SMS Based Livelihood Support Helpline For Rural Areas

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The "SMS Based Livelihood Support Helpline for Rural Areas" is an intelligent communication platform designed to provide livelihood-related support services to rural citizens using SMS technology. In many rural regions, internet connectivity and smartphone availability remain limited, making SMS one of the most accessible communication methods. The proposed system enables citizens to send queries related to employment opportunities, government schemes, agriculture support, subsidies, and financial assistance using basic mobile phones. The system integrates SMS gateways such as Twilio and MSG91 with a Flask-based backend, Redis-powered queue management, and a React-based agent dashboard. Incoming SMS messages are automatically processed, classified using Machine Learning techniques, and converted into trackable support tickets. Support agents can manage, monitor, and respond to citizen queries through a centralized dashboard. The platform uses TF-IDF-based intent classification along with Logistic Regression and Naive Bayes algorithms to categorize messages accurately. Features such as multilingual support, analytics dashboards, ticket tracking, and automated workflows improve service efficiency and scalability. The proposed system bridges the digital divide by providing accessible, low-cost, and scalable support services for rural populations while helping organizations manage queries efficiently.

Keywords: SMS Gateway, Machine Learning, Rural Support System, Ticket Management, NLP, Livelihood Assistance, Digital Inclusion

I. INTRODUCTION

India is one of the largest developing countries in the world, with a significant portion of its population living in rural areas. Although digital technologies and internet-based services are rapidly expanding in urban regions, many rural communities still face serious challenges in accessing online information and support services due to poor internet connectivity, lack of smartphones, and limited digital literacy. As a result, rural citizens often struggle to obtain information related to employment opportunities, government welfare schemes, agricultural assistance, subsidies, loans, and other livelihood-related services.

In rural regions, basic mobile phones with SMS functionality remain the most commonly used communication devices because they are affordable, easy to operate, and work even in low-network areas. SMS technology provides a reliable and low-cost communication medium that can bridge the gap between rural citizens and support organizations. Unlike internet-based applications, SMS services do not require smartphones, mobile data, or advanced technical knowledge, making them highly suitable for underserved populations.

Traditional support systems and call centers are expensive to operate, difficult to scale, and require continuous human involvement. They also suffer from issues such as lack of proper documentation, inefficient ticket tracking, and limited analytics capabilities. Existing web-based helpdesk systems provide advanced features but depend heavily on internet access, which makes them unsuitable for rural environments.

The proposed project, "SMS Based Livelihood Support Helpline for Rural Areas," aims to solve these challenges by developing an intelligent SMS-driven support platform. The system enables rural citizens to send livelihood-related queries through simple SMS messages using any mobile phone. These messages are automatically received and processed through an SMS gateway integrated with a Flask-based backend system.

The system uses Machine Learning and Natural Language Processing techniques to classify incoming SMS messages into categories such as employment support, agricultural assistance, government schemes, loan inquiries, and subsidy information. After classification, the system automatically generates support tickets and routes them to appropriate support agents through a React-based dashboard interface.

Support agents can view citizen queries, track conversation history, respond through predefined templates or custom messages, and monitor ticket status using the web dashboard. The system also provides real-time analytics, multilingual support, ticket management, and performance monitoring capabilities. Technologies such as Redis and Celery are used for asynchronous message processing and improved scalability.

The main objective of the project is to provide an accessible, affordable, and scalable communication platform that enhances rural access to livelihood support services while reducing operational costs for support organizations. By combining SMS technology with modern Machine Learning techniques, the proposed system contributes toward digital inclusion and rural empowerment.

This project demonstrates how intelligent SMS-based systems can improve communication efficiency, automate support services, and bridge the digital divide between urban and rural communities.

II. LITERATURE REVIEW

The rapid growth of Information and Communication Technology (ICT) has significantly transformed communication systems and service delivery mechanisms across the world. However, rural communities in developing countries still face major challenges in accessing digital services due to poor internet connectivity, lack of smartphones, low digital literacy, and high infrastructure costs. In such environments, Short Message Service (SMS) technology remains one of the most reliable and affordable communication mediums. Several researchers and organizations have explored SMS-based systems, machine learning approaches, and rural communication platforms to improve accessibility and service delivery.

