

Social networking platform for Healthcare professionals featured with e-Health Services

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Abstract - For healthcare professionals, social media is one of the most popular channel as it gives opportunity to connect with potential and existing patients and seek professional advice. A new breed of Healthcare professionals are trying to connect with their peers and patients through various social media platforms. So, there is a need of developing a Doctor-Patient focused application which will offer a digital dialogue to connect with their communities, educate people by sharing knowledge about medication and provide job opportunities for medical students. The turning up of digital healthcare solutions has facilitated hospitals and clinics to enhance the delivery of medical services to their patients. The platform should provide ease and comfort to patients while taking appointment from doctors as well as consulting online to resolves the problems that the patients has to face. Besides doctor consultation, platform should also be able to facilitate services such as Bed booking, Ambulance booking and medicine supply that will be cost-effective and time-effective.

Key Words: Healthcare, mobile health application, Healthcare professional, e-Health services, online consultation, social network

1. INTRODUCTION

The modern era has now been extremely advanced and well developed and the basic reason for this development is actually the fastest growing use of internet and its applications which have provided the individuals with the simplest routine in their daily lives. The recognition of social networking sites has rapidly increased over the past few years. Social networks provide many sorts of services and benefits to its users like helping them to associate with new people, share opinions with likeminded people, and stay in-tuned with friends and colleagues [1].

As use of social media is increasing in every sector, one of the important sector is healthcare. Most doctors and healthcare providers have less free time than others and may not be regular on social media sites like Facebook,

Twitter, etc yet in many cases, contact with their peers and colleagues may be a critical factor when problem-solving and dealing to seek out the simplest solution for patients [7]. In order to facilitate easy communication between health care professionals and patients, the proposed system will

provide a discussion forum wherein doctors can discuss a particular case, debate health care policy and practice issues, share information and also patients can have a discussion by asking health queries and get solutions from other users who have already encountered the same problem [9][10][15].

Only verified and credentialed HCP can use this platform to potentially improve health outcomes, increase health awareness of news and discoveries, motivate patients by posting health information maintaining quality and credibility of data [10]. The platform is useful for medical students to interact with qualified doctors and it also provide job section which contains details of medical jobs where interested users can apply for the same [5].

Along with keeping people connected with doctors and updated with health information, it is also necessary to provide services to them. Gone are the times when people will need to wait in line for hours to possess a consultation with their doctors. Today, they can send queries or book an visit or consult doctors online through video call and obtain updates from their HCP [8]. This in turn, build ups the trust between them and improve the patient experience. As in covid-19 pandemic, we all know that patients were not able to get bed on time, so patient should be able to get information of whether there is any bed vacancy in nearby hospitals along with types of beds such as oxygen bed, ventilator bed, etc and book the bed as soon as possible [11]. Patient will also be able to book an ambulance in emergency [2][4].

Nowadays patients are in urgent need of vaccines or medicines which are not easily available and they post the message for the same on Whatsapp, Facebook, etc.

Instead they can post that particular message on the social site which is only meant for healthcare services [2]. So, that they can get help for the same as earliest. This application also provide feature of medicine delivery which allows users to buy healthcare products & medical equipment online [13].

2. LITERATURE SURVEY

From the various researches of eHealth application, observed that there are some relevant works which are similar to the proposed system whose ideas and works are listed below:

“Curofy” Over 3 lakhs doctors are using the Curofy app to get associated with community of specialists. This is the platform where they can discuss and review troublesome cases and get right suggestion for correct diagnosis. Also, they can browse journals, latest medical guidelines and news on this app. Here, doctors can exchange views on real-life patients from over 1,000 specialties and sub-specialties. Medical professionals are making their own profile on this medical app for doctors in order that their patients will notice them simply. This enables them to get recommendations from alternative doctors for specific cases. “Among Doctor” AmongDoctors is an Exclusive Physicians Network, linking doctors of all specialties worldwide, in a very reliable & significant means [5]. It is a powerful, pharma-independent, networking & collaboration platform, enabling physicians to exchange opinions & insights, get recommendation from practiced peers and build their international skilled network & reputation. AmongDoctors provide a series of selected, international Job Offers and also allows to explore new career opportunities worldwide. Another emerging feature is that the platform doesn’t allow pharmacists or drug reps to join, limiting access to verified physicians who must use their real names.

“PlexusMD” permits doctors to showcase their profile, notice jobs and keep connected with hospitals and patients. Hospitals can use the portal to interact with doctors, fill up vacancies, publicize courses and companionship and also share news, research and updates. PlexusMD is the world’s largest community of doctors where you can scan the latest medical updates, share cases, raise queries, watch premium medical conferences & medical courses and find career opportunities.

