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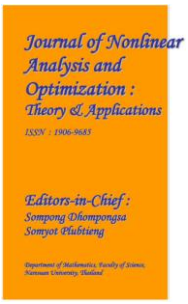


# Road Side Assistance: Connecting Drivers with Service Providers Quickly and Efficiently

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***Abstract:*** ***This project proposes an end-to-end Roadside Assistance System that is meant to connect car break-down-stricken drivers with service operators or repairmen in a timely and efficient way. The system will reduce response time, enhance the level of service, as well as offer guaranteed experience of support. The system assists customers to request services, view service status, and provide feedback, while administrators allocate work and view the efficiency of the service. Through an online-based system, the project will be better than traditional roadside assistance with improved complaint handling and communication. System testing demonstrated the system's effectiveness, scalability, and satisfaction level.***

*Keywords:* ***Roadside Assistance, Service Providers, Car Breakdown, Web-Based System, Real-Time Assistance, Feedback from Customers, Complaint Handling, Effective Communication and Emergency Service***

## I.INTRODUCTION

Roadside accidents are unexpected and render cars stranded, and drivers become frustrated and delayed. The traditional roadside assistance systems are inefficient and time-consuming, leading to long waiting times and poor communication. The proposed project is an internet-based Roadside Assistance System that can efficiently connect drivers with local service providers or mechanics in real time. The system supports easy registration of complaints, complaint status in real time, and collection of feedback to enhance transparency and satisfaction. R5≥v/. 533

With an aim of resolving such issues, this project proposes an Internet-based Roadside Assistance System to effectively link stranded drivers to nearby mechanics or service providers.

The system facilitates easier request-making by the ease of single access by customers to inform fault, check online status, and provide comment regarding the quality of service utilized.

It also makes work allocation to administrators more efficient through simplified service provider assignment effectively on the basis of location, availability, and capability. Realizing the capabilities of the latest technology, the system allows seamless interaction between customers, service providers, and administrators in a transparent and open way. Streamlining required processes and preventing delays, the system is anticipated to enhance customer satisfaction, optimize the use of resources, and reduce effort in roadside emergency management. The focus of the project on user experience and scalability positions it as a premium solution for rural and urban roadside assistance request management. System testing and deployment affirm its capacity to provide a faster and more trustworthy alternative to normal roadside aid options.

And these leave the drivers stranded, which is inconvenient and causes them delays. Traditional

roadside assistance services are slow and unsatisfactory, leading to long waiting times, poor communication, and variable service quality. For emergency situations like breakdowns, punctures, running out of fuel, or flat batteries, instant and guaranteed help is needed to enhance driver convenience and safety.

To enhance such challenges, this project seeks to develop an internet-based Roadside Assistance System that plots stranded motorists and service providers or nearby mechanics more effectively.
The system delivers easier request-making through a user-friendly interface through which customers can post complaints, view real-time status, and provide feedback on the service received.

The system also provides for the allocation of work to administrators in such a manner that they can easily allocate the service providers based on proximity, availability, and expertise.
Using the latest technology, the system facilitates efficient communication among administrators, customers, and service providers for accountability and transparency. With automation of the process and elimination of delays, the system will be inclined to increase customer satisfaction, reduce bottlenecks in resource allocation, and reduce human intervention in responding to roadside emergencies. The focus of the project on user-friendliness and scalability renders it an affordable solution to roadside assistance inquiry management, urban or rural. The system design factors are accessibility, which renders it operable even under the pressure of stressful situations. Also, through feedback mechanisms, it maintains a cycle of ongoing improvement, enhancing service reliability. Overall, the Roadside Assistance System revolutionizes how vehicular emergencies are addressed, offering one a faster, more coordinated, and customer-focused experience.
The pilot roll-out and pilot tests affirm the effectiveness of the system in providing an improved and superior solution compared to the traditional roadside assistance services.
As a result of the hectic lifestyle nowadays, there has been an unmatched boom in car and corporate usage, thus the need for efficient roadside help.

