ON ROAD VEHICLE BREAKDOWN ASSISTANCE SYSTEM

ANOOSHA K R

RV College of Engineering

RV Vidyanikethan Post, Mysuru Road, Bengaluru 560059, Karnataka

`anooshakr.mca19@rvce.edu.in`

Abstract— **For those who need assistance in far-off regions because their vehicle is having mechanical problems, on-road vehicle breakdown support will be a decent option. Users of the ORVBA will be publicly registered users who connect with the specific mechanism. The ORVBA only hires licensed and approved mechanics. The ORVBA system is keeping an eye on mechanics to make sure they aren't charging extra service fees to the customers. Through the ORVBA system, users can update their comments on the services they have access to. If necessary, ORVBA service offers fuel and a driver. It also assists by offering a vehicle to lift their vehicle to the mechanic's shop**.

The current drawback of ORVBA is that some customers have extremely small mechanic databases. Users who have contact with someone at a specific location may approach them for assistance only if they are willing to do so. In remote areas, it is impossible to locate a qualified mechanic to do the required service. The only option they have is to search for other transportation at the time of the problem, and they must then bring a mechanic to the specific area where they parked their vehicle

When used in an emergency, this programme quickly locates the closest location, which is highly helpful to the user. According on the user's preference, the programme gives navigation to the closest emergency service. Additionally, it offers service contact information. This strategy greatly simplifies the user experience and outperforms the current system in situations this important. This application will utilise all reasonable measures to identify and point users toward the closest service provider based on their location. It aids in fuel supply, vehicle and collision concerns, and mechanical breakdown issues. The programme, which is stored on the server as part of the larger roadside assistance service, provides access to service details.

Keywords—**Vehicle Breakdown Assistance, Location tracking, Complete services provided**

I. INTRODUCTION

Nowadays, the majority of people drive their own personal vehicles. Many travelers worry their vehicles will not arrive at their destination. They usually have to endure a bad trip like this. The client should look up mechanic businesses nearby if their vehicle breaks down suddenly while they are traveling. Customers can use this website to look for the right mechanic. The main advantage is that by using this service, the customer may find a mechanic close to where they are and make an instant payment. So many folks are having difficulty getting help when there is a single vehicle obstruction in their path. Many of the customers will not have the mechanics' contact and will not get any mechanic because the vehicle repairs shop may be but their location.

The on-road vehicle, breakdown help extension will be a terrific arrangement for people who wants to help others with vehicle mechanical problems in difficult-to-reach places. When customers have a breakdown while driving, ORVBA (On On-Road Vehicle Breakdown Assistance) connects them with specialized mechanics. Only those mechanics who have a valid license and approval are allowed to enrol in ORVBA. The ORVBA system is keeping an eye on mechanics to make sure they aren't charging extra service fees to the customers. Through the ORVBA system, users can update their comments on the services they have access to. The ORVBA service helps by providing a vehicle to lift their vehicle to the mechanic shop as well as fuel and drivers, if necessary. Data integrity is also ensured by the system's user-friendly application system and security controls.

The goal of the on-road vehicle breakdown support system is to offer a better service by streamlining the procedure and swiftly assigning a mechanic. Finding the cause of a vehicle breakdown is helpful. It will be useful when creating a web application that can locate a qualified mechanic. It aids in

creating a single platform that links drivers and mechanics. Human time and effort will be reduced. Users of the newly built system can do away with all paperwork more quickly and easily. The system for on-road vehicle breakdown support is used to compile all the information on those who schedule appointments in that region. This system aids in maintaining all pertinent data regarding users and their automobiles. The project is being designed to offer every aspect necessary to meet the needs of the interested party. The creation of high-performance, user-friendly software is the major objective. The programme may also simply create a program and pull information from the database. The ORVBA system controls all backend functionalities like adding mechanic details, and contact numbers, adding services and other details related to the vehicle breakdown services, saving in a database, and extra. Admin oversees the report points of interest like support, instalments, technician creation, security, and extra.

On-road vehicle breakdown assistance has the disadvantage that some users have very minimal mechanic databases. Users with contacts of individuals at a certain location may approach them for assistance only if they are willing to do so. At remote locations, it is impossible to find a mechanic who can provide the desired service. In this situation, individuals must first find another kind of transportation before getting in touch with a repair at the place where they parked their vehicle

II.   LITERATURE SURVEY

In vehicle assistant application the paper presents the possible approaches to managing the vehicle breakdown services [1]. It is suggested to use a web application to track the automobiles. With diagnostics on board, novice drivers can get assistance changing gears and in the event of a car breakdown. Taking advantage of the convenience of CVIS technology, the framework for integrating vehicle and roadside sensing data has been designed based on the convenience of information interaction.