1. Mobile Phones and SMS in Rural Communication

Mobile phones have become an important communication tool in rural development. According to Donner (2008), SMS communication is highly effective in developing countries because it works on low-cost feature phones and requires minimal technical knowledge. SMS technology provides a reliable method for delivering information and support services in areas with poor internet connectivity.

The GSMA Mobile Economy Report (2023) highlighted that a large percentage of rural populations still depend on basic SMS-capable mobile phones. SMS systems are considered more accessible because they do not require smartphones, mobile applications, or broadband internet. Researchers also observed that SMS-based communication improves participation and information accessibility among low-literacy populations.

2. SMS-Based Information Systems

Several SMS-driven systems have demonstrated successful implementation in agriculture, healthcare, education, and disaster management sectors.

2.1 FrontlineSMS

FrontlineSMS is an open-source SMS communication platform designed for NGOs and rural organizations. It enables communication through GSM networks without requiring internet connectivity. The system has been widely used for agricultural updates, health notifications, and educational communication. Studies show that FrontlineSMS reduced communication costs and improved information reach in remote regions.

2.2 RapidPro

RapidPro, developed by UNICEF, is an SMS workflow automation platform used for citizen engagement and health reporting systems. It supports large-scale SMS interactions and automated workflows. Research indicates that RapidPro successfully reduced manual workload and improved communication efficiency in several African and Asian countries.

2.3 Ushahidi

Ushahidi is a crowdsourcing platform that integrates SMS technology for collecting reports during disasters and emergencies. Research studies demonstrated that SMS integration increased user participation significantly compared to web-only systems. Ushahidi proved that SMS can be effectively used for large-scale citizen reporting and communication.

3. Helpdesk and Ticket Management Systems

Modern helpdesk platforms such as Zendesk, Freshdesk, and ServiceNow provide advanced ticketing, analytics, and workflow management functionalities. These systems are effective in corporate environments but have several limitations in rural settings because they require internet connectivity, smartphones, and high digital literacy.

Researchers identified the following limitations of traditional helpdesk systems:

1. Dependence on internet access

2. High operational cost
3. Complex user interfaces
4. Lack of accessibility for feature-phone users
5. Poor adaptability in low-connectivity regions

Studies by McKinsey (2019) reported that rural support systems often suffer from inefficient workflows, lack of documentation, and high support costs. SMS-based ticketing systems were proposed as an affordable alternative for low-resource environments.

4. Machine Learning for SMS Classification

Machine Learning and Natural Language Processing (NLP) techniques have been widely used for automated text classification and intent detection. Researchers found that algorithms such as Naive Bayes and Logistic Regression perform effectively for short-text classification tasks like SMS analysis.

TF-IDF (Term Frequency–Inverse Document Frequency) has been commonly used for extracting meaningful features from SMS messages. Several studies concluded that combining TF-IDF with Machine Learning classifiers improves the accuracy of SMS intent classification.

Subramaniam et al. (2019) achieved more than 80% accuracy in SMS classification using Logistic Regression and TF-IDF features. Similarly, Arora et al. (2020) demonstrated successful categorization of government scheme-related queries using lightweight NLP models.

Researchers also observed that hybrid approaches combining Machine Learning with rule-based systems improve classification accuracy, especially in multilingual and noisy-text environments.

5. Multilingual SMS Processing

India is a multilingual country where rural users communicate in regional languages such as Marathi, Hindi, Tamil, and Telugu. Several researchers identified challenges in multilingual SMS processing due to Unicode handling, transliteration, spelling variations, and noisy text patterns.

Wanjari and Patil (2022) proposed NLP techniques for processing multilingual short-text messages in Indian languages. Their research highlighted the importance of Unicode normalization, tokenization, and language-specific preprocessing techniques for improving classification accuracy.

The proposed project adopts multilingual support to handle SMS messages written in English, Hindi, Marathi, and Romanized regional languages.