Breakdown of cars not only brings inconvenience to travel plans but also presents safety issues, especially if it occurs at remote places or on bad roads.

Traditional roadside support services are plagued by issues of delayed response time, coordination, and lack of communication between the drivers and the service companies. This project introduces an internet-based Roadside Assistance System as a solution to the above deficiencies through the application of existing technology in reaching stranded motorists with the service centers or repair shops nearby in a timely and efficient manner. The system provides an open process of seeking help, online monitoring of the services, and feedback, with an open and embracing service process. The administrative interface also facilitates efficient task delegation, monitoring of service quality, and distribution of resources.
The system is designed to present a better more structured and friendly manner of managing roadside breakdowns. It minimizes human intervention to the barest minimum by automating service dispatching, complaint handling, and feedback collection. The system also supports varied user needs by adding GPS for precise location tracking, improved response time, and a general database of service providers. Besides instant car services, the system also impacts road safety and driver convenience at a broader level.
By facilitating greater communication among administrators, service centers, and clients, the platform establishes a secure support system.
Its scalability and flexibility allow it to enter the domain of a wide range of unrelated areas, rural and urban lands where access to standard services is low. And finally, this initiative also has its sights set on contemporary roadside assistance going to a faster, smarter, and customer-centric alternative that raises the emergency support bar of motorists.

## II LITERATURE REVIEW

Roadside assistance services have made a tremendous transition in recent times, changing from human call centers to technology-driven platforms. The initial roadside assistance systems were primarily focused on providing emergency towing and limited repair through telephone-based services. These traditional approaches, although functional, had a tendency to produce long waiting times, miscommunication, and inadequate service coverage, especially in rural regions. Present research focuses on the application of Internet of Things (IoT) and GPS technologies to maximize real-time tracking and response solutions. For instance, Surekha Khot et al. discussed GPS-based solutions to estimate driver-mechanic distances for effective service deployment. These solutions were still constrained, however, by communication and data-handling capacity, and that is where this project deals with these via a central web-based solution.

Online car breakdown assistance systems have been able to bridge the gap between the customers and the service providers. Furqan Talha C. et al. provided a system that covered urban and rural settings, focusing on quick access to mechanics. While helpful, such systems are not equipped with complete feedback mechanisms that measure service quality and satisfaction. The system
features incorporated in this project is feedback harvesting for maintenance of high levels of service.

Literature also offers the significance of automated complaints handling towards the improvement of service delivery. Patel and Desai outlined IoT-based solutions for vehicle failures in fleet management based on automation to avoid human mistakes. As opposed to that, our project targets automation not only for operational effectiveness but also for enhanced user experience in terms of real-time information and status updates. The second solution, as defined by Singh and Kumar, was smart roadside assistance through IoT, primarily to detect vehicles. Even though the suggested solution detects faults in a car in advance, it typically avoids the immediate allocation of the service provider. This project attempts to focus more on bringing the driver in contact with the mechanic at an early stage and maintaining less dependence on advanced vehicle sensors. Customer-based research by Shan and Ma stressed the need for easy-to-use, convenient platforms.

As per them, emergency cases of customers usually get annoyed dealing with complex systems. By offering minimal complaint-complaint tracking interfaces, our project seeks to serve many kinds of users who will be unfamiliar with working with elaborate technology. Lastly, Singh and Yadav examined how to bring analytics together for assessing service performance and optimizing use of resources. Future for our project includes integration with advanced analytics for analyzing the feedback, minimizing response time, and providing insight-generating reports in order to make administrative decision-making easier. By blending established principles and revolutionary solutions, this project provides the foundation for an efficient, scalable, and customer-focused roadside assistance system. The modern technological revolution in mobility has surprised the current society tremendously. (Haridas, Baharudin, & karkonasasi,2016) Fact according to AAM annual report reveals that about 70% of the service is resolved immediately which comes under the category of minor failure breakdown problem. Minor failure breakdown has been classified into some categories like engine failure start up, engine failure heat, lockout, and so on. This figure is just a single organization except other available services national level. This clearly shows that the number of vehicles confronting such emergency condition requires the service to be in function. (Haridas, Baharudin, & karkona sasi ,2016).

