INNOVATIVE SOLUTION FOR RAPID ACCIDENT RESPONSE: AUTO-RECUE SYSTEM

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Abstract : In India, loads of patient pass on because of late reach to the clinic in the event of any mishap or any crisis. So we are fostering an application which will lessen an opportunity to arrive at the emergency clinic. The primary capability of this undertaking will lessen the time between vehicle driver and the Patients, and it will save somebody's life. At the point when the client will open the client application on his Cell phone then, at that point, they can call help by clicking on emergency button. We will require two cell phones, one for client and other for vehicle driver. Road accidents in the city have been bar the loss of life due to the accidents is even more crucial. To implement this, we will introduce a system called Auto Rescue System using the shortest distance search algorithms. The fundamental subject past this plan is to give a straightforward stream to the Vehicle Driver reach to the clinics in time and subsequently limiting the satisfaction. The Vehicle Driver is controlling by the essential unit which arrangement the most sweep course to the Vehicle Driver and this Vehicle Driver area and subsequently arriving at the clinic securely. This venture will be completely computerized; consequently, it finds the mishap spot, assisting with arriving at the emergency clinic in time.

Keywords: Emergency patient transportation, Accident response, Shortest distance search algorithms, Passenger vehicle, Google location, Hospital reach time.

1. INTRODUCTION

According to the Indian government data from 2017, nearly half of all heart attack patients take more than 400 minutes to reach a hospital – nearly 13 times more than the ideal window of 30 minutes. The latest National Crime Records Bureau statistics reveal that nearly 24,012 people – victims of conditions ranging from strokes and brain hemorrhage to accidents – die every day due to a delay in getting medical help. On an average, 122 women die during childbirth for every 100,000 live births, shows latest Sample Registration System (SRS) estimates (2015-17). The cause of death, for an overwhelming majority, is lack of timely medical access and facilities.[1]

We have rescued this problem with Auto Rescue System, which is web based application to help a patient by alerting nearby auto passenger vehicle's driver to come to the victim's aid. This is a one clicks service which sends notification to all available nearby passenger vehicle and alerting them about the nearest hospital's location. When the passenger vehicle driver takes the patient to the hospital, the patient's fare will be borne by the hospital. This fee will be added to the patient's bill. We planned to use passenger vehicle instead of Vehicle Driver because passenger vehicle is easily accessible, and Vehicle Driver usually take a lot of time to reach the victims. In this we built an Android app for patient and passenger vehicles. We provided an Emergency Button so that if any accident occurs, the victim or the nearby person can press the button to get help. Whenever the button is clicked, a message containing google location of the victim as well as the google locations of nearby hospitals will be sent to the nearby passenger vehicles [3]. We also made a website for the hospital which tracks the passenger vehicle driver, how much time will it take to bring the patient to the hospital, so the hospital staff will be prepared to take care of the patient. Hence, providing almost immediate help [2].

2. LITERATURE REVIEW

1. **Automatic Accident Detection and Ambulance Rescue System:** This project will provide an optimum solution to this draw back. According to this project when a vehicle meets with an accident immediately Vibration sensor will detect the signal and sends it to Microcontroller. Microcontroller find the location coordinates of accident spot using GPS and sends the alert message including geographic allocation coordinates through the GSM Module to ambulance unit. So, the rescue team in the ambulance can immediately trace the location by putting geographical location coordinates in Google

earth application or any other Geographic location finder application. After conforming the location of accident spot the ambulance unit will starts its rescue operation. This system also controls the traffic signals in the path of ambulance and helps ambulance to reach hospital in minimum time [4].

2. **Automatic Ambulance Rescue and Physiological Parameter Monitoring System:** They have a system for automatically detection of an accident from the accident spot to the ambulance and automatically controlling the traffic signals so that the ambulance would be able to cross all the traffic signals without waiting and achieves a smooth flow. Every traffic junction will have a controller unit and a transceiver modem (like Zigbee modem) The controlling is done by the server unit by sending the control signals or messages. When a traffic signal is controlled, and it is made to be green for the ambulance to pass through traffic signal without waiting [3].