This paper introduces the idea and framework of smart roadside servers in various road networks using a telematics system. Vehicle Smart Roadside Server Safety and driver assistance [2] The intelligent roadside server can be warned by telematics devices and is helpful for driver assistance. Fuel-efficient practices

must be put into practise right away because of the rising cost of fuel and the number of vehicles on the road. Drivers can receive support and cautions from telematics devices via smart roadside servers.

Vehicle Search and Assistance System for Roadside Parking [3] This document aids drivers in their hunt for a parking space along the roadside. The algorithm makes an effort to recommend a route that is not just near the driver's current position. If at all possible, stay away from congested areas. Wider uses are made of roadside equipment, which transforms into a server with more intelligent features. A framework is suggested to help drivers find a parking space along the roadside

Vehicle breakdown system. The vehicle Breakdown Application is proving to be an excellent solution for people who want to help others with vehicle mechanical problems in difficult-to-reach locations [4] Users of the Vehicle Breakdown Application will be able to connect with the specific mechanic through the reputable application system after registering publicly. This framework will give the motorist a list of options to choose from. The method takes on the difficult computational challenge by using ant colony optimization.

This study discusses lane departure warning, ambient vehicle detection, maintaining vehicle safety distances from other vehicles, detecting pedestrians, and tracking driver behaviour. The framework plan for intelligent vehicles is assisted by security driving. [5] The algorithm looks for routes that are not only close to the driver's position but also, if at all feasible, steer clear of congested locations. Various measurements have been used to compare the suggested steering technique to the arbitrary steering strategy, and it appears that the proposed approach performs significantly better than the arbitrary approaches.

Vehicle assistance system dealers on the road. [6] An overtaking vehicle identification system and a vision-based forward collision warning system are presented in this work. To help prevent future traffic accidents, the forward collision warning system looks for other vehicles moving in front of the host vehicle. We evaluate contemporary right-hand security driving methods. The essential elements include communications, lane departure warnings, ambient vehicle detection, keeping a safe following distance, identifying pedestrians, tracking driver behaviour, managing vehicle motions, and lane departure alarms.

As the research question, this study uses the key technical challenges of front vehicle location, identifiable proof, and pre-collision location within the framework of advanced driving assistance. Framework for Advanced Driver Help [7]. It enhances the vehicle's active safety. The vast amount of data collected from various sensors during the human-vehicle interaction needs to be structured efficiently in order to be useful for assisting with driving, enhancing safety, avoiding distractions, and enjoying entertainment. Additionally, the layout of the human-vehicle interface is covered.

Breakdown vehicle driver Assistance Systems and Risk Identification. [8] This paper tells about the vehicle breakdown Assistance that can be used to find a mechanic basis on user location. After logging into the application user can search mechanics basis on the user's location and the user can search mechanics basis on the mechanic's area of expertise. The information on a user's automobile can be updated and removed. The overtaking vehicle detection system, on the other hand, is designed to find other cars behind or to the side of the host vehicle and inform the driver when the vehicle starts to overtake. Video sequences of actual scenario are used to display the experimental results. The effectiveness of the suggested strategies has been shown by the performance evaluation.

Examination of Vehicle Breakdown Recurrence. [9] This paper discussed vehicle breakdown during the journey, it is very difficult to search for mechanics in unknown places, so this will help to find good specialty mechanics for customers' vehicles. This work suggests a computer vision method based on the YOLOv5 algorithm and distance calibration for monocular cameras, which improves the active safety of the vehicle and provides the advanced driving assistance system with more thorough driving environment data.

III.   SUMMARY OF LITERATURE REVIEW

- ORVBA will provide better fuel economy to the vehicles
- ORVBA will help to the drivers in searching of a roadside parking place
- ORVBA will a provide speciality mechanics to their vehicles in case of vehicle breakdown

- Users of the Vehicle Breakdown Application will be registered public and they will be getting connected with the particular mechanic through the trustworthy application system
- This ORVBA system access the user location to perform this operation
- This ORVBA system will also provide other vehicle facilities and drivers in case of emergency

IV.   EXISTING SYSTEM

Some users of the current on-road vehicle breakdown support system have a very small mechanic database. Only if they are willing to do so, those with contacts at a certain location may ask for assistance from them. In remote areas, it is impossible to locate a qualified mechanic to do the required service. They have no other means of transportation available to them at the time of the problem, so they must make arrangements for a mechanic to visit the location where they left it.