**II1.DATASET DESCRIPTION**

Roadside assistance services have been through a significant change in the years, shifting from telephone-based call centers to technology platforms. Early roadside assistance systems focused on providing emergency towing and minor adjustments through telephone-based services. Such conventional approaches, as functional, would often result in excessive waiting times, lack of communication, and inadequate service coverage, especially in rural regions. Recent studies show the convergence of Internet of Things (IoT) and GPS technology to enhance real-time monitoring and response capabilities. For example, a study conducted by Surekha Khot et al. investigated GPS-based solutions to determine distances between mechanics and drivers to provide optimized service assignment. Despite such measures, there were still limitations when it came to communications and managing data, which this project hopes to address with a centralized web-based platform. Web-based services for automobile breakdown aid have been promising in facilitating customer-service provider interaction. Furqan Talha C. et al. presented a system that covered city and rural areas with focus on easy access to mechanics. Even though effective, such systems do not have elaborate feedback mechanisms that measure customer and service satisfaction. The system proposed within this project involves the gathering of feedback to help achieve excellence in service.

Literature also indicates how crucial automated complaint handling is towards improving service delivery. Patel and Desai touched upon IoT-enabled solutions for breakdowns in car fleets with regard to automation so that human faults are avoided. Our project, however, concerns automation, both for operational efficiency as well as for enhancing user experience through real-time notifications and status updates.

The second method, which Singh and Kumar describe, uses IoT to offer intelligent roadside support primarily for the diagnostics of vehicles. This solution, despite it identifying potential issues with a vehicle in advance, neglects in-the-field service provider allocation. The project strategy is to route drivers early to mechanics and limit the dependence on advanced vehicle sensors. Shan and Ma's study on customer-focused social systems emphasized the need for straightforward interfaces that are not hard to navigate. They argued that customers who have been affected by emergencies are repelled by complex systems. This project offers a convenient platform for complaint filing and monitoring, prioritizing the interest of different users who do not have exposure to high-end technology. Finally, Singh and Yadav's research discussed the incorporation of analytics to monitor service performance and maximize the use of resources.

In the future, the project scope can expand to incorporate superior analytics to quantify feedback, reduce response time, and provide value-added reports for administrative decision-making. By combining established practices and new alternatives, this project sets the stage for a scalable, efficient, and customer-focused roadside assistance platform. This project

suggests an end-to-end Roadside Assistance System that is designed to link car break-down-stricken motorists with service operators or technicians in a timely and efficient manner. The system will minimize response time, increase the level of service, as well as provide guaranteed experience of support. The system helps customers to order services, check the status of service, and give feedback, and administrators assign work and check the effectiveness of the service. By an online-based system, the project will be more efficient than the current roadside assistance with better complaint resolution and communication. System testing proved the effectiveness, scalability, and level of satisfaction of the system. Keywords: Roadside Assistance, Service Providers, Car Breakdown, Web-Based System, Real-Time Assistance, Customer Feedback, Handling Complaints, Effective Communication and Emergency Services. This project proposes an end-to-end Roadside Assistance System aimed at connecting automobile break-down-affected drivers with the service operators or repairmen in efficient and timely manner.

The system will reduce response time, enhance level of service, and deliver guaranteed experience of support. The system assists clients in requesting services, inquiring about service status, and providing feedback, with administrators allocating work and tracking the effectiveness of the service. The project, by using an internet-based system, will address the inadequacies of traditional roadside assistance with improved complaint handling and communication. Testing of the system confirmed the system's effectiveness, scalability, and user satisfaction. Keywords: Roadside Assistance, Service Providers, Vehicle Breakdown, Web-Based System, Real-Time Assistance, Customer Feedback, Complaint Management, Efficient Communication and Emergency Services. This project envisions an end-to-end Roadside Assistance System that is aimed at linking car break-down-stricken drivers with repairmen or service operators in an efficient and timely fashion.

