"EMERGUARD: ROADWAY BREAKDOWN ASSISTANCE"

Mr. Karambele Adityaraj   Mr. Dhumak Dipraj   Mr. Chavan Shreyas   Mr. Mogaronkar Sachin Mr. Laxman S. Naik

Bachelor of Engineering   Bachelor of Engineering   Bachelor of Engineering   Bachelor of Engineering Assistant Professor

in Computer.   in Computer.   in Computer.   in Computer   Mumbai University

Rajendra Mane College of Engineering and Technology Devrukh (Ambav), Ratnagiri, India.

ABSTRACT:

Emerguard revolutionizes roadside help by using technology. The system combines an easy-to-use mobile application with a device, offering a quick and trustworthy solution for car problems. Using GPS, Emerguard finds users precisely, making it easy to send help quickly. The application makes asking for assistance simple, reducing stress during emergencies. Whether you need a mechanic, a towing service, or even medical help, Emerguard connects you with nearby professionals who are qualified to help quickly. Emerguard has a big network of mechanics, tow trucks, and medical facilities. This strong setup lets the system adapt to different needs, from small problems to big ones. Importantly, Emerguard helps both individual people and businesses, letting them request help at the same time, making it easier for everyone. Because Emerguard knows emergencies can be serious, it works closely with emergency services. This means you'll get medical help right away if you need it. Emerguard is committed to keeping users calm and being super dependable, setting a new standard for roadside help services. With Emerguard, drivers can feel confident knowing help is just a tap away.

Keywords: - (OBD-II) On-board Diagnostics II, (RPM) Revolutions Per Minute, (GPS) Global Positioning System, (SIM) Subscriber Identity Module, (SMS) Short Message. Service

I.INTRODUCTION:

In today's world, many people depend on their own cars to get around. But sometimes, while driving, unexpected things happen, like the car breaking down or someone getting sick. These situations not only waste time but also make travellers feel frustrated and tired. If the driver can't quickly find help for these problems, they might have to rely on others, which isn't always fast or reliable. But with EmerGaurd, things get easier. EmerGaurd is a device and application combo that helps drivers find help quickly. It locates nearby assistance for vehicle breakdowns or medical emergencies, so you don't have to wait long for help. With EmerGaurd, you can avoid the stress of waiting around for assistance. It's like having a handy helper in your pocket, ready to connect you with the right help, right when you need it. So, whether it's a flat tire, engine failure, or a sudden health issue, EmerGaurd has got your back, making tough situations a little easier to handle.

II. AIM AND OBJECTIVES:

To develop a comprehensive solution that seamlessly integrates an Android application with a hardware device to provide swift and efficient on-road vehicle breakdown assistance.

The proposed system will achieve following objectives:

1. To help the users in road-related issues.

2. To assist the victims in worst situations such as breakdown, accidents, medical calamities.

3. To provide a platform that assists victims to access solutions to getting out from road related troubles.

III. LITERATURE REVIEW:

In the paper [1], we explored the development of a system aimed at providing roadside assistance to vehicles experiencing breakdowns. The study discussed the various components and functionalities of the system, such as real-time monitoring, GPS tracking, and communication mechanisms. With paper [2], we likely observed the leveraging GPS technology for roadside assistance, and how GPS enables precise location tracking of vehicles in distress, facilitating prompt assistance and service dispatched.

With paper [3] we likely studied the development of a system for locating nearby car breakdown service stations. We explored algorithms and techniques for efficiently identifying and routing vehicles to the nearest service stations based on their current location. Undergoing the paper [4], we likely detailed the design and implementation of a comprehensive system for roadside assistance. We probably provided an overview and analysis of existing systems and technologies in the field of roadside assistance. The review on paper [5] brought us to the strengths and limitations of various approaches and proposed recommendations for future research and development. Likely explored the use of GPS-enabled smartphones and the Android operating system for enhancing public safety. The study of paper [6] helped us with the applications such as emergency response coordination, location-based alerts, and incident reporting.