- It is also possible to discover the right mechanic for the required service at remote places

- Users who have their own mechanic number in an existing system find it challenging to come on time

- The only option is to get alternate transportation at the time of the problem, and they must then bring a mechanic to the specific area where they parked their vehicle

V. PROPOSED SYSTEM

The On-road vehicle breakdown assistance system uses the driver's current location to verify the nearest service providers and provide a list of service providers near for the driver to choose from. The price charged by each service provider cannot be displayed because the root cause of a breakdown must be determined before the price can be determined.

- The suggested application makes it simple and quick to find local mechanics

- This programme displays the user's position and points them in the direction of the closest service provider

- It enables us to phone the local mechanics and do searches for them from various areas

- Through this application, the user can pay for their services

Scope of the Project

The scope of this extension is to concentrate on searching for the closest benefit provider for the drivers.

The driver must see a mechanic or repair facility when their car breaks down. The motorist must ask for assistance from the standers. If a driver uses this vehicle breakdown assistance, they may simply locate a mechanic shop near them. Drivers can quickly and directly obtain mechanical assistance. When fixing a car, the user must hunt for a spare parts store if they require any spare components. When a breakdown happens, the user can also locate repair or spare-parts stores. This helps users save time while traveling

ARCHITECTURE

This Block diagram shows that Customers can do registration or can directly login through ORVBA system. After logged in the system will ask for the location to turn on. Then the customers can view the services and can book the appointment based on the breakdown of their vehicles. Payment can be done through online or cash on hand. At the end customers can give feedback about services, and mechanics to the ORVBA system.
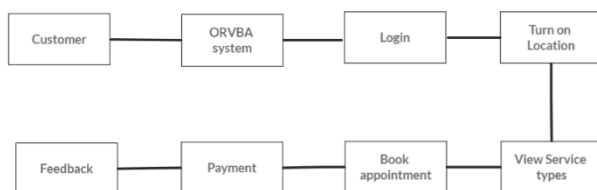

Fig. 1: Block Diagram of the ORVBA System

V.   METHODOLOGY

Daily travel has become a common occurrence for everyone. This utilizes many sorts of vehicles for transportation. A vehicular machine is not supposed to last forever, and with regular use and testing under varied situations, it is bound to experience breakdowns. Many malfunctions can be fixed on the spot by the user.

Many people struggle to obtain assistance when their vehicle breaks down while they are on the road. These problems led to the creation of this initiative to help people in need when their vehicle breaks down on the road

The focus of the framework for on-road vehicle breakdown assistance is on benefits. Services come in many forms, including fuel benefits, technician and driver accessibility, transport the vehicle to the shop area authorization, etc. The customer can complete the registration enrolment section using the UI UX of the screen, select the type of benefit, and the system will determine whether they are an enrolled client or other visitors. If they are already registered clients, check the data stored and allow them to book the arrangement. If they are initially modern clients, they must enrol and can obtain the login credentials from the admin. It is straightforward to get the client's points of interest.

VI.   SYSTEM REQUIREMENTS

A.   Hardware Requirements

1. **Processor–Intel CORE i3** An Intel Corei3 is a custom processor created by Intel that is based on a multiprocessor architecture. A dual-core processor with an integrated graphics processing unit is what it is (GPU)

2. **RAM–8GB**- You will have enough memory to run multiple programmes simultaneously with 8 GB of RAM. You can stream content, utilize photo or video editing software, open a lot of browser tabs at once, and play mid-to-high-end games.

3. **LCD Monitor**- Liquid crystals are principally used in the operation of the LCD (Liquid Crystal Display) kind of flat panel display

B.   Software Requirements

1. **Operating System**: Windows 10
2. **Web design**: HTML, CSS, JavaScript
3. **Technology**: Net Beans IDE 8.2
4. **Front End**: JavaScript
5. **Back End**: MySQL, Java, JDBC