The system will minimize response time, maximize the scope of service, and provide guaranteed support experience. It enables clients to order for services, inquire about the status of service, and give feedback, while the administrators assign work and monitor the effectiveness of the service. Through an online-based system, the project aims to overcome the shortcomings of the conventional roadside assistance with improved complaint handling and communication. System testing proved the effectiveness, scalability, and user satisfaction of the system. Keywords: Roadside Assistance, Service Providers, Vehicle Breakdown, Web-Based System, Real-Time Assistance, Customer Feedback, Complaint Management, Efficient Communication and Emergency Services.

## IV.WORKFLOW

### Customer Complaint Registration and Filing:

The registration process is brought about by the customer. The customers are required to provide personal information like name, phone number, and address so that they are registered in an account. Now registered, they will be able to log in into the system in order to complain against their vehicle. At the time of complaining, customers select available complaints like a flat tire, low gas, or engine problem. The system checks whether all the required information is completed before it authorizes the complaining process. This is to allow for accurate information in an effort to provide fast and relevant help.

### Complaint Management

The instant a complaint is reported, it is posted in the system as "Open" by default. The admin monitors all complaints received and sees to it that they are assigned to relevant aid providers based on the nature of the problem, provider capacity, and geographic closeness to the customer location.

The admin forwards all the grievances to be processed efficiently and in due time with least waiting time and maximum utilization of resources. The assigned assistance provider is notified about the new grievance through the system. Role of Assistance Provider: After receiving the complaint assignment, it might accept or refuse the request based on its availability. After approval, the complaint status will be "In Progress." The provider goes to the customer site to fix the issue, be it a service or fuel supply.

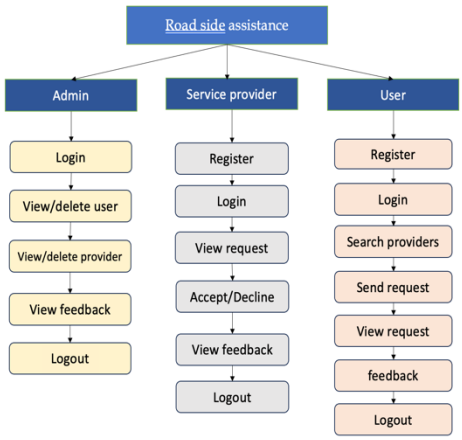


figure 1 : workflow

Following the resolution of the issue, the provider sets the status of the complaint as "Resolved," noting down any information on the service for future use.

After providing the service, customer feedback on the experience is solicited. The feedback module collects ratings and comments, and it is used to gauge customer satisfaction and the quality of the service. Once dispatched, the feedback, the system will then flag the complaint as "Closed," thereby marking the closure of the service cycle.

This is made transparent and accountable and allows areas of improvement to be actualized. Admin onitoring and Management: Admins are the central point for system performance monitoring. Admins manage provider and customer user account administration, complaint assignment processing, and request status monitoring. Admins are also able to analyze feedback and generate reports to quantify service performance, response rate, and customer satisfaction. This management by the admin makes the platform efficient and effective. Customers and support providers receive real-time notification at every stage of the process so that they are kept aware of the status of complaints. Customers are also notified as their complaint is being assigned, processed, and disposed of. Likewise, support providers are notified with respect to new assignments, cancellation, or reassignments. Thus, all the people involved are notified in real time to prevent communication gaps and enhance efficiency.

## V.RESULT AND DISCUSSION

Roadside Assistance System was developed and implemented successfully to counter the problem of drivers being inconvenienced in the event of sudden breakdown of their vehicles. The system has been able to connect the stranded drivers with the local service providers, cutting down waiting hours and customer complaints. The main objective of cutting down delays and offering quick assistance has been attained through establishing a smooth flow of customers, service providers, and administrators. Web platform ease of use has allowed customers to report problems at their own convenience, monitor progress, and comment at ease.