We likely studied paper [7] with the development and implementation of location-based services using the Android platform. We have covered topics such as GPS integration, mapping APIs, and user interface design for location-based applications. Moreover, in paper [8], we investigated methods and technologies for providing assistance to vehicles experiencing breakdowns, where we understood strategies for rapid response, efficient dispatching of service personnel, and leveraging mobile technologies for communication and coordination.

IV. EXISTING SYSTEM:

The existing system primarily relies on traditional methods for addressing challenges during travel. When drivers and passengers face issues like vehicle breakdowns or unexpected medical problems, they encounter significant limitations in accessing assistance. In this context, it is important to understand the shortcomings of the current system:

Manual Contact: Travelers often rely on third-personal contacts for assistance, which can be inefficient.

Local Directories: Local directories, like phone books or online searches, may provide outdated information, causing delays.

Emergency Hotlines: Using emergency hotlines for minor issues can strain services.

Limited Accessibility: Rural areas may experience longer wait times for assistance.

Lack of Real-time Updates: The system lacks real-time information on service provider location and arrival times, leaving travelers uncertain.

V. PROPOSED SYSTEM:

The challenge during travel often arises from vehicle breakdowns or unexpected medical incidents. In such moments, individuals must depend on the assistance of third parties. Our project aims to address this issue by enabling users to easily locate nearby services, providing a convenient solution for emergencies and breakdowns, ensuring safety and convenience for all travelers.
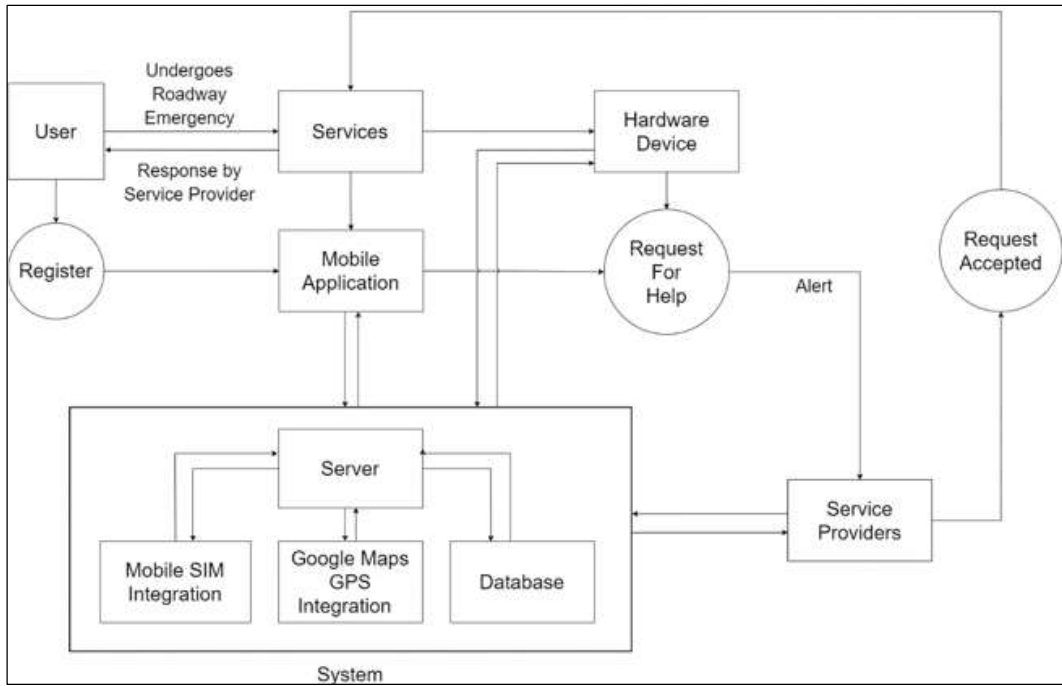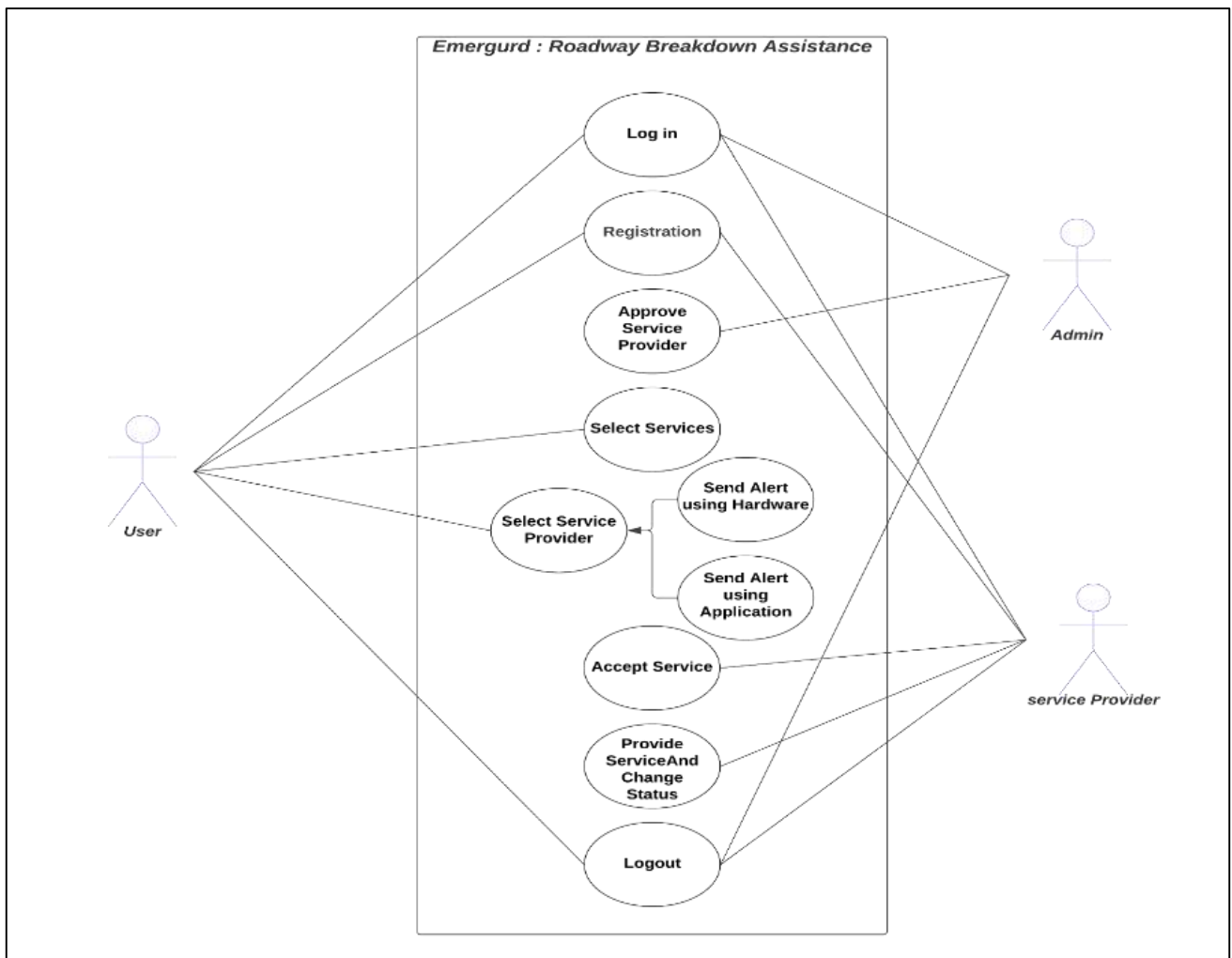
Fig. Flow Chart.

Fig. Use Case.

VI. METHODOLOGY:

The general overview of how the system diagram of your project operates:

- **User:**
1. The user registers for the EmerGaurd application and creates an account.
2. When the user experiences a roadside emergency, they open the application and tap the "Request Help" button.
3. The application uses the user's mobile/ hardware device GPS to determine their location.
4. The application sends a request to the geographically nearest service provider.