VII. RESULT AND DISCUSSION

The On-road vehicle breakdown assistance system admin is in charge of doing the checks for the authentication page, where they are treated as users, and the registration page is also checked for any blank fields. The module specification is done based on the Unit & Integrated testing. Testing is an important factor for any system so as to provide security and any kind of malpractices. It could be a type of program testing that approves the code against useful requirements/specifications. The reason for useful tests is to test each work of the computer program application, by giving suitable input, and confirming the yield against the Utilitarian prerequisites. Test cases also allow us to build the project so that the user can easily understand what details he has to fill in if he has to register or move to a further module.
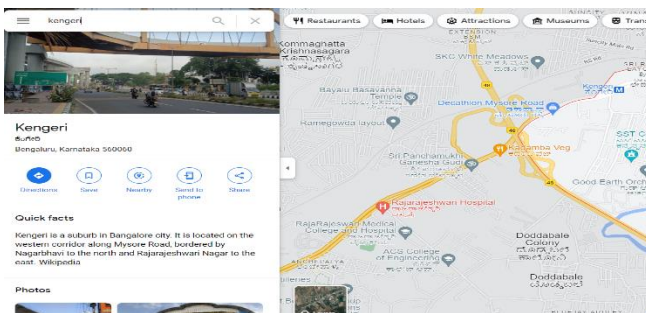

Fig. 2: Number of all the users registered

Fig. 3: Location tracking

IX. CONCLUSION

The creation of a web application that can locate a qualified mechanic will be aided by this project. According to the purpose, this project will offer a better service and make the procedure simple. The driver must visit the technician or the repair shop when their vehicle breaks down.

The motorist must approach the people and ask if they can help. If the driver uses this vehicle breakdown assistance, the user can successfully find a technician's location. The driver can quickly and instantly obtain mechanical assistance. The vehicle owner must search for a spare parts store if any spare parts are required when fixing the vehicle. Users can locate a repair facility or a store that sells replacement parts when a breakdown happens. . Users are saving time by doing this while travelling. This will facilitate the development of a platform that connects the mechanic and the driver.

Emergency breakdown services therefore produce superior location results. When used in an emergency, this programme quickly locates the closest location, which is highly helpful to the user. The programme provides a path to the closest crisis service that the client has selected. Additionally, it includes these services' contact details. These strategy makes client interaction quite straightforward and outperforms the current framework in crucial situations like this. Our system will utilize all reasonable attempts to find and point users toward the closest service provider local to their area. We can use it for towing mechanical breakdowns, fuel supply, tyre changes for flares, and vehicle collisions. The programme, which is kept on the server as part of the larger roadside assistance service, provides access to service details.

This study assists in determining the cause of vehicle failure. This work explains how a technician can assist a driver after a vehicle breakdown. The motorist can quickly and instantly access mechanical assistance. When a breakdown happens, the user can promptly fix their vehicle. They won't squander their time driving. They are able to save time this way. Additionally, it can track the location and retrieve the mechanics' information. This strategy simplifies the user experience and outperforms the current system in key situations.

REFERENCES

[1] Akhila V Khanapuri, Anagha Shastri, Vehicle assistant application, Published in 2015| Accession Number 15092479 | Volume 8 | Issue 4 | Publisher:IEEE | Conference Location: Mumbai, India

[2] Jeongah Jang, Hyunsuk Kim, Smart Roadside Server for Driver Assistance and Safety, Published in: 2012 | Accession Number: 11706317 | Volume 16 | issue 44 | Publisher: IEEE | Conference Location: Sanya, China

[3] Aneesh Epari, Vijay K Chaurasiya, Roadside Parking Space Search and Assistance System for Vehicles, Published in: 2019 | Accession Number:19452958 | Volume 24 | issue 3 | Publisher: IEEE | Conference Location: Dolgoprudny, Russia

[4] Elakkiya R, Bavithra M, Vehicle breakdownsystem, 2020 IJCRT | Volume 8, Issue 5 May 2020 | ISSN: 2320-2882

[5] Yimin Zhou, Gang Wang, Safety driving assistance system design in intelligent vehicles, Published in: 2014 | Accession Number: 15075566 |Volume 3 | Issue 8 | Publisher: IEEE | Conference Location: Bali, Indonesia

[6] Jyun-Min Dai, Lu-Ting Wu, Repair Service Providers for on road vehicle assistance system, Published in: 2016 | Accession Number: 16602985 |Volume 54 | Issue4| Publisher: IEEE | Conference Location: Delhi, India

[7] Jiajun Zhu, Fanglei Shi, Advanced Driver Assistance System, Published in: 2021 | Accession Number: 21172468 Volume 2 | Issue78 | Publisher:IEEE | Conference Location: Mumbai, India

[8] Weifeng Wang, Mengfan Zheng, Breakdown vehicle driver Assistance Systems and Risk Identification, Published in: 2019 | Accession Number:19111514 | Publisher: IEEE, Conference Location: Liverpool, UK

[9] Sai Chand , Emily Moylan, Analysis of Vehicle Breakdown Frequency, 2021 JETIR | May 2021| Volume 8, Issue 5 | ISSN-2349-5162 | location Mumbai,India