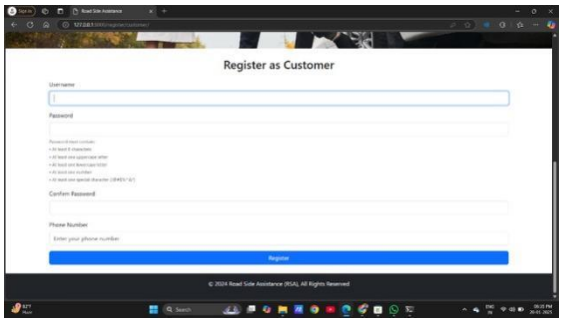


figure 2 : registration

System testing involved several scenarios to ensure reliability, precision, and effectiveness. There was an intensive test of the authentication module to ensure that user registration and secure login processes are handled effectively with fewer instances of unauthorized entry. The complaint module was tested in a way that ensured that the complaints are well documented, shared, and monitored. The assist module, employed in problem-solving, was tested for seamless task rejection and acceptance. The tests offered the functionality to enable the system to serve multiple users simultaneously without compromising performance. User feedback while testing was extremely positive. Customers liked the response time, the instant status update of a complaint, and the instant opportunity to leave feedback once they had been served.

The assistance providers were also helped by the system as they could manage their work well and be systematic. The administrators opined that the reporting and monitoring functions eased their work as they could now better allocate resources and monitor the performance of the assistance providers. It can be one of the key success areas of this system that it can make the process of assistance transparent.

Status on each complaint — "Open," "In Progress," "Resolved," or "Closed" — is available to customers and providers. Openness is maintained through transparency to build confidence as well as being accountable.

Secondly, the feedback system allows users to evaluate the experience on the system so administrators can obtain a valuable feed through which the site can continually get better. The project was successful, but it also faced some problems in the development process. It was difficult to integrate real-time monitoring and accurate geolocation information.

There were inconsistencies noted in customer location identification in the initial phase, and slow responses, which were rectified by fine-tuning the geolocation algorithm and optimizing communication processes of the system. Future development could be adding GPS tracking to obtain location updates more efficiently and incorporating the platform as a mobile application to access it even more easily.

Security of data was also of utmost importance in this project because it deals with user data like contacts and complaint history.

The data are protected from unauthorized access through methods like encryption, secure login, and access controls. Despite having the current security mechanisms in place, periodic security audits and up-keep is recommended to keep it safe against potential future cyber attacks.

In commercial terms, the system is poised to disrupt roadside assistance as an effective, technology-driven system. The system could also develop as a clearing house for cooperation between emergency responders, motor manufacturers, and insurance companies, opening its scope and uses.

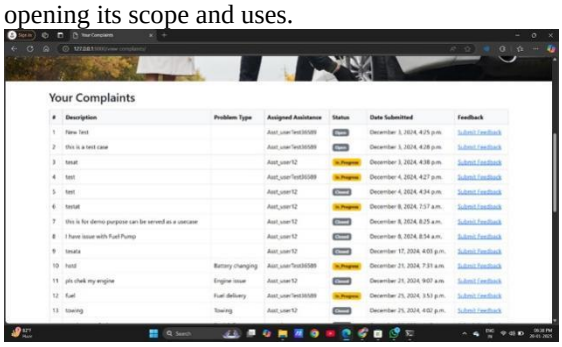


Figure 3 : dashboard

With the use of automated dispatching systems and predictive analytics, the system can maximize the utilization of resources more effectively, decreasing response time and operational expense. While the Roadside Assistance System performs well in its function to offer timely and efficient support to drivers with car breakdown, the project has demonstrated the capability of technology in rendering better user experience, simplicity of communication, and improved delivery of services. Even though further development and expansion are possible, the current system was shown to be efficient, dependable, and easy to use and thus an ideal solution for current roadside assistance.

## V1. FUTURESCOPE

The future landscape of Roadside Assistance System has laid a robust foundation to connect drivers and service providers in an instant and effective manner.

There are some areas, though, where the system can be developed further to improve its effectiveness, coverage, and scalability. By embracing technological developments, the system can provide more lucrative services, serve a greater segment, and create new business opportunities.

