DEVELOPMENT OF ALGORITHM FOR THE ONLINE AMBULANCE BOOKING SERVICES – AROGY

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Abstract: - As in India, a person dies on every tick of the clock so; we have proposed an web based application that will provide emergency health response to the patient. The main purpose of this project will fill the gap between the patient and ambulance response time. Ambulances are a virtual part of emergency medical services. Usually, patients have a finite range of ambulance contacts; thus whenever in an emergency, they find it difficult. With this project, it is proposed that the application would enable the patient to book a ride to the hospital. The patient can locate himself or herself or can upload their current location as well as their destination location into the application. The system would then show the nearby available ambulance and the patient can choose its appropriate rides by comparing the quotations and distance of every ride over the region. Finally, billing at the end. The project further endeavours to provide blood inventory-delivery services to the hospitals.

On the other hand, the ambulance driver would get a prompt about the booking made by the patient. The ambulance driver has to confirm the booking made and the application will guide the driver toward the destination. The admin would get all the central information and would control the inquiry and calling functions.

Keywords: - Online booking, Healthcare, Ambulance, medical emergency, Programming.

1. INTRODUCTION

The proposed system, aiming to ensure simplicity, effectiveness, and responsiveness, is an android application that serves the user to discover nearby ambulances and hospitals. It will benefit the user to reserve the ambulance so that the distressed could be driven to the dispensary on time, saving his life. The patient can track the ambulance based on their location. This project will benefit people, as there are several mishaps on the street, patients suffering from Pregnancy, ICU, Blood Pressure, Dialysis, Allergies and an emergency health response facility for the sufferers.[1-6]

The National Centre of Immediate Assistance has sketched the G3 method for ambulance superintendence. The G3 method is utilized to trace flying bodies and automobiles on a modern map; the aforementioned G3 method was a sequence of Global Positioning and Information System (GPS &GIS), and General Packet Radio Service (GPRS). Thus, the G3 model urged developers to utilize its features within heavily congested cities. Google Maps has implemented this G3 system and is based on a very simple but incredibly effective algorithm: The Dijkstra algorithm. The proposed system uses Google Maps API to direct the ambulance from source to destination. This research work focuses on the Microstrip antennas. The development of micro strip antenna technology began in the late 1970s. A Microstrip Patch antenna consists of a radiating patch on one side of the dielectric substrate, which has a ground plane on the other side. The patch is made up of conducting material such as copper (mostly) or gold. The radiating patch and the feed lines are being photo etched on the dielectric substrate. A larger number of physical parameters than microwave antennas outline Patch antennas. They can be designed to have different geometrical shapes and dimensions but rectangular and circular Micro strip resonant patches have been used in various applications.[7-11]

Abelsson et al.[11] did study to describe specialist ambulance nurses' perceptions of assessing patients exposed to severe trauma. They concluded that be prepared for emergencies, confidence in one's own leadership and developing professional knowledge.

Bruce et al. [12] did study to explore the experiences of nurses receiving patients who were brought into hospital as emergencies by ambulance crews through an analysis of the handover and triage process. They concluded that the interplay between prehospital and hospital personnel is vital for the patients. Prehospital reporting was experienced as a dialogue for planning, the symbolic handover and the ideal and nonideal handover.

Chandran et al. [13] analyzed patient perspectives of the ambulance system in Karachi to understand how to improve ambulance use. They found major themes that affect patients' decision-making with regard to ambulance use were a mistrust of the ambulance system or providers and a sense of inadequacy of the local system as compared with international standards. There was a fundamental misunderstanding of the role of ambulance services in the healthcare infrastructure.

Chew et al. [14] did research to find out the public's perception and expectations of the ambulance services in one university hospital. They found that the ambulance personnel were perceived as attentive and gentle by the patients. The equipment and comfort in the ambulance were rated as not so good by the patients.