- **Service Provider:**
1. The service provider receives the request and reviews the details.
2. The service provider can accept or reject the request.
3. If the service provider accepts the request, they will send a response of acceptance to the user.
4. The service provider will then travel to the user's location to provide assistance.

- **System:**
1. The EmerGaurd system uses a database to store user and service provider information.
2. The system also uses Google Maps GPS integration to track the locations of users and service providers.
3. When a user requests help, the system matches the user with the nearest available service provider.
4. The system sends an emergency request with user details to the nearest service provider and sends a confirmation SMS to the user with service provider details. '

- **Hardware Device:**

    The EmerGaurd device is a small, portable device that can be placed in a vehicle. The device has a built-in GPS sensor and a cellular connection. If the vehicle breaks down or the driver experiences a medical emergency, they can press the button on the device to request help. The device will then send a request to the EmerGaurd application.

- **Mobile SIM Integration:**

The EmerGaurd mobile application uses mobile SIM integration to connect to the cellular network.

- **Google Maps GPS Integration:**

The EmerGaurd application uses Google Maps GPS integration to track the locations of users and service providers. This allows the system to match users with the nearest available service providers.

- **Database:**

The EmerGaurd system uses a database to store user and service provider information. This information includes the user's name, contact information, vehicle information. The information also includes the service provider's name, contact information, and the types of services they offer.

- **Server:**

The EmerGaurd system uses a server to process requests by user and responses by service providers. The server is also responsible for storing the database and running the application.

Overall, the EmerGaurd system is a comprehensive solution that can help drivers and passengers in need of roadside assistance. The system is easy to use and provides a quick and reliable way to access the help you need.
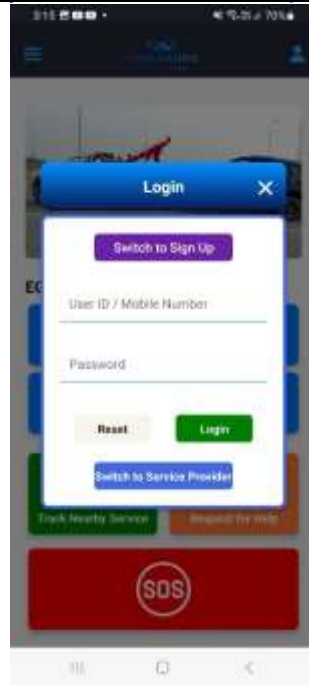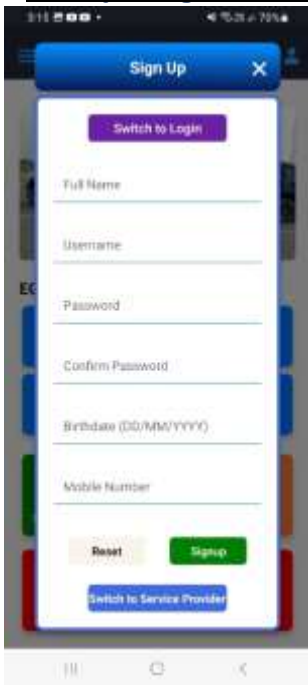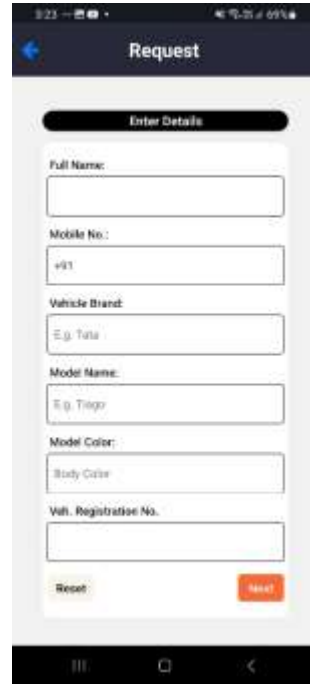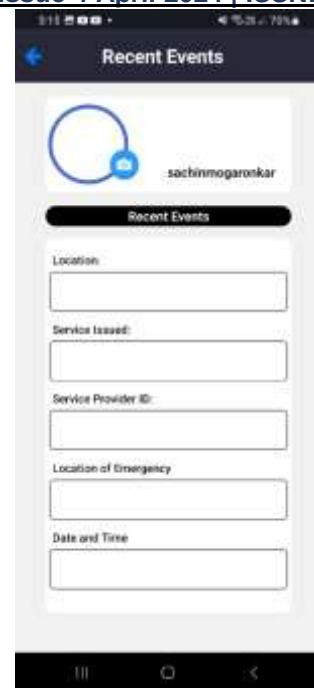
Registration Page

