

Roadside Assistance Finder

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Abstract: *A growing number of cars on the road are vulnerable to emergencies or breakdowns in today's fast-paced world, making roadside assistance timely and dependable. The goal of the Roadside Assistance Finder project is to create a clever and practical way to easily link drivers in need with local assistance services. The system makes use of cutting-edge technologies to improve service providers' and drivers' overall experiences. The suggested application facilitates the quick and simple search for mechanics. Locating mechanics in a nearby area is a challenging task when traveling. This system offers mechanics details with a single click, which helps to solve the problem.*

Keywords: Vehicle, Assistance, Spare-parts, Mechanic shop, Power, Service

I. INTRODUCTION

As mobility becomes increasingly essential to our lives, car troubles and emergencies on the road are inevitable sources of stress for drivers. The Roadside Assistance Finder emerges as a cutting-edge solution, addressing the urgent need for timely and reliable support on the road. This innovative project leverages advanced technology to create a streamlined and user-friendly system, efficiently connecting stranded drivers with nearby roadside assistance services. The exponential growth of vehicles on the road has paralleled a significant increase in the likelihood of breakdowns and emergencies. Recognizing this critical need, the Roadside Assistance Finder aims to revolutionize the way drivers access help in their hour of need. Traditional methods of seeking help, such as relying on word-of-mouth or outdated directories, are often inefficient and time-consuming. This project tackles this challenge head-on, integrating cutting-edge technology and creating a streamlined process for both drivers and assistance providers. The Roadside Assistance Finder's core objective is to provide drivers with a quick and reliable mechanism for requesting assistance, ensuring that help arrives as quickly as possible. The project further enhances the user experience by integrating a secure payment system, eliminating the need for cash transactions and creating a seamless experience. Additionally, a feedback and rating system is built in to maintain high service quality, encouraging users to share their experiences and contribute to the continuous improvement

II. PROBLEM STATEMENT

Our car breaking down when we are traveling is the issue. The only option in this case is to find other transportation during the moment of the problem, after which they must arrange for a repair to come to the specific location where they parked their car. Through this application, mobile users can search at any time and from any location to find mechanics in the neighboring region. The administrator has access to the shop's details, may verify the registered shop's license status, and can grant approval.

2.1 Existing System

- It is also feasible to identify the appropriate mechanic for the required service at remote places.
- Currently, some users of the system have their own mechanic number and find it challenging to come on time.

- When a problem arises, their only option is to search for alternative transportation, and they must then arrange for a repair to come to the specific area where they parked their car.

2.2 Proposed System

- The suggested app makes it simple and quick to locate mechanics in the area.
- This app shows the user's location and indicates which service provider is closest to them.
- We may use it to look up and contact local mechanics from various regions.
- Using this application, the user can pay for their services.

III. REQUIREMENT

3.1 Hardware Requirement

Development Workstations:

- High-performance computers or laptops for software development.
- Adequate RAM (8GB or more) and a powerful multi-core processor.
- Sufficient storage space for development tools, libraries, and project files.

Server Infrastructure:

- Web servers for hosting the backend of the application.

Mobile Devices:

- Devices for testing the mobile app on Android platforms.
- Devices with various screen sizes and resolutions to ensure compatibility.

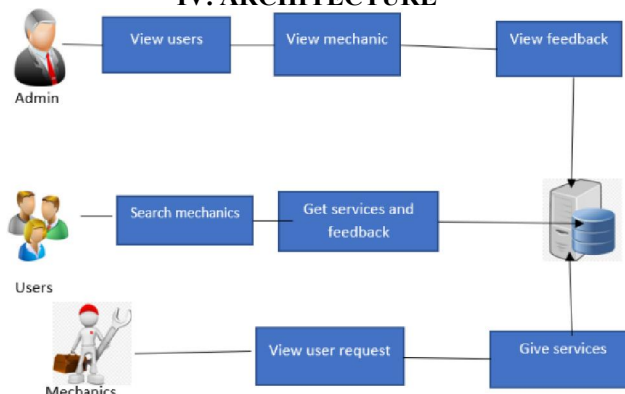
GPS Hardware:

