

One Touch Help for Medical Emergency Support Service

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ABSTRACT : Social help is required during any type of medical emergencies like car accidents, illness, fever etc. For calling the doctor, one needs to check for availability of Doctor or needs to visit the Hospital. The Manual system has many disadvantages which includes, it is too time consuming, often leads to error prone results, consumes lot of manpower by the patient's family, lacks previous review information, retrieval of data takes a lot of time, percentage of accuracy is less. In the time of emergency, it becomes difficult to approach the right doctor. In case of Blood requirement rare blood groups are not available all the time at all blood banks and recipients find difficulties to track the right blood donor. To overcome all this problem, we propose a Web application system based on MERN. There are many Medical management systems, but these systems only maintain the information of Hospitals and Doctors. But our system which not only maintains the information of Doctors but also maintains a feature of calling frontline social workers nearby as well as nearby vaccine center searched by pin code. Thus the frontline helpers can guide the patient to proper doctor for treatment. This online Web APP also maintains the list of blood donors and also helps the recipients to track and search the right donor easily. The user can view the list of donors of a particular area with proper Blood cross match. He/she can also check for blood requests and in case of emergency he/she can send notifications to blood donors as per the requirements. Users can register and make a request. Users can also register as a donor. Donors can check for blood camps and hospitals for blood donation and will be getting notifications in case of emergency. They can either accept or ignore it. This project aims at maintaining all medical emergency services involving the help of frontline workers in locality as wells as searching nearest vaccination center and help them manage in a better way.

KEYWORDS - About five key words in alphabetical order, separated by comma

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I. INTRODUCTION

The introduction of the paper should explain the nature of the problem, previous work, purpose, and the contribution of the paper. The contents of each section may be provided to understand easily about the paper. In early 90 European countries have started and emergency phone number for medical emergency but due to large network traffic and multiple calls at same time the call service is blocked frequently. To avoid this situation players calls are added so that there can be more than one number for multiple medical emergencies. In other terms if one number is busy then the call will deviate to another one. In this way the first medical emergency service is started in 1991 in at Europe. Under the public Healthcare system the emergency medical service is proving drastically efficient 2 it's haptic to maintain such number of calls. At that time during any other and make this service lacks social banking and connection to hospital and uses are even lighter. In course of time the medical emergency system undergoes development and many types of models are introduced for serving. One of the effective model is what the foundation of today's system that is multiple layer emergency Medical System. In this type of system the front layer consist of calling and messaging services and the back layer consists of hospitals and Frontline workers. This native system as many drawbacks and it still developing. In early twenties the features of extreme emergency is added to the existing system with booking of doctors of different categories. Many nurses and workers are trained to give first aid so that they can serve along with doctors and other medical surgeons. Like there is emergency ward in hospitals the some emergency ambulances are prepared under the emergency scheme. One Revolutionary change is the portable treatment chamber today known as Operative ambulance, is provided to those patient whom cannot be brought to hospital. Besides if any type of accident occurred in a well medical surgeons and doctors they are to provide medication on spot. Beside medical emergency services they are telephone services for Fireman and police from there the medical service

to phone is derived. Not only that doctors can provide fasted treatment but also some Spanish citizens from the group for first aid treatment in Europe. It also this society e in terms of medical treatment as well as employment. What lacks is them is the outfit with proper hygiene and mobility outfits where provided only for doctors first letter outfits for nurses and other fasted providing people where introduced. So what now we are using is nothing but a develop model of medical emergency service in which the features at it with course of time.