“Lybrate” Lybrate is an online doctor consultation app that has improved the way people in India think and

look after their health and fitness needs [3]. It is an India's #1 Medical platform to provide online doctor consultation connecting over 10 million users to over 100,000 top doctors of the country. It allows you to ask health or fitness related questions and get multiple helpful answers from the best doctors. Users can find doctors from all major specialties within the app and can either consult them online instantly or book an appointment to visit their clinic. “Practo” Practo is increasingly popular among smartphone users, both doctors and patients. By registering on this medical application, doctors and Physicians can manage their profile and appointment, and get feedback from patients [3][8]. The app also allows doctors to view how many number of times their profile has appeared and chat with patients online to ensure quick consultation. Patients can find the best doctors in their locality, book appointments and tests instantly. One of the unique feature of this medical app for doctors is the article section where you can learn hundreds of new ways to stay healthy and prevent diseases.

“Vmedo” VMEDO is Medical Emergency app, which helps people during their medical emergencies by connecting to the closest emergency responder (First aid, ambulance, hospital, blood bank, blood donor etc.) The app assists first aid even when there is no internet connection and it has an automatic ‘text to speech’ converter which delivers first aid tips in an audio format. It also assists people in finding the nearest hospital and list of different types of ambulance during emergencies [4]. The app also allows user to add up to 5 emergency contacts and shares user’s location & other details to these contacts during any emergency situations [14]. Vmedo also assists people in finding the nearest blood bank, blood donor during emergencies. It connects the user to the Blood donors via smart phone and SMS.

The Thane Municipal Corporation (TMC), ensure a simple way of admitting Covid-19 patients to hospitals, introduced a digital booking facility “covidbedthane.in” for ambulances and beds. The TMC mentions the names of hospitals, the capacity of beds occupied and vacant. It also gives an idea of ICU and Non-ICU Beds available in the hospital [16].

3. PROPOSED SYSTEM

The proposed system is divided into following two main parts:

1. Social Networking platform
2. E-health services

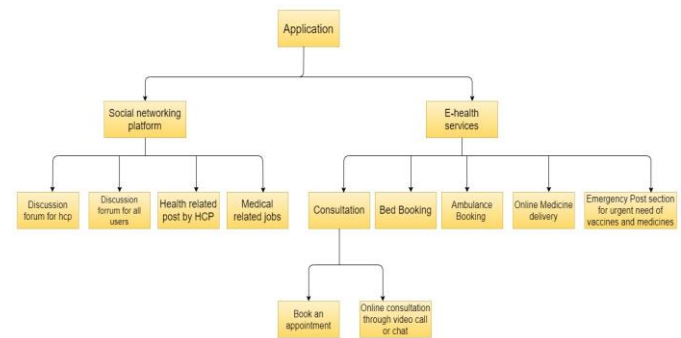


Fig 1: Proposed system

In Social Networking platform there are 4 sub parts:

Discussion forums for HCP’s and Discussion forums for all users: This forum facilitates easy communication between healthcare professionals and patients including the ability to ask each other questions, share information, opinions, observations, and more [9]. Forums are great online platforms on which you can seek comfort, exchange information with other HCP’s or may be most importantly, learn something that you can later use in your own practice.

Health related post: Only doctors and medical students will be allowed to share health related posts for maintaining reliability and accuracy of the information [1][15].

Medical Related Jobs: The platform also facilitates job opportunities in medical fields. The job details will be posted and users who are interested can apply for the same using the link given in the description of the job.

Furthermore E-health services consist of 5 sub parts:

Booking an appointment and Online Consultation: Patients will be able to book an appointment from the comfort of their homes, using their computer, laptop or mobile, and at any time [12]. Allows patient to contact doctors of their choice in any location. With the help of the Online Doctor Consultation feature, patients can directly video call the doctor and communicate with them on the health issues and seek health assistance [6].

Bed Booking: Key features of the platform is that it allow users to view bed vacancy along with its types in the nearby hospitals and book a bed as per requirement so, patient will be able to get information of whether there is any bed vacancy in nearby hospitals along with types of beds such as oxygen bed, ventilator bed, etc and book the bed as soon as possible [16].

Ambulance Booking: By this feature of an Ambulance Booking, user will get real-time updated information on the availability of ambulances. Patients can easily locate the ambulance near them and decide which one to book for their purpose and instantly get the information & contact details of the driver [4]. Users can live track the ambulance with estimated time to reach the hospital.

Online medicine delivery: This feature offers user the convenience of pharmaceutical deliveries in the safety and comfort of their home without the effort of queuing up at the medical store [6]. Using this user can buy products of various categories like medicines, surgical products, orthopedic care, mother and baby care, hospital equipment, medical gadgets, protein supplements, fitness products, and more [13].

Emergency post section: The platform also consist of emergency section which allows users to post message for required vaccines and medicines so that they can get help for the same as earliest.

