include direct, private interactions between patients and doctors.

The overall aim of this thesis was to cast light on the new phenomenon of Internet-based medical consultation. This was approached by studies of the use of an Ask the Doctor service, by a web survey to the users who sent enquiries to the service, and by a questionnaire to the answering physicians regarding their respective experiences with the service.

This study includes a comprehensive review of the literature on online medical consultation from various academic databases, along with insights drawn from published surveys and reports. According to this body of work, the main factors contributing to the rapid adoption of online consultations include convenience, evolving patterns of illness, affordability, enhanced privacy, and the accessibility of second opinions.

Physicians have also noted benefits, such as reduced patient load in clinics, more structured communication, and better recordkeeping through integrated digital tools. These insights underline the importance of continuous development and regulation in the field of online medical services to ensure both quality of care and patient safety.

Key Words: Digital Health, Remote Consultation, Virtual Healthcare, Health Informatics, Online Health Services, Medical Web Platforms, Patient Engagement, Internet-Based Healthcare.

1.INTRODUCTION

Online medical consultancy technology is becoming a vital tool for consultancy. It is also integrated with the consultancy operation and management, which leads to lower possible harms to patients over the medical treatment procedures.

Although pharmacists are aware of pharmaceutical care management, they have not always had access to comprehensive information related to monitoring drug usage and its management.

The core functions of the Pharmacy Information System (PIS) include outpatient and inpatient order entry, dispensing and purchasing management, and consultancy stock.

Other activities such as reporting, clinical monitoring, intervention management, administrating drugs, connection with other systems, transferring information, and financial statement management should also be supported by PIS.

Furthermore, the system allows for faster clinical information retrieval, supporting timely decision-making and reducing administrative burdens.

However, recent studies indicate that in Iran, PIS remains semi-computerized.

Key functionalities such as digital drug prescribing and administration support are still underdeveloped, highlighting the need for more advanced, fully integrated systems to better assist healthcare practitioners and ensure optimal patient outcomes.

2. PROPOSED SYSTEM

Our proposed system aims to create a comprehensive online environment where patients in need of medical assistance can conveniently consult with doctors from the comfort of their homes.

The platform allows patients to communicate their health concerns, upload relevant images or reports, and discuss possible remedies with qualified medical professionals in real time.

By automating all manual processes, the system ensures a seamless and efficient experience for both patients and doctors.

To access the system, patients must complete an online registration form, which generates a unique ID and password that is sent directly to their email.

Upon verification, users are automatically logged into their personalized patient panel.

From this panel, patients can browse a list of available doctors, view their specialties and availability, and

schedule appointments according to their preferred time slots.

Following each consultation session, patients receive their medical reports, prescriptions, and follow-up instructions via email notifications, ensuring quick access to vital information.

This system not only simplifies the consultation process but also promotes timely and accessible healthcare, especially for individuals with mobility challenges or those living in remote areas.

3. SYSTEM ARCHITECTURE

The system architecture for an online medical consultation system, focusing on secure medical record management and analytics.
At its core, patient medical data, including blood reports, prescriptions, and urine reports, are uploaded and processed via the internet, subsequently stored in a central medical database.
A "HEDEA Interface" acts as a central access point, allowing healthcare professionals (represented by the medical cross symbol) to query patient medical records using a patient's Aadhaar number. The HEDEA component then retrieves and presents the patient's individual medical record, categorized by different report types (blood, urine, etc.).