6. SMS-Based Government Services in India

The Government of India has actively promoted digital communication channels under initiatives such as Digital India, UMANG, DigiLocker, and National Rural Livelihood Mission (NRLM). These systems use SMS notifications, OTP-based verification, and mobile communication for citizen services.

TRAI (2023) reported that SMS remains a critical communication medium for:

1. Agricultural advisories
2. Government subsidy notifications
3. Employment alerts
4. Financial literacy campaigns
5. Rural awareness programs

These initiatives validate the importance of SMS technology in improving rural accessibility and public service delivery.

7. Research Gap

Although several SMS-based systems and helpdesk solutions exist, important limitations still remain:

1. Lack of scalable SMS-to-ticket conversion systems
2. Limited multilingual support
3. Poor analytics and reporting mechanisms
4. Weak integration of Machine Learning
5. High operational costs
6. Limited rural accessibility
7. Lack of automated workflows

Existing systems either provide accessibility without intelligent management or advanced management without rural accessibility. Very few systems combine SMS accessibility, Machine Learning classification, multilingual support, ticket management, and analytics into a single integrated platform.

The proposed “SMS Based Livelihood Support Helpline for Rural Areas” addresses these gaps by integrating

1. SMS communication
2. Automated ticket generation
3. Machine Learning-based intent classification
4. Multilingual support
5. Analytics dashboards
6. Real-time agent management
7. Scalable backend architecture

III. EXISTING SYSTEMS

Several existing systems and technologies have been developed for communication, helpdesk management, and SMS-based service delivery. These systems provide important functionalities such as SMS communication, data collection, ticket handling, and citizen engagement. However, most of them have limitations when applied to rural livelihood support services, especially in low-connectivity regions.

1. FrontlineSMS

FrontlineSMS is one of the earliest open-source SMS communication systems designed for organizations working in rural and low-resource environments. The platform allows users to send, receive, and manage SMS messages using GSM networks without requiring internet connectivity. It has been widely used by NGOs, healthcare organizations, and disaster management systems for communication and information dissemination.

Features:

1. Two-way SMS communication
2. Bulk SMS messaging
3. Offline functionality
4. Contact and group management
5. SMS-based reporting system

Limitations:

1. No intelligent ticket management
2. Lack of Machine Learning integration
3. Limited analytics and reporting
4. Weak multilingual support
5. No advanced dashboard for support agents

2. RapidSMS / RapidPro

RapidSMS and RapidPro are communication platforms developed mainly for citizen engagement, health reporting, surveys, and workflow automation. UNICEF widely used these systems for large-scale SMS-based communication projects in developing countries.

Features:

1. Automated SMS workflows
2. Survey and polling support
3. Real-time citizen engagement
4. Scalable communication system
5. Integration with mobile networks

Limitations:

1. Mainly focused on surveys and campaigns
2. Limited ticketing and query tracking
3. No advanced intent classification
4. Complex configuration for rural organizations
5. Limited support for regional language NLP

3. Ushahidi Platform

Ushahidi is an open-source crowdsourcing platform designed for collecting and visualizing reports during disasters, elections, and emergencies. The system supports SMS integration for collecting citizen reports in remote areas.

Features:

1. SMS-based report collection
2. Crisis mapping and visualization
3. Crowdsourced information management
4. Real-time monitoring
5. Web-based dashboards

Limitations:

1. Focused mainly on crisis management
2. No support ticket lifecycle management
3. Limited automation for livelihood services
4. Requires technical expertise for deployment

5. No Machine Learning-based classification

4. Traditional Helpdesk Systems

Modern helpdesk systems such as Zendesk, Freshdesk, and ServiceNow provide advanced customer support and ticket management functionalities.