Wireklint Sundstrom et al. [15] did study to highlight prehospital care and how ambulance personnel prepare for their everyday caring assignments and avoid making premature decisions. They found the feeling of certainty and the unknown in a new situation, which means that the

ambulance personnel are prepared at the same time as they are unprepared; in other words, they are prepared for the unprepared.

Oberg et al. [16] did research to gain an understanding of how EMS personnel perceive ambulance transport of children. They concluded that transporting children induces stress and is deemed a precarious task by EMS personnel mainly because children are considered more vulnerable than adults are and because of the necessity to separate the child from the parent during transport. There is a conflict between medical and emotional well-being and traffic safety during the transportation of children and a fear of insufficient ability to care for the child. The EMS personnel's vulnerability is evident in the complicated care situation associated with transporting children in an ambulance.

2. REQUIREMENT SPECIFICATION

2.1 Business Process Model (BPM)

BusinessProcessModelmeansthelogicalanalysisofbusinessprocessofanorganization. BPM of a web application represents it's business process and makes it more efficient.

2.2 Requirement collection and analysis

Requirement analysis is the very first step to build a project. Without properly analyzing requirements no project can run well.

Requirement list:
- Sign up and Log in
- Users can book ambulance
- Users can order medicine
- Ambulance Searching
- View ambulances' availability
- User can give Feedback
- User friendly UI and UX
- Smoother and optimized for load management

2.3 Ambulance booking

This below figure demonstrates the ambulance booking system of our website. The user provides his pickup location, destination, ambulance type and then confirms the booking.
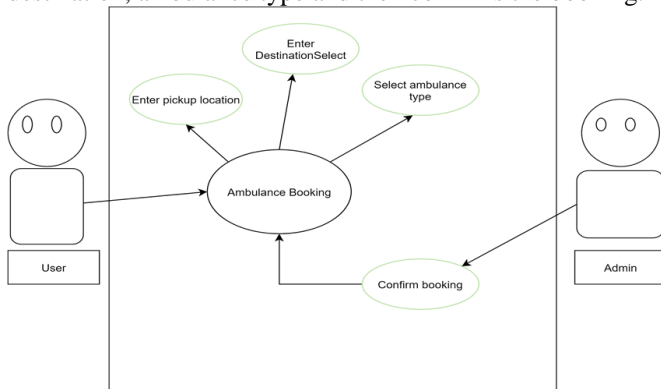

Figure 1 Use case model for Ambulance booking

2.4 Medicine order

This use case model shows how the website works for medicine orders. User provides the medicine name, enter quantity, softcopy of prescription and payment.
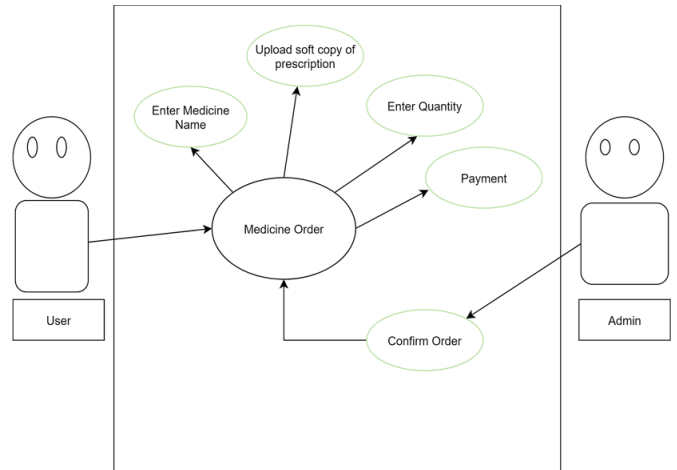

Figure 2. Medicine Order

2.5 Design Requirements

Our whole system was designed based on user requirement analysis. It is one of the most critical phases of a development project.

- We build a login page because in our system there is an authentication for the user.
- We have three types of users, Admin, User and Guest. Admin and registered users can use all features but Guests can view only.
- Registered users can book an ambulance and place an order for medicine after logging in. They can also update their profile.
- Guests can view selected sections and also can create new profiles.