4. DESIGN DETAILS

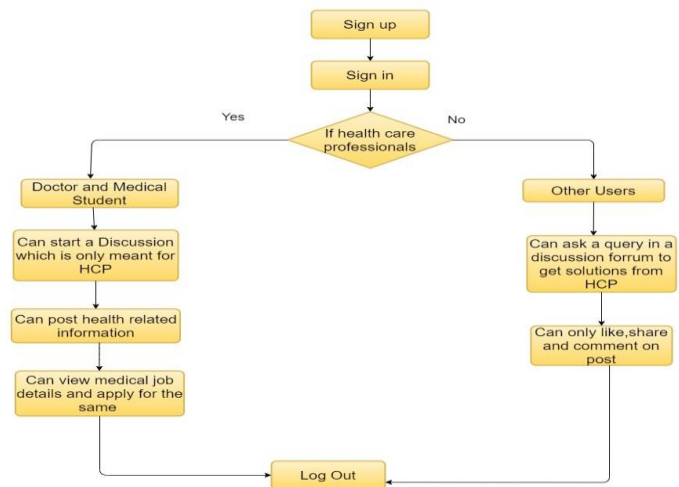


Fig 2: Social network flowchart

First step for the new user is doing the registration. Users are divided into three categories i.e. Normal user, doctors, and medical students. During registration, doctors provide their license no and medical students provide their college id proof. After registration, in the social part of an app if the user is a doctor or medical student, they can start a discussion in a forum which is meant for HCP also they can post information related to health.

HCP can view job details posted on platform and apply for the same using the link given in the description of the job. If users are other than doctors and a medical students then they can ask health-related queries in general forum. Also they can see health-related post and share if they want and express their view in the comment section.

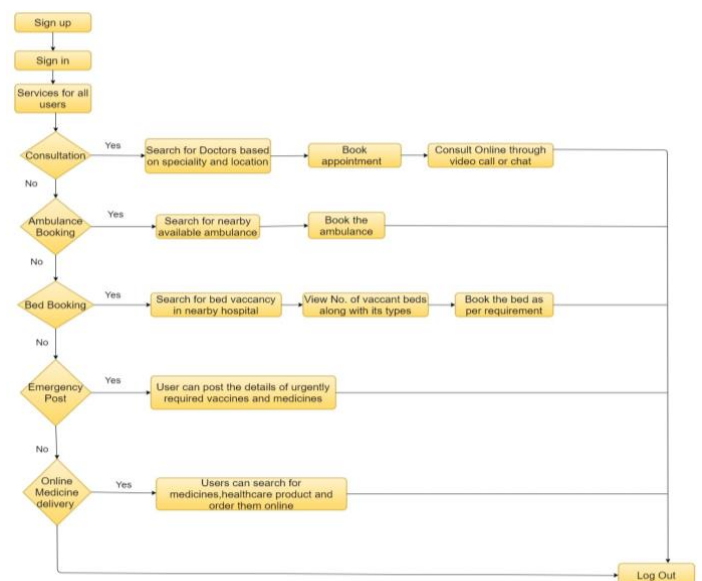


Fig 3: Services flowchart

After registration, in the service section of an app user can see services like consultation, ambulance booking, bed booking, emergency post, and online medicine delivery. Users can search for a doctor based on speciality and location, they can book an appointment or consult online via video call or chat. Also, users can search the ambulance as per their requirement and book the ambulance as earliest. If users want to book a bed, they can view number of vacant beds in hospitals along with their type and book a bed. In case of an emergency, users can post their medical-related requirements in the emergency post section and seek immediate help from other users. Apart from this, user can buy products of various categories like medicines, surgical products, hospital equipment, medical gadgets, and more.