Sign in Page

Home page

User Request page

SOS page

User Recent Events

VII. CONCLUSION:

The Emerguard: Roadway Breakdown Assistance project offers a promising solution to address on road vehicle breakdowns efficiently. While it provides numerous advantages such as rapid assistance and medical help, it also faces limitations related to technology dependence, connectivity issues, and user adoption. Careful consideration of these limitations and robust mitigation strategies are essential to maximize the project's effectiveness and user satisfaction.

VIII.   ACKNOWLEDGMENT:

IX. REFERENCES:

[1] Prof. Shital S. Aher, Unhale Vrushali Tribhuvan, Gade Pranjal Balasaheb3, Patil Tulsidas Devashree, "ON ROAD VEHICLE BREAKDOWN ASSISTANCE.", International Journal of Advance Research in Computer and Communication Engineering, Vol. 11, Issue 11, November 2022.

[2] Miss. K. Iswarya (MCA & Anna University), Miss. D. Devaki (MCA & Anna University), Mr. E. Ranjith M.Phil. & Bharathiyar University, "ROAD ASSISTANCE SYSTEM USING GPS.", International Journal of Agricultural Research Innovation and Technology, ISSN: 2454-132X.

[3] Sheng, K.J. & Baharudin, Ahmad & Karkonasasi, Kamal. (2016). "A CAR BREAKDOWN SERVICE STATION LOCATOR SYSTEM.", Journal of Applied Engineering Research, ISSN 0973 4562 Volume 11, Number 22, pp 11037-11040.

[4] Mr. Vivek A. Katole, Mr. Vidhitya M. Wankhade, Department of Computer Science & Engineering at Prof. Ram Meghe Institute of Technology and Research. "ON ROAD VEHICLE BREAKDOWN ASSISTANCE SYSTEM.", International Journal of Engineering Applied Sciences and Technology, 2020, Vol. 4, Issue 11, ISSN No. 2455-2143, Pages 199-202.

[5] P. Ajith Kumaar. D, Balakrishnan, Sree Subha. S, Harin. K. Department of Information Technology Rajalakshmi Engineering College, Chennai, Tamil Nadu, India. Research Paper on "ON ROAD VEHICLE SERVICE FINDER".

[6] Ritu Sharma, Deepak, Divyansh Singh, Harsh Sharma, Prashant Nishad. " REVIEW OF CHALLENGES AND SOLUTIONS IN WEB BASED VEHICLE BREAKDOWN ASSISTANCE SYSTEM ". International Journal for Research in Applied Science & Engineering Technology. ISSN: 2321-9653; IC Value: 45.98; SJ Impact Factor: 7.538 Volume 10 Issue V May 2022.

[7] More Akshay J., Salunke Rohit K., Gondgire Chaitanya N., Prof. Sayyad G. G. "SMART MECHANIC SYSTEM". International Research Journal of Engineering and Technology. e-ISSN: 2395-0056, Volume: 09 Issue: 05, May 2022, p-ISSN: 2395-0072.

[8] Nivetha M., Sujatha S., Abinaya V. "VEHICLE BREAKDOWN ASSISTANCE". International Journal on Cybernetics & Informatics (IJCI) Vol. 10, No.1/2, May 2021.