II. LITERATURE REVIEW

Previously several functionalities have been studied and designed and implemented to improve the access the information to healthcare services and providing emergency assistance in case of medical emergencies, so that it benefits the social interaction of these medical healthcare emergency services and their utilizers. It has already been anticipated that the trend of accessing these services would change from using only telephonic conversation but to also through social networks and internet calling [1], messaging services and mobile applications, web sites and video and image distribution. Previously services like calling the number 100 for police, 110 for fire department which is a toll free service started for emergency similarly other numbers were there for different departments, but having so many different numbers for different departments would be really hard so new service with number 121 has been started by the Indian government for emergency services dispatching like the 911 in the united states of America. But previously physical location had to be communicated through the call to dispatch the service . but now that problem can be solved by using the gps location service present in the smartphones today to dispatch quick response to emergency. Having e-health services is also beneficial because it eliminates the use of paper and physical substances for keeping record of very data, which is a very cumbersome task to compile and maintain the data and also takes up many resources which can be allotted to other task to make operations more efficient. Also it reduces wastage of resources and also wastage of paper which is a very important part for the going green [2] . When in an emergency previous records were needed instead of going through thousands of record present in the directory , it can be fetched instantly in seconds, due to the more efficient data storing and accessing methods being implemented nowadays, also it eliminates the high percentage of error that used to happen. There were some barriers in communication between different orgs providing different medical healthcare services to a patient, in these delay in communication and cross talk operational barriers it arose concerns related to interoperability of these systems which e-health services aim to eliminate by proving a single platform to access these information which eliminates discrepancy in communication and reduces the time in which care is provided .Also it avoids the mis interpretation of doctors hand written orders because every doctor has different style of writing it is well known and sometimes things may be misinterpreted by the present doctor and wrong treatment might be provided[3].

Developers introduced a general architecture of a Mobile Emergency Solution. The main functionalities are : possibilities of communicating events (maintenance and/or emergency), monitoring events/emergency getting information from the server, collaborating with other colleagues via mobile communication, navigating in/out getting information from the Mobile Medicine Best Practice Network.

Physical security as well as digital security is a very important aspect in case of data related to healthcare and also the confidentiality and privacy of a patient and doctors as well have to be safeguarded because its one of most important aspect of information related to health. To implement that servers have to placed in tightened security such and also better network security protocols such as firewalls and air gapped systems of protections have to be implemented. Also administrators background has to be verified every time its accessed to prevent intruders leaking data.

Also mobile applications usage heuristic is a bit different from web applications and the feel is there sometimes persons may have paralysis and the size of buttons, touch gesture and since the screen size is small these things have to be kept in consideration while developing these systems[4].

NASDAQ reported in 2018 that more than 61% in US are using handheld devices to access medical information and avail the services and the smartphone sales have sky rocketed with the advent of covid 19 and lockdowns.

Similarly in India it's also the same case people are now switching to smartphones as their daily drivers survey shows. Everything is done on phones with the ease of access to information from payments to food to shopping to healthcare everything is on smartphones. And with the advent of covid 19 vaccines are also a very big part of this market now... with the congestion of services and providers easier and faster way of dispatching ambulance services and vaccination service is required and hence we are proposing our model to solve this issue[5].

Keeping in mind the different types of screen available and people using them, media query is very important as a web developer, we wish that our site can easily adapt to screen sizes, so added media queries to improve our screen render in different devices hence making the experience better.

We adopted responsive web design techniques such that much typing is not required by users to get the information they need, easy access cards are also provided for quick category fetch of information.

The research is initially supported by bibliography research then case study is done based on the previous advancements done in this field involving a thorough and exhaustive study.

We understood from our study that people wanted fast app with less detailed but to the point information and big font sizes and graphics which is easy to understand and comprehend. It makes user experience better in this case.

III. METHODOLOGY

We are using MERN stack for our web application. It uses a three tier architecture client, server and database. The client layer (frontend) is written in JavaScript, HTML and React JS. This is the layer the user will interact with and access the features of our web app.