Maybe one of the most significant future advancements would be to create a standalone Android and iOS app. The app for mobile devices would increase accessibility and convenience for the service, allowing customers to order help anywhere, including without computer access. App push notifications can deliver real-time data, such as estimated time of arrival and service status, to further enhance the user experience.

For greater accuracy and efficiency of service delivery, a blend of advanced GPS and geolocation technologies is recommended. This can enable customers and service providers to be traced in real-time, enabling immediate response times and accurate routing to the location of the breakdown. Step-by-step directions can be provided to guide providers, save time, and direct the most efficient path to the customer. Task dispatching may also be rendered intelligent through AI-based algorithms. The system may dispatch service providers automatically based on their location, expertise, and availability. This minimizes human intervention, decreases response time, and optimizes the overall resource allocation efficiency. The historical data can be analyzed by using machine learning software to identify the peak-demanding hours and apportion the resources accordingly.

No additional services to include, the system may adopt advanced diagnostic support through adding IoT.

The IoT-sensor-integrated vehicles may feed live diagnostic data to the system, and the service providers may identify the fault ahead of time prior to reaching the location. This pre-emptive thought would make the provider have all the equipment and spares necessary to repair the problem on the first call.Alliance with auto manufacturers and insurance firms would be a two-way relationship. Insurers would be able to sell the system as part of their service packages, offering protection to their insureds in real-time terms. Automobile associations can offer the service as an after-sales support service with the assurance that the customers are extremely satisfied with the brand name. For serving the global customer, multilingual support can be included to enable it to be easy for users having different linguistic backgrounds to utilize the system comfortably. This service would be applicable in tourist spots with high traffic or international tours, where language issues may prove to be a nuisance in case of emergent situations.

To further boost the analytical capability of the system, enhanced data analytics and reporting capabilities can be added. Predictive analytics can be used to forecast vehicle breakdown patterns so that proactive service can be offered. Data insights can assist administrators in optimizing the utilization of resources, enhancing service quality, and determining where improvement should be focused. Adding an AI-based feedback loop can improve customer experience.

Real-time sentiment analysis of customer complaints can be done, and complainants can be replied to directly by the administrators in real time.

Also, a customer rating system for the service providers so that they are encouraged to deliver well, and also for them to be held accountable in order to improve further, is feasible.

Having a greater range of services can respond to more critical roadside failures. Aside from offering fuel and minor fixes, the site can also offer towing, battery replacement, key replacement, and emergency medical attention. Adding emergency medical care association can be an added protection alternative for consumers who are in trouble.

Last, having the platform cover a broader geographic area,
e.g., rural and distant locations, would be its reach. With coordination with local service agencies and garages, it can assist in building a strong network capable of providing timely assistance even in distant locations. Through ongoing growth with changing technology and customer demands, the Roadside Assistance System can be an inclusive, trustworthy, and unavoidable option for drivers around the globe.

gives ultimate customer satisfaction by enabling timely and effective association of drivers with service providers. Effective project implementation has proved the capability of technology in driving modernization of conventional roadside support services and simplifying emergency aid procedures.
The system, since its establishment, has been able to fulfill its core objectives of delivering prompt assistance, transparency, and accountability in the services. The customer registration, complaint resolution, assignment of service providers, and collection of feedback modules have made the process a simple one to achieve that is inclusive for everybody. The capabilities not only facilitate effective communication but also assist in decision-making on the part of administrators. The project has established that technology-driven strategy can reduce response time, optimize the utilization of resources, and increase the level of productivity of roadside assistance services.

The feedback from the customers and service providers was important in realizing the success of the system. Gathering the views of the users ensures that the system delivers the users' demands of timely response and free flow of information. The service providers also confirmed that the system facilitates their work process to become less complicated, hence they are capable of dealing with tasks in an efficient manner while having a healthy professional reputation. Though it was successful, the project had several problems.