3. **Emergency Medical Service (EMS):** Ambulance can be categorized as a limited resource in EMS and since the congested and rapid development of urbanization and concrete jungle in each and every part of the world, the route to search and rescue for human shelter is very complex. This reflects the performance of the ambulance driver to reach the emergency spot on time These issues help to identify that the need and responsibility of an EMS is vital and equally important to save lives, utilizing and improvising this system will sure helps the community to be safe and worry less on the service provided by the authority.

4. **Auto Ambulance System:** Patients are mostly having issues on handling the locations and searching of ambulance their availability due to limited service in the time of emergency .The lack of such attention and information may lead to several casualties .The question arises where the user have to find ways to check the availability for the ambulance to find the user's precise location in the quickest time. Thus, the ambulance driver has to provide proper information and location. So, both the user and ambulance driver won't get lost or by searching each other. The main aim is to reduce the time of calling the fraud calls and to allow ambulance driver to locate the victim easily by using GPS signal [5].

5. **Automatic Ambulance Rescue with Intelligent Traffic Light System:** The system uses two microcontrollers and the GPS installed in Ambulance identifies the latitude and longitude of the place thereby finding the location of the ambulance unit. GPRS 3G Modem installed in the ambulance and the traffic junction helps to communicate with each other at a greater speed and at greater coverage. Initially, the mode is set the by using MODE switch. MODE switch is used to indicate whether the situation is critical or not. The Latitude and longitude position of the ambulance was obtained by the GPS. The microcontroller receives the GPS value. After receiving the controller compares the GPS value in PC via RS232 in control room. If the GPS value is nearby indicating that the ambulance or the emergency vehicle is near to the traffic junction, then the corresponding signal in traffic is green for the Ambulance to pass through without waiting. Alarm is ON for indicating that the Ambulance is in a nearby location. In order for the GPS to work, a network of satellites was placed into an orbit around the planet Earth, each broadcasting a specific signal. This signal can be achieved by a low technology aerial. LCD Display is used for displaying the status of the processing. An LCD consists of two glass panels, with the liquid crystal material sand witched in between them. LCD doesn't generate light and so light is needed to read the display. Driver circuit is an electrical circuit used to power the LCD [2].

3. PROBLEM STATEMENT

- A web-app designed to help an accident victim by alerting nearby vehicle drivers to come to the victim's aid.
- This is a one clicks service which sends notification to all available nearby autos and alerting them about the nearest hospital's location.
- We have also included online payment for the victim to pay for the auto driver.

3.1 MODULES:

1. Victim's Registration and Authentication:
- Purpose: This module allows victims to register on the system and authenticate their identity securely.
- Functionality: Victims will provide their personal information (name, contact details, etc.) during registration. Authentication methods might include email verification, phone number verification, or password-based authentication.
- Security: Ensures the confidentiality and security of victim's information to prevent unauthorized access.

2. Victim's Mobile Interface:
- Purpose: This interface provides victims with access to the system via a mobile app.
- Functionality: Victims can report incidents, request assistance, and access information related to their safety. They can also view their personal data and transaction history.
- Usability: Designed to be user-friendly and accessible to victims during emergencies.

3. Auto Driver's Registration and Authentication:
- Purpose: This module allows auto drivers to register on the system and authenticate their identity.
- Functionality: Auto drivers provide their driver's license, vehicle information, and personal details during registration. Authentication ensures that only licensed drivers are accepted into the system.

4. Auto Driver's Mobile Interface:

- **Purpose:** Provides auto drivers with a mobile app interface to interact with the system.
- **Functionality:** Auto drivers can accept service requests, navigate to pick-up points, and update their availability status. They can also view their earnings and trip history.
- **Efficiency:** Designed to help auto drivers efficiently serve customers and maximize their income.

5. Hospital's Registration and Authentication:

- **Purpose:** This module allows hospitals to register with the system and authenticate their credentials.
- **Functionality:** Hospitals provide their information, accreditation, and contact details during registration. Authentication ensures that only legitimate healthcare facilities are registered.
- **Quality Assurance:** Ensures that the system connects victims with certified medical facilities.

6. Hospital's Web Interface:

- **Purpose:** Provides hospitals with a web-based interface to manage their interaction with the system.
- **Functionality:** Hospitals can receive information about incoming emergency cases, confirm their availability, and update their status (e.g., bed availability). They can also access transaction records and performance analytics.
- **Efficiency:** Designed to streamline the process of connecting victims with appropriate medical care.