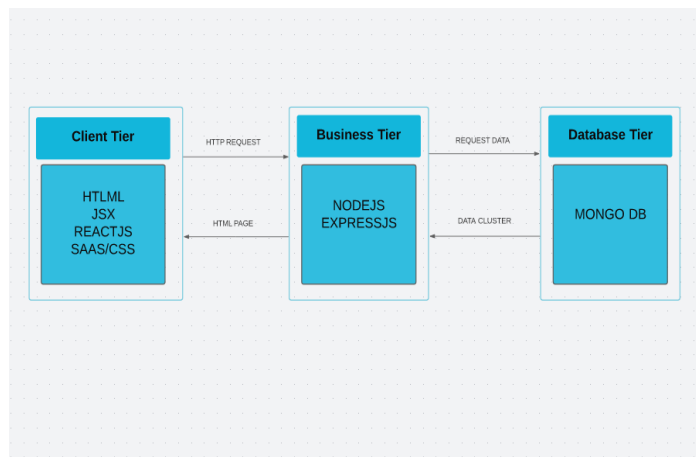


Fig.1: 3-Tier Architecture

We are using React framework to enhance the user experience. We are using various react hooks like, useState, useEffect, useReducer for writing our UI logic. We have created a total of three pages for our user to interact, the welcome page which shows the information and the current state of covid-19 in the country, it includes the live stats for covid-19 cases. The page also contain the hyperlinks to find the available vaccines, nearby hospitals, availability of plasma donor. The main feature is the single click button to call for help, which redirects you to a geo- location page , it helps you to pin point your current location and sends your location to the nearby medical professionals and hospitals.

Now for the backend logic we are using Node JS and Express JS .Express is the most popular web framework out there. We are using express to handle all the http request (GET, POST, PUT. etc.). Using ‘app.get ()’ and ‘app.listen ()’ to listens to all the http request from the client side layer. It act as a middleware for our application. We are using express router modules to get requests and respond to that accordingly. For example in our web app we are using the Cowin-API to fetch the data for all the available vaccines and the live covid-19 stats. Using a GET or post request we can write a function requesting the data to the API and then parsing the response and getting our data.

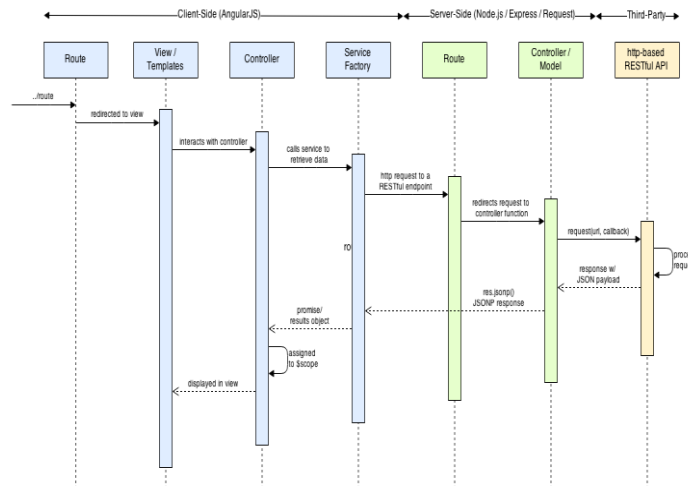


Fig.2: Request mapping diagram

Now for the database layer we are using mongo dB or no sql. MongoDB is an open source document database. It works on the concept of collection and document. In this database there is no concept of relations unlike RDMS. The main reason to choose mongodb is it is easy to scale-out, faster access of data, deep query abilities as it supports dynamic queries on documents using a query based language. As we are expecting massive data to be collected on the behalf on creating a plausible database for our web app it is logical to use mongodb.

IV. IMPLEMENTATION

This whole web app app is made using MERN STACK. Besides for basic Foundation do we have use HTML JavaScript and react for front end. In the back in we have used some of the static JavaScript data along with mongo DB. The whole is divided into four sub parts. From our main page we can traverse through the features and in the navbar the additional features or buttons and added. On logging the application we will be directed to the homepage from where we can traverse through to other three phases namely plasma donation ambulance booking and appointment booking. In the main page you have added the features of hospital bed booking calling ambulance calling doctors oxygen leads calling the red volunteers which is our special feature safe forms for covid patients' blood bank. In the plasma donation part there is one component which is used for the vaccine finding along with request and donate plasma. Hospital bed booking feature uses the government website for bit checking and also booking the same. The ambulance feature uses Google API and data is the location to the console that means to the back end. The request and donate plasma feature store data in the local server so that they can be commonly shared. Other features like red volunteers data is directly fetched from their own website to ours.