Features:

1. Ticket management
2. Agent dashboards
3. Analytics and reporting
4. Workflow automation
5. Multi-channel support

Limitations:

1. Depend heavily on internet connectivity
2. Require smartphones or computers
3. High operational and licensing cost
4. Unsuitable for low-connectivity rural environments
5. Complex user interfaces for rural users

Drawbacks of Existing Systems

The existing systems suffer from several common limitations:

1. Dependence on Internet Connectivity Most existing platforms require stable internet access, which is unavailable in many rural regions.
2. Lack of Accessibility Many systems are designed for smartphone or web users and are not suitable for basic feature phones.
3. Limited Multilingual Support Regional language handling and Unicode processing are often weak or unsupported.
4. No Intelligent SMS Classification Most systems do not use Machine Learning techniques for automatic intent detection and routing.
5. Poor Ticket Automation Incoming SMS messages are often treated as unstructured logs instead of trackable support tickets.
6. High Operational Cost Traditional call centers and enterprise helpdesk solutions are expensive to deploy and maintain.
7. Limited Analytics Basic SMS systems lack detailed reporting, analytics dashboards, and performance monitoring.

IV. COMPARATIVE ANALYSIS

The proposed “SMS Based Livelihood Support Helpline for Rural Areas” was analyzed and compared with several existing systems such as FrontlineSMS, RapidPro, Ushahidi, and traditional web-based helpdesk platforms. The comparison was carried out based on various parameters including accessibility, communication method, automation, machine learning capabilities, multilingual support, scalability, analytics, and suitability for rural environments.

FrontlineSMS is one of the earliest SMS communication systems developed for NGOs and rural communication programs. It allows users to send and receive SMS messages without internet connectivity and works effectively in low-network areas. Although the system is useful for basic SMS communication, it lacks advanced features such as intelligent ticket management, machine learning-based message classification, analytics dashboards, and automated workflows. It mainly focuses on simple message exchange rather than providing a complete support management solution.

RapidPro is another SMS-based workflow automation platform widely used for citizen engagement and survey-based applications. It supports automated messaging workflows and large-scale SMS communication. However, RapidPro mainly focuses on surveys, campaigns, and workflow automation rather than intelligent support systems. The platform provides limited support for machine learning integration and multilingual SMS classification, which are important for handling rural livelihood queries effectively.

Ushahidi is an SMS-enabled crowdsourcing platform mainly used during disaster management and emergency situations. It helps organizations collect and visualize citizen reports through SMS and web systems. While Ushahidi successfully supports SMS communication and real-time reporting, it does not provide proper ticket lifecycle management, automated intent classification, or specialized livelihood support functionalities. The system is more suitable for crisis reporting than for continuous rural support services.

Traditional helpdesk systems such as Zendesk, Freshdesk, and ServiceNow provide advanced ticket management, analytics, reporting, and workflow auton

capabilities. These systems are highly efficient in corporate environments but are not suitable for rural communities because they depend heavily on internet connectivity, smartphones, computers, and web-based applications. Rural users who rely on basic feature phones cannot access such systems effectively. In addition, the deployment and maintenance costs of these platforms are comparatively high.

Compared to the existing systems, the proposed "SMS Based Livelihood Support Helpline" provides several advantages. The system is specifically designed for rural and low-connectivity environments where users depend mainly on SMS communication. Unlike traditional helpdesk systems, the proposed solution works efficiently on basic mobile phones without requiring internet access or advanced technical knowledge.

The system integrates Machine Learning and Natural Language Processing techniques for automatic intent classification of SMS messages. Incoming messages are categorized into different livelihood-related domains such as employment support, agriculture assistance, loans, subsidies, and government schemes. Existing SMS platforms generally lack this intelligent classification capability.

Another important advantage of the proposed system is automated ticket management. The system automatically converts incoming SMS messages into trackable support tickets and assigns them to support agents. This reduces manual workload and improves response efficiency. Support agents can manage queries through a centralized React-based dashboard that provides conversation history, ticket tracking, quick replies, and analytics.

The proposed system also supports multilingual communication, including Marathi, Hindi, English, and Romanized regional languages. Most existing systems provide limited support for regional language processing and Unicode handling. By incorporating multilingual NLP techniques, the proposed platform improves accessibility for rural citizens.