Some of the issues most critical to development were proper geolocation data collection, utilization of real-time tracking, and data security.
All these challenges were countered with the help of new technologies such as GPS, data encryption, and secure authentication procedures. The system is now safe to use with protection of the privacy user information as well as helpful support. System usage of the web application has functioned well; conversion to a standalone mobile application can make it more accessible and utilized. A mobile application will offer services easily accessible even when on the go, as well as instant updates regarding the status of their complaints. This expansion can lead to increased user usage and new customers. There is also an implication of future synergistic opportunities with insurers, car

## VII.CONCLUSION

Summary of Roadside Assistance System is an extensive solution to cater to the problems of drivers in the event of abrupt breakdown of vehicles. The system decreases downtime, enhances safety, and

manufacturers, and emergency services providers. Through collaboration with these players, the system can deliver a better roadside assistance experience with more value proposition to customers and potential for new business generation.
From the business viability perspective, the platform can be a successful business if well monetized.
Premium subscription packages for more features, local garage listings, and insurance firm promotions can provide varied revenue streams.

These developments will enable long-term scalability and sustainability of the platform. The project success has paved the way for further development.
Incorporating AI-driven automated task assignment, real-time monitoring, and IoT-based vehicle tracking can take the system to the next level. Improving machine learning for predictive analytics will make it able to precisely forecast peak hours, optimize resource utilization, and facilitate efficient delivery of services. With every new technology, the system will need to be reconfigured and incorporate future trends like AI, IoT, and data analysis in a manner that it will be able to keep up with the competition. Periodic update and constant monitoring of user input will be necessary in making the system updated and useful. Also, expanding multilingual capacity will benefit more people, making the system more inclusive. The Roadside Assistance System is not a standalone technological solution; it is a vital service that can enhance road safety, reduce stress in the event of a vehicle breakdown, and generally enhance the driving experience. By reducing the time spent by drivers on the roadside and providing appropriate assistance, the system directly impacts the health of its users and road safety. With the assistance of the Roadside Assistance System, it has been able to achieve its vision of providing timely, efficient, and effective roadside assistance. It is a step towards historic strides in the direction of streamlining roadside service and a harbinger of future expansion and development.
Through ongoing innovation and strategic alliances, the system can become the industry standard, offering unparalleled assistance to drivers everywhere. Furthermore, integrating blockchain technology for secure transaction records and data integrity can enhance trust among users and service providers. Expanding the system's capabilities to include predictive maintenance alerts for vehicles based on historical data and AI-driven diagnostics can further

improve customer satisfaction. Additionally, developing a voice-activated assistant for hands-free operation during emergencies will make the system more user-friendly and accessible. Collaborations with government agencies and transportation departments can help streamline roadside assistance services on a larger scale, ensuring quicker response times and regulatory compliance. Ultimately, by continuously evolving with emerging technologies and maintaining a customer-centric approach, the Roadside Assistance System has the potential to revolutionize the industry and set new standards for vehicle support services.

## VIII.REFERENCE


1. "Facial Emotional Detection Using Artificial Neural Networks"
Available: https://drive.google.com/file/d/1upKdWjQ767Ebaym7RH4rHUBj-RsEOAR8/view

2. “Neural Network-based Alzheimer’s Disease Diagnosis With Densenet-169 Architecture”
Available:https://drive.google.com/file/d/1OymszZxG52WhtvzTYJ0zj1DaQnLS0cY/view

3. “Predicting Food Truck Success Using Linear Regression”
Available: https://drive.google.com/file/d/14av3lwf29kCBs0hnp3oluTsVMdtUI7S4/view

4. “Heart Disease Prediction Using Ensemble Learning Techniques”
Available:https://drive.google.com/file/d/1KKaqGOYU3X1MAkHgDBqPYzMMbzKNK5F/view

5. “Liver Disease Prediction Based On Lifestyle Factors Using Binary Classification”
Available:https://drive.google.com/file/d/1SigemebqAFvAFm0Qpg75rOdg6PgXJVS/view

6. “K – Fold Cross Validation On A Dataset”
Available:https://drive.google.com/file/d/1XYJQB65ZL4lOlpomsBQU5F7RJrBwfOo/view