V. RESULTS

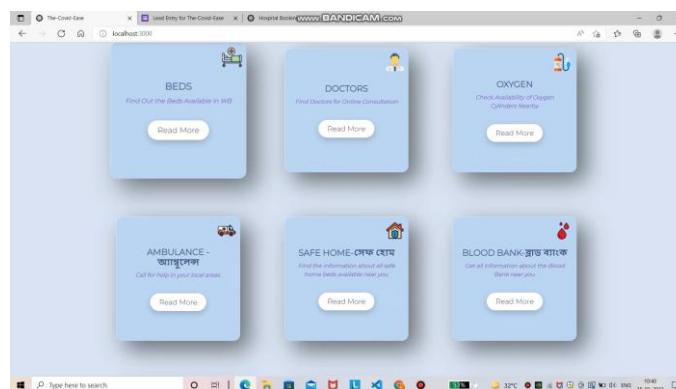


Fig.3: Home Page

In figure 3 it is the main who homepage of our way back it shows the features of our project as its components. And there are other special features which is divided into three parts that is pointed in the navbar.

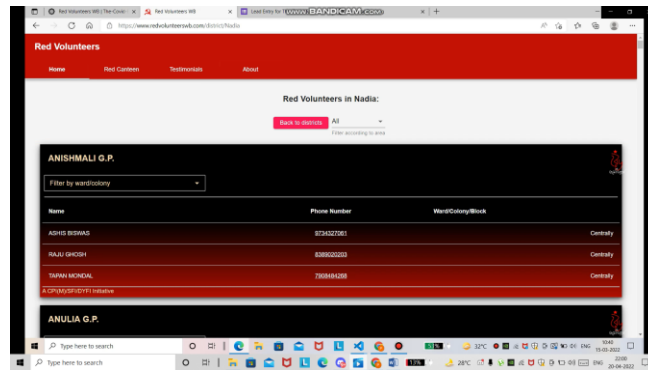


Fig.4: Frontline workers page

In Figure4 the data like phone number name and address of red volunteers which is none other than front line worker is Shown. It is one of the special feature of our web app to call frontline workers at the time of any medical emergency when man powered is needed.

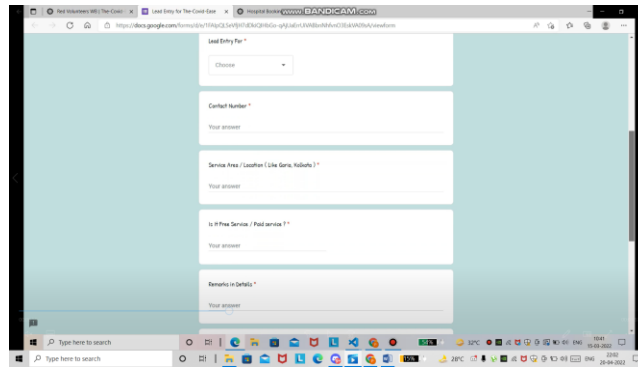


Fig.5: Form for data entry

In figure 3 there is a feature of Google form from where we can attach any available oxygen leads for any type of service that is provided in the area so that other users can take advantage of it.

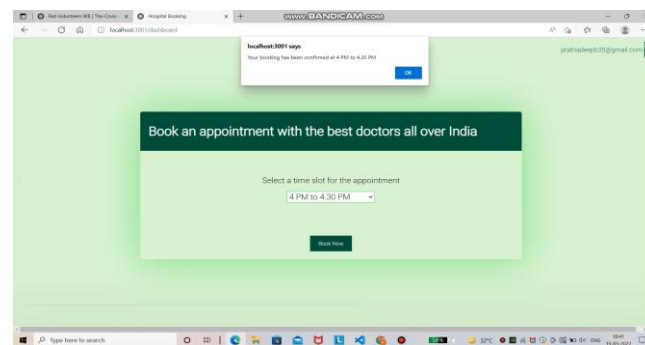


Fig.6: Appointment booking

In figure 4 there is the feature of booking appointment with the doctor a particular time Slot is given for the same. This component is both accessible from the user side and from the doctor side.