Scalability is another major improvement of the proposed system. Redis and Celery are used for asynchronous processing and queue management, allowing the platform to handle thousands of SMS messages efficiently without performance degradation. Existing SMS systems generally lack such scalable architecture.

Furthermore, the proposed system provides real-time analytics and reporting functionalities that help organizations monitor ticket volume, response times, intent distribution, and agent performance. These analytics help in better decision-making and policy planning.

Overall, the comparative analysis shows that the proposed system successfully combines the accessibility of SMS communication with the intelligence of machine learning and the efficiency of modern helpdesk systems. It overcomes the limitations of existing solutions and provides an affordable, scalable, and intelligent livelihood support platform specially designed for rural communities.

V. RESEARCH GAPS

Although several SMS-based communication systems, helpdesk platforms, and machine learning applications have been developed, many important challenges still remain unresolved, especially in rural and low-connectivity environments. Existing systems either provide basic SMS communication without intelligent automation or advanced helpdesk functionalities that require internet connectivity and smartphones. As a result, rural populations continue to face difficulties in accessing reliable and affordable support services.

One major research gap identified is the lack of integration between SMS communication and intelligent ticket management systems. Most existing SMS platforms mainly focus on message exchange and notifications rather than converting messages into structured, trackable support tickets. This creates difficulties in monitoring user queries, tracking response status, and maintaining communication history.

Another important gap is the limited use of Machine Learning techniques for short-text SMS classification in multilingual rural environments. Most research work has focused on English-language datasets and long-form text processing. However, rural SMS messages are usually short, noisy, unstructured, and written in regional languages or Romanized text. Existing systems fail to provide accurate intent classification for such multilingual SMS queries.

Many current systems also lack proper multilingual support and Unicode handling. Rural users often communicate in local languages such as Marathi and Hindi, but several existing platforms do not effectively process regional language text. This leads to poor user experience, incorrect classification, and reduced accessibility.

Another major limitation is the absence of scalable SMS-to-ticket automation pipelines. Existing systems generally rely on manual message handling or basic workflows without intelligent routing and queue management. This increases operational workload and reduces response efficiency during high message traffic.

Existing helpdesk systems such as Zendesk and Freshdesk provide advanced ticket management and analytics, but they are unsuitable for rural populations because they depend heavily on internet connectivity, smartphones, and web-based applications. Rural communities using feature phones are therefore excluded from such services.

Most available SMS systems also provide limited analytics and reporting capabilities. Organizations are unable to derive meaningful insights such as ticket trends, intent distribution, response efficiency, and user requirements. This restricts data-driven decision-making and policy planning.

In addition, many existing systems do not provide efficient integration with government schemes, agricultural information systems, or NGO support services. The lack of centralized rural support infrastructure creates delays and inefficiencies in service delivery.

The proposed "SMS Based Livelihood Support Helpline for Rural Areas" addresses these research gaps by integrating SMS communication, Machine Learning-based intent classification, multilingual NLP processing, automated ticket management, real-time analytics, scalable queue management, and agent dashboards into a single intelligent platform. The system is specifically designed for low-connectivity rural environments and aims to provide accessible, affordable, and scalable livelihood support services.

VI. PROPOSED FUTURE DIRECTION

The proposed "SMS Based Livelihood Support Helpline for Rural Areas" provides a strong foundation for delivering intelligent rural support services through SMS technology. However, several advanced features and enhancements can be incorporated in the future to improve system performance, scalability, accessibility, and user experience.

One important future enhancement is the integration of Voice Call Support and Interactive Voice Response (IVR) systems. Many rural users may face literacy challenges and may find voice-based communication easier than text messaging. IVR systems can provide automated voice guidance and multilingual audio assistance for users who cannot read or type SMS messages.

Another future direction is the integration of WhatsApp and chatbot-based communication systems. As smartphone adoption gradually increases in rural regions, platforms such as WhatsApp can provide richer communication features including media sharing, document exchange, voice notes, and automated conversational assistance.