7. “Movie Recommendation System Using Cosine Similarity Technique”
Available:https://drive.google.com/file/d/1VPzdNTGFxYyaFHAhVXlG4levMqjsXhMi/view

8. "Flight Fare Prediction Using Ensemble Learning"
Available:https://drive.google.com/file/d/1LpRuFHbLXW8d0n5q28B1vwbcqT-zaoFR/view

9. “Forecasting Employee Attrition Through Ensemble Bagging Techniques”
Available: https://drive.google.com/file/d/1j2h37BzOqxpt5UB98NlBDscU6tjZcGZz/view

10. “Hand Gesture Recognition Using Artificial Neural Networks”
Available: https://drive.google.com/file/d/1SIEAULz4yaoRmhv8uAz5l1z3CWV9YwRv/view

11. "Diabetes Prediction Using Logistic Regression And Decision Tree Classifier"
Available: https://drive.google.com/file/d/1kE473pJZjp2j2rDKYBLYEkrNu_PQljSb/view

12. “Student Graduate Prediction Using Naïve Bayes Classifier”
Available: https://drive.google.com/file/d/1l-kU0Ys4ZGj2zInP9uJ0U0tLj5kYZeWa/view

13. "Optimized Prediction of Telephone Customer Churn Rate Using Machine Learning Algorithms"
Available:https://drive.google.com/file/d/1wtQVCD7UcbObeunfYd6TuZWTej9oGi8/view

14. “Cricket Winning Prediction using Machine Learning”
Available: https://drive.google.com/file/d/1elGo9Dmr6qPt1lhqsZFf68u6kvOdkRgV/view

15. “Youtube Video Category Explorer Using Svm And Decision Tree”
Available:https://drive.google.com/file/d/1Sf3QyBjhoUdZ6bv9epEwCN_eOu2AGNd/view

16. "Rice Leaf Disease Prediction Using Random Forest"
Available: https://drive.google.com/file/d/1vJqzVcLDaCr--Ejfr6ylQrOShRqZDKiT/view

17. "Clustered Regression Model for Predicting CO2 Emissions from Vehicles"
Available: https://drive.google.com/file/d/1tRXQnTaqov0M7M0KYGMimkVErlN7ojvY/view

18. "EMG CONTROLLED BIONIC ROBOTIC ARM USING ARTIFICIAL INTELLIGENCE AND MACHINE LEARNING"
Available: https://ieeexplore.ieee.org/document/9640623

19. "OPTIMIZED CONVERSION OF CATEGORICAL AND NUMERICAL FEATURES IN MACHINE LEARNING MODELS"
Available: https://ieeexplore.ieee.org/document/9640967

20. "Brain Tissue Segmentation via Deep Convolutional Neural Networks"
All: https://ieeexplore.ieee.org/document/9640635

21.Surekha Khot, Mr. Prafull Malve, Mr. Vishal Jagdale, Mr. Lalit Gongi.
"On Road Vehicle Breakdown Assistance"
International Journal of Advanced Research in Science Communication and Technology.

22. Furqan Talha C, M. Vamshi Krishna Reddy, Omkar Solanki, Suha S R, Ms. Jishmi Jos Choondal.
"Web Application for Road Vehicle Breakdown Assistance Finder"
23. Shan, J., & Ma, X. (2022).

"A Study on Roadside Assistance Systems for Emergency Vehicle Services"
International Journal of Engineering and Technology, 12(4), 89-96.
24. Patel, R., & Desai, P. (2021).
"Vehicle Breakdown Assistance using IoT and GPS for Efficient Fleet Management"
International Journal of Advanced Computer Scienc
25. Singh, P., & Kumar, A. (2020).
"Smart Roadside Assistance System using Internet of Things"
Journal of Engineering Research and Technology, 13(7), 45-52.

26. Kumar, V., & Rathi, V. (2019).
"Real-time Roadside Assistance System for Vehicle Breakdown Management"
International Journal of Computer Applications, 10(6), 98-104.