4. PROPOSED SYSTEM

Users will register in the app using their mobile numbers and email addresses. During emergencies, they can request an ambulance or a passenger vehicle directly from their phone. These requests are sent to a central office with a 24/7 server. The server processes the request, calculates coordinates, and checks the availability of ambulances and passenger vehicles at nearby stations. If none are available, it searches the next nearest station and informs the user about the progress, estimated time of arrival, and the station from which the vehicle will be dispatched. This entire process is managed by a predefined algorithm. All transaction details are stored securely on the server. Once the task is completed, the server updates the status and the number of available ambulances and passenger vehicles. This mobile application provides a more accessible and convenient solution for emergencies compared to traditional methods, reducing response times and improving safety.

5. FLOWCHART
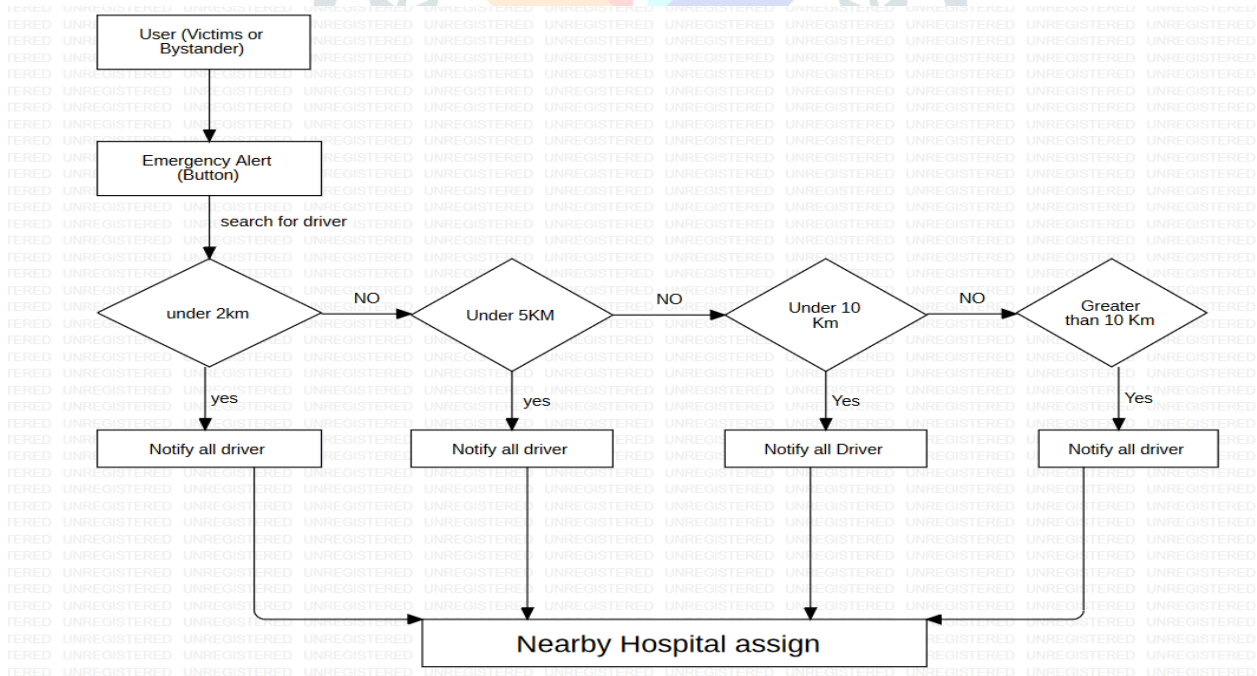
6. CONCLUSIONS

This application has been developed with a focus on basic functionality, with less emphasis on advanced GUI features such as elaborate animations and fragment implementation on pages. There are also a few low-level bugs that need to be fixed. For future enhancements, Google Maps will be integrated into the user-side app to show the assigned driver's location and the estimated time for the driver to reach the destination. This feature will provide users with the assurance that a vehicle driver has been assigned and is on the way to pick them up. Additionally, a voice command feature will be implemented to allow users to send signals using voice commands, enhancing the user experience.To adapt to the current smartwatch era, the system will also be integrated with Android watches. This will enable users to easily trigger alerts and send requests to the admin by tapping on the watch screen.

7. ACKNOWLEDGEMENT

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