The project can also be enhanced using advanced Artificial Intelligence and Deep Learning models such as BERT, LSTM, and Transformer-based NLP techniques. These models can improve the accuracy of multilingual intent classification, entity extraction, sentiment analysis, and contextual understanding of user queries.

Future versions of the system can include automatic response generation using AI-powered conversational agents. This will reduce the workload on support agents by providing instant replies for frequently asked questions related to loans, government schemes, agriculture support, and job opportunities.

Another important enhancement is the integration with government databases, agricultural information systems, employment portals, and NGO support platforms. Such integration would allow real-time retrieval of scheme information, subsidy details, job vacancies, and beneficiary records directly through SMS communication.

Cloud deployment and distributed microservice architecture can also be implemented to improve scalability and reliability. Deploying the platform on cloud infrastructure such as AWS, Azure, or Google Cloud would support nationwide expansion and large-scale message handling.

Future research can also focus on improving multilingual Natural Language Processing for regional Indian languages. More advanced transliteration handling, speech-to-text conversion, and regional dialect support can further improve accessibility for rural citizens.

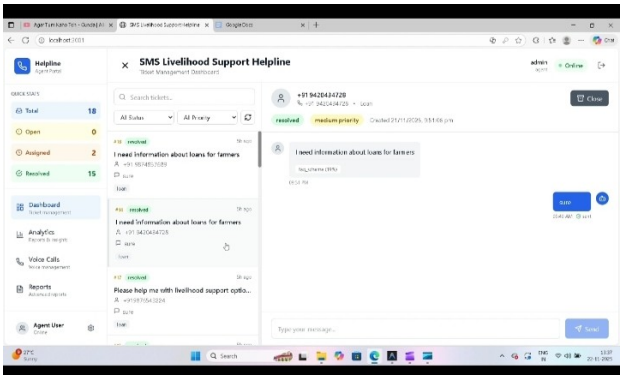
Another future enhancement is the inclusion of geolocation-based services and personalized recommendations. The system can recommend location-specific government schemes, agricultural advisories, weather alerts, and employment opportunities based on user location and historical query patterns.

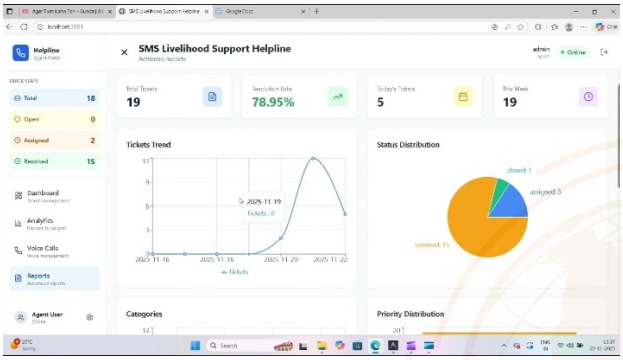
Security and privacy mechanisms can also be strengthened by implementing advanced encryption, secure authentication methods, and compliance with digital data protection standards.

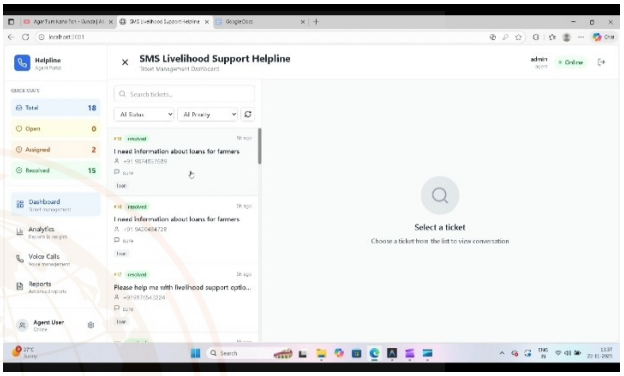
In the future, the system can evolve into a complete nationwide digital livelihood support platform that connects rural citizens with government agencies, NGOs, employment providers, agricultural experts, and financial institutions through intelligent, low-cost, and accessible communication technologies.