5. RESULTS

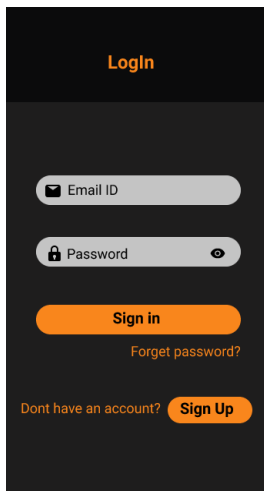


Fig 4: login

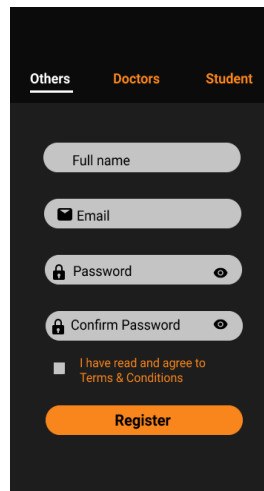


Fig 5: Registration

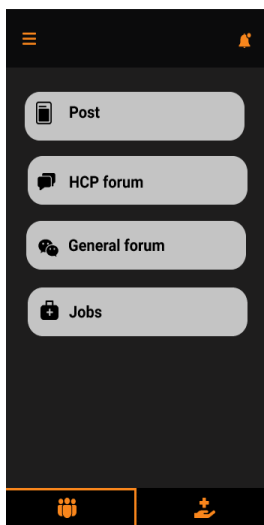


Fig 6: Social options



Fig 7: Post

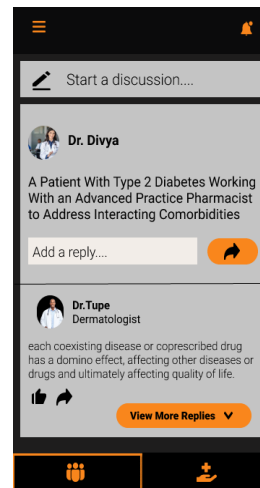


Fig 8: Discussion Forum

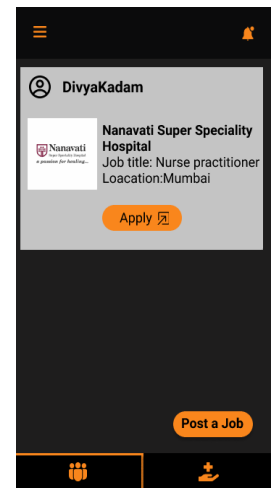


Fig 9: Jobs

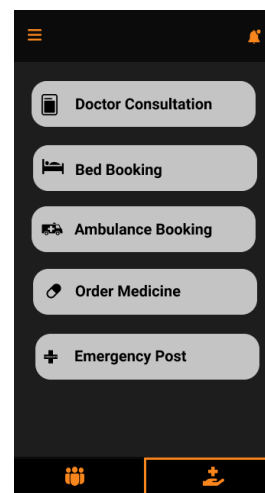


Fig 10: Services

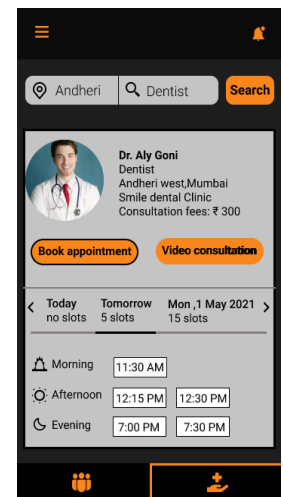


Fig 11: Doctor Consultation

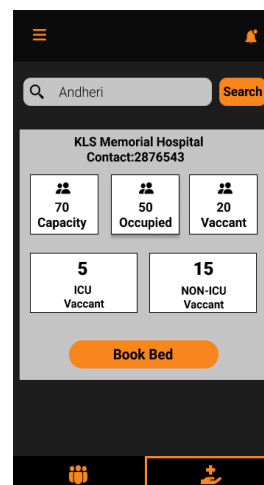


Fig 12: Bed Booking

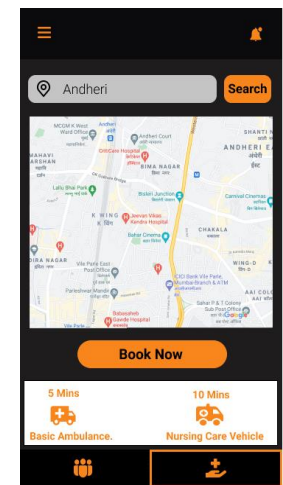


Fig 13: Ambulance Booking

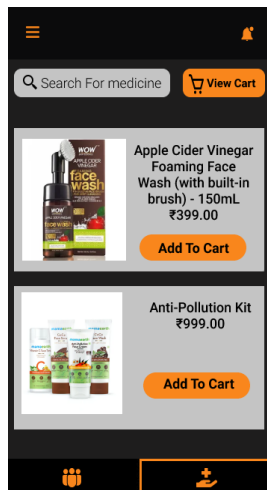


Fig 14: Online Medicine Delivery

6. CONCLUSION

The main aim of the platform is to connect doctors and medical students and also engage patients. The platform acts as an efficient tool for doctors and medical students to associate, not only to broaden their knowledge but also to expand their professional network beyond geographical borders. It enables them to share their experiences and researches with their peers.

Patients heavily depend upon information found online and use the internet to assemble healthcare information. So this application will provide accurate and reliable health information and will keep users up to date. The platform provide a discussion forum so that patients can explore, learn from one another, and freely share their experiences with various medical conditions and health systems.

Another determinant of this platform's value is its ability to provide services to patients such as book appointment, online consultation, bed booking, ambulance booking and medicine supply. The platform will also assists patient in selection of doctors, specialists and hospitals to make informed decisions on the best practices to seek care. The app also allow users to post the message for required medicines and vaccines in emergency. When used responsibly, social media is often a strong tool to encourage health education, build positive HCP-patient relationships, and improve healthcare quality.

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