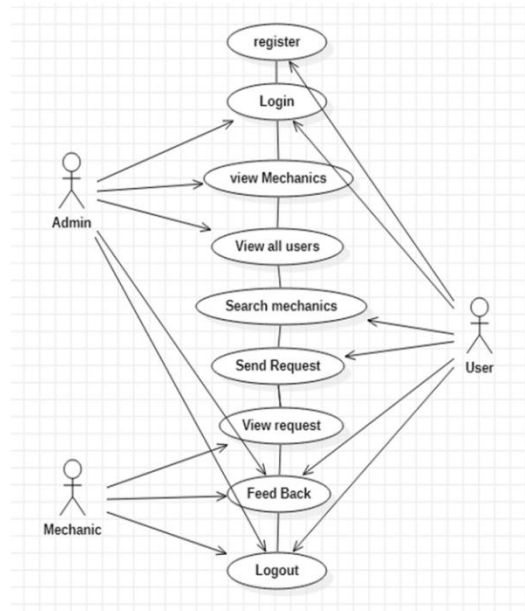
- Mobile devices with built-in GPS for accurate location tracking.
- For testing purposes, external GPS devices may be used to simulate location scenarios.

3.2 Software Requirement

- Operating System: The development machine should run a supported operating system for Android Studio
- Android Studio: The latest version of Android Studio, the official IDE for Android development
- Java Development Kit (JDK): The app development requires a compatible version of JDK.
- Android Studio typically includes OpenJDK, but you may also install a specific version separately.
- Firebase Account: Developers need to sign up for a Firebase account to set up the backend services, including Firebase Authentication and Real-time Database.
- Version Control (Optional): Git or another version control system for collaborative development and code versioning.
- Internet Connection: A stable internet connection is required for downloading dependencies, libraries, and for testing cloud-based features like Firebase services.

IV. ARCHITECTURE





Use case diagram

V. METHODOLOGY

5.1 Features & Module

Admin:-

- **Login:** The admin must log in using legitimate credentials.
- **View Mechanics:** The admin has the ability to permit or prohibit mechanics as well as view the registered mechanics' details.
- **View Users:** All registered user details are visible to the administrator. **View Feedback:** The admin has access to all of the user and mechanic's feedback.

User:-

- **Register:** The user can register using all of their information.
- **Login:** Using their login credentials, registered users can log in.
- **Search Mechanics:** Based on their locations, users can look for nearby mechanics.
- **Send Request:** The user can submit a request to the chosen mechanic after choosing one of them.
- **Feedback:** User input is welcome and should be provided appropriately.
- **Module:** Normal/critical breakdown type If everything is normal, assist using the AAP manually; if something goes wrong, provide support mechanics.

Mechanic:

- **Register:** Mechanics can register by providing all of their information.
- **Login:** If the administrator grants permission or blocks it, registered mechanics will have access to the login.
- **View Request:** The request that the user has sent can be viewed by mechanics.
- **Feedback:** Mechanics are able to offer their own input.

VI. FUTURE ENHANCEMENT

In future the car and spare parts store will eventually be divided into sections based on the type of vehicle. This helps users find spare parts based on the type of vehicle they drive, saving them time. The list of hospitals and fuel stations can be expanded in addition to that.

VII. CONCLUSION

When a car breaks down, the driver needs to take it to the shop or a mechanic. The driver needs to approach people to ask for assistance. Based on the user's location, this application allows the user to locate mechanics. The user can simply and directly obtain mechanical assistance. This aids in saving the user's time when traveling. When a breakdown happens, the user can fix their car right away. The user is made more comfortable by this. They won't let their journey tire them.

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