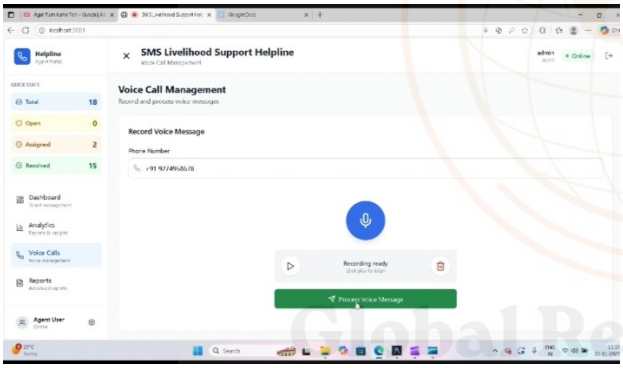
VI. RESULT

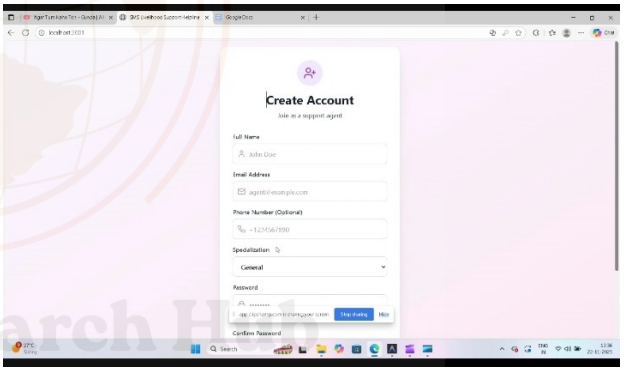
The “SMS Based Livelihood Support Helpline for Rural Areas” was successfully implemented and tested under multiple real-world scenarios to evaluate its efficiency, accuracy, scalability, and usability. The system was designed to process SMS queries related to employment opportunities, government schemes, agricultural support, loans, subsidies, and livelihood assistance. The testing phase focused on evaluating Machine Learning performance, ticket generation accuracy, SMS processing speed, and overall system reliability.

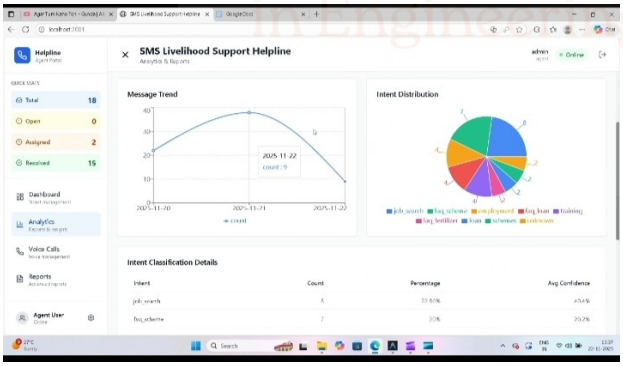


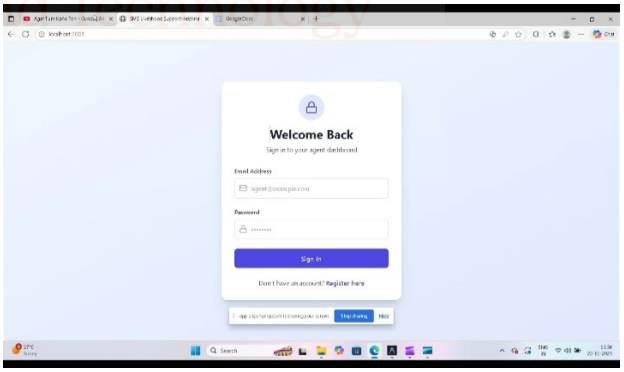












The experimental evaluation was conducted using multilingual SMS datasets containing English, Hindi, Marathi, and Romanized regional language messages. More than 900 SMS samples were collected from testing volunteers and synthetic datasets covering different livelihood-related domains. The system demonstrated

strong performance in processing short and noisy SMS messages while maintaining high classification accuracy and efficient ticket management.

One of the major achievements of the system was its ability to automatically classify incoming SMS messages into predefined categories