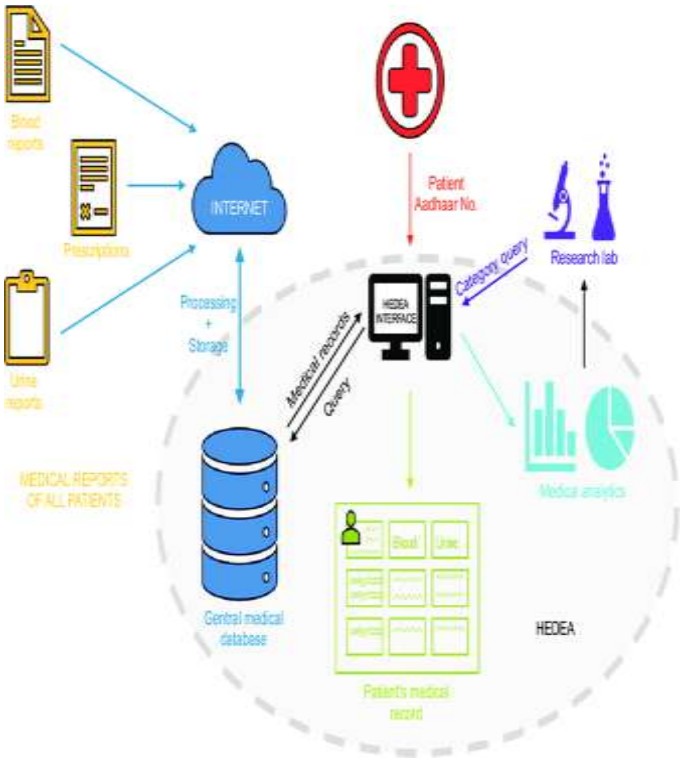

Fig.1 Architecture Diagram

Furthermore, the system supports advanced functionalities such as category queries to research labs for deeper analysis and provides medical analytics, likely for public health insights or trend identification.

3.1 DOCTOR MODULE

The Doctor Module within this online medical consultation system is meticulously designed to optimize the workflow for healthcare professionals, facilitating efficient, secure, and convenient remote consultations.

Doctors can register by providing essential personal and professional details, a verification code, and then securely login using a username and password, with an option for two-factor authentication for enhanced security.

Upon login, a personalized dashboard provides an overview of appointments, patient messages, and alerts.

Key functionalities include the ability to view and update patient reports, encompassing medical history, lab results, and current status, as well as entering and managing detailed prescriptions with dosage and instructions.

The module also supports secure communication with patients through messaging, robust appointment management (including setting availability and handling rescheduling or cancellations), and conducting virtual consultations via integrated telemedicine tools.

For comprehensive patient care, the doctors can access a patient's full consultation history and securely upload and review the diagnostic images or any other supporting medical documents. A secure logout feature ensures the protection of sensitive patient data and privacy.

3.2 USER MODULE

The User Module is meticulously designed to offer patients and healthcare seekers a seamless and user-friendly experience for accessing medical consultations via a secure online platform, prioritizing convenience, transparency, and accessibility from home.

Users can register by providing essential personal details, including name, age, gender, contact information, and health history, with account verification secured by an OTP.

Upon successful verification, users can log in using their username and password through a robust authentication system.

The module allows users to browse and select specialist doctors based on their medical condition or preference, and to directly upload relevant health reports or documents for the chosen specialist's review.

Patients can then view the real-time status of their submitted reports, including doctor feedback and any required follow-up actions.

If a health condition is assessed as normal, the user receives a digital prescription and can rate the service; conversely, if a risk level is indicated, an alert message prompts urgent attention or emergency care.

The module also ensures users receive timely notifications regarding appointment updates, prescriptions, and report evaluations, culminating in a secure logout feature to protect sensitive user data and maintain privacy.

4. CONCLUSION AND FUTURE WORKS

This paper proposed an online patient appointment scheduling system built on the Web Services architecture in a heterogeneous health care environment. We have more features to get the consultation through online.

It shows that the Web Services architecture provides an appropriate paradigm for the development of an integrated the health information system which enables communication among distributed health care information systems. This system demonstrates the feasibility of the architecture.

Online doctor consultation is a coveted field in India and is able to offer services like Tele-health, telemedicine, Tele-care, and digital health care services. According to the survey conducted by Accenture in 2017, over 70% of the consumers are willing to experience health care services virtually, while 20% have already experienced virtual healthcare.

Many startup companies are looking to make it in the industry as it is currently rising. The consumer's expectations for a convenient healthcare system are evolving while the healthcare industry is continuously striving to meet people's needs with the help of technology.

The telemedicine market in India is expected to reach $5.4 Billion by 2025 with a CAGR of 31%.

The online doctor consultation allows the dissemination of specialized knowledge among the medical community through advanced networks, reviews, emergency medical consultations during an epidemic or crisis among others.

According to a report by Practo, online doctor consultations have increased 500% since March 2020, as five crore Indians are now accessing healthcare online amidst the COVID-19 pandemic.

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