In the detailed planning phase we went through these:

- Analyzed the System
- System creation started
- Oracle Database
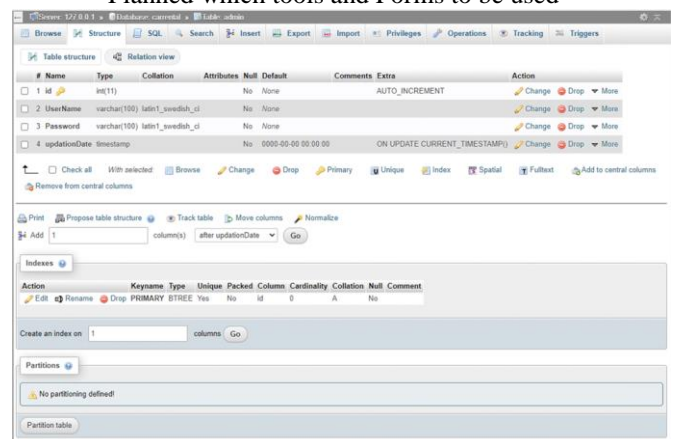- SQL
- Planned which tools and Forms to be used

Figure 3 Design Requirements

3. DESIGN SPECIFICATION

Design specification described in which way this whole system was designed. In this chapter we tried to describe the front end and back end design. All tools used to design and design related issues were also discussed here.

3.1 Front End Design

Basically front end design represents the UI. On the other hand it is also the combination of web design and web development. To make this visible we used HTML, CSS, JavaScript and Php. We always tried to keep it more scalable, extensible and flexible. We also tried to maintain its robustness.
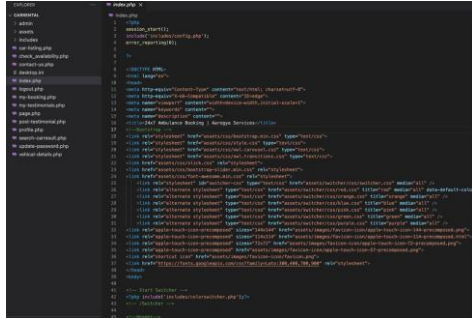

Figure 4 Front End Code

3.2 Home Page

On the home page there are a menu bar, a slide, some text and images. The menu bar consists of home, gallery, log in, registration, about and contact buttons.

Figure 5 Front Page i.e Index page

3.3 Registration

Registration page is for user registration. By filling up every necessary field a user can be signed up. Necessary fields contain name, phone number, email, Address, blood group etc.
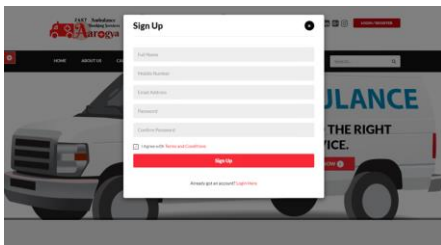

Figure 6 Registration

3.4 Login

Every registered user can log in here with a valid email and password. Only after successfully logging in can a user book an ambulance or can order medicine.
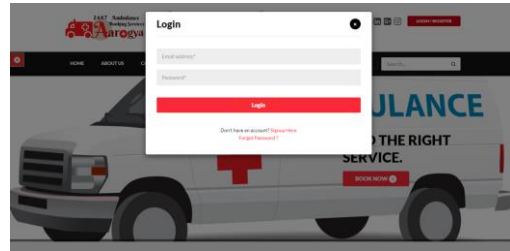

Figure 7 Login Page

3.5 Back-end Design

Back-end design includes power supply behind the project. We used PHP as a server-side scripting language to develop the project and MySQL for the database.

PHP: PHP is a server scripting language. Used to make a page more dynamic and interactive.