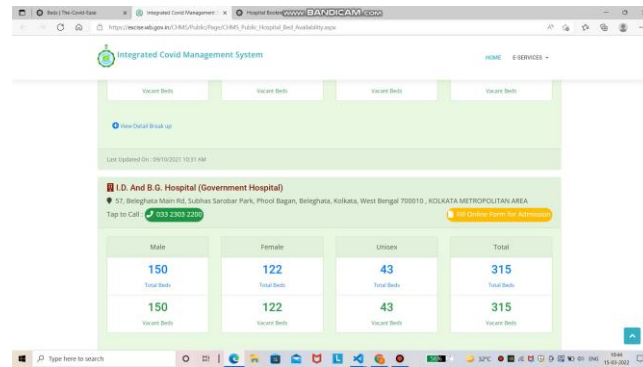


Fig.7: Hospital bed booking

Figure 5 is the feature of Hospital booking power web app has this feature of integrated covid management system which helps in hospital booking in nearby areas and one can able to see see the number of available beds

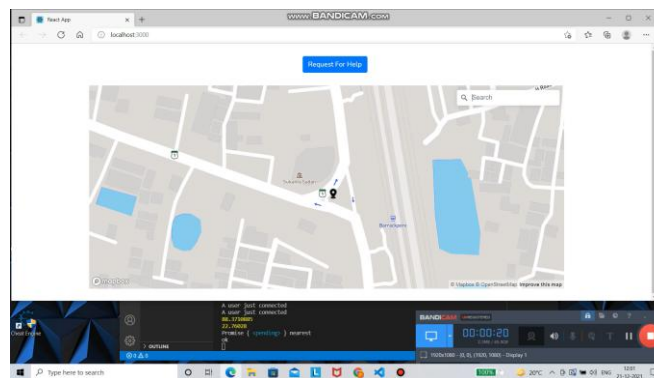


Fig.8: Geolocation API

Figure 6 is the feature of ambulance calling. In this screen a user can select the location and the coordinates sent to the backend so that any Hospital service call Ambulance Service can respond to their request. This feature uses Google Map API for getting the location and coordinates.

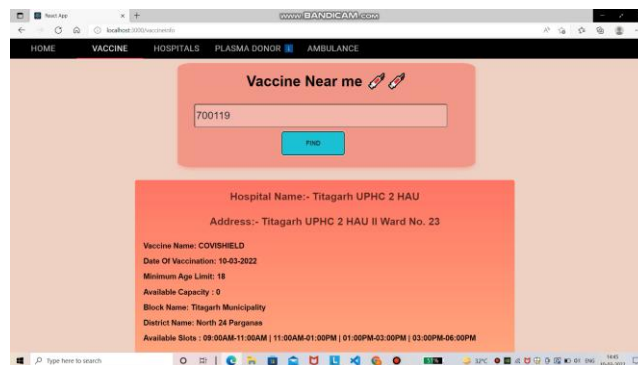


Fig.9 : Vaccine information portal

In Figure 7, this feature is one of the most important feature of this web app which is for searching of overweight in nearby areas using our local pin code.

VI. CONCLUSION AND FUTURE SCOPE

After analyzing the results of our way back we have finally did a survey so that some people can use our web app locally. The results have shown the usefulness of the medical emergency web app that offers creative solution so that humans can adapt to emergency condition more rapidly. Even if we consider some emergency scenario our web app is proved to be useful and more efficient. If we launch the app over any who is hosting website we made found find a number of people is using our medical emergency webapp2 survive any kind of pandemic. The expected results have clearly passed all the emergency cases and conditions and prove to be functional more than any e SMS call all or any internet query. The contradictory if our way back if is

compared to any mobile app it is not consuming any type of local space so that the physical device is unharmed. Although the security of stored data is depending on the cloud storage to be used during fasting. As this app provides real-time connect with multiple functionalities so it will need some permissions to access some of the device features. In this paper we totally uphold the scenario of global pandemic and provided an effective solution to survive and handle the situation of medical emergency.

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