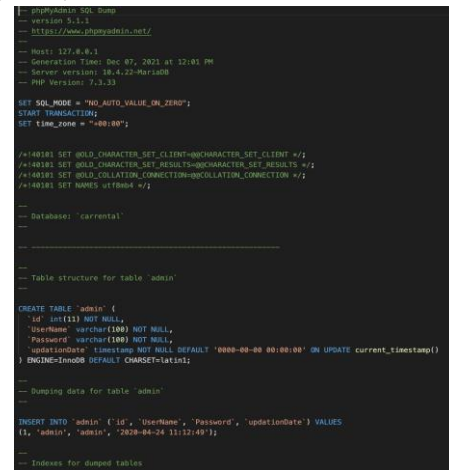MySQL: MySQL is a common database system, directly related to PHP.

Figure 8 Back End database

3.6 Interaction design and UX

Interaction design ensures the interaction between user and product. It improves the product's usability and accessibility.

In this application, we used BOOTSTRAP, HTML and CSS to make pages more attractive and standard. Color combinations are not irritating for sight and are more user friendly.

3.7 Implementation Requirement

To make sure the implementation of this project we used different tools. In this section we described the tools required to develop this project.

➢ HTML, CSS and BOOTSTRAP: front-end design
➢ Core PHP for Back-end Design
➢ XAMPP: Creating local server
➢ MySQL: Database
➢ Javascript: From validation And different icons, fonts and pictures were collected using GOOGLE.

4. APPLICATION FEATURES

4.1. Admin
● Admin Panel. Can add new Vehicle's and Brands
● Admin can manage vehicle brand details (edit,

delete)
● Can manage and add vehicle details (edit, delete)
● Manage booking details (Confirm and cancel bookings)
● Manage Testimonial details (activate and inactivate)
● Manage Contact Us query
● Check all registered users details
● Update the page details such as about us, terms and conditions pages
● Update contact details dynamically
● Manage subscribers
● Change password of the user
● Dashboard with analytics such as Registered users count, total bookings, total subscribers, total queries, etc.
4.2 Registered user
● Can signup through registration page
● Login with valid email and password
● Recover password after providing sufficient information
● Can search for car details and booked ambulance
● View ambulance booking history
● Check booking status (after approval from admin)
● Update profile
● Add new Testimonial
● Logout
4.3 Guest user
● Can view the website and surf/find ambulance details. Enquiry through the contact us page.

5. CONCLUSION

As of now, there are only a few projects working to aid ambulance and emergency facilities to those in need. With India, "Dial4242" has spread its roots in ERA. Aarogya Ambulance booking Service is advancement to such existing projects with a user-friendly and blood inventory facility. Our summing-up is, we have devel- oped our project to handle emergency health situations and to evacuate the patient to a nearby and communicated hospital. In this article, an approach is extended toward rescuing a sufferer's life in a more accelerated approach as feasible. It is extremely essential for sufferers in the matter of crises since it conserves time. With the help of this Project, the emergency vehicle can contact the user or victim as the position is followed or supplied within the application furthermore can produce the essential tools that are expected for the patient's well-being.

This work identified and presented the challenges people in this kind of situation faced with respect to public health care facilities like medical emergency services. In particular, patients found it difficult if not impossible to access medical ambulance transport during emergencies, which consequently, leads to loss of, lives that could be prevented. With such challenges and others, this paper proposed a solution in the capacity of a Mobile-based ambulance transportation scheduling system. It is aimed at improving ambulance transportation availability and other services when requests are made without having to call or wait for a long time. The paper analyzed, designed and implemented a

prototype to demonstrate the operation of the system to show its effectiveness with respect to the current systems. Based on its mode of operations, we believe that it will be adopted for use by people living in the rural areas, not only Indian rural areas but areas where modern hospitals or health facilities are not located in SI. Moreover, it could go a long way to make their lives easier and prevent the loss of lives of thousands of people needing emergency services. Our future work will be to improve the system by incorporating technologies of Internet of things (IoT) to scale it up and link it with all nearby hospitals such that if a service is not available in one, another hospital that offer such service can be suggested immediately alongside its distance, arrival time and the availability of paramedics, doctors and so on to attend to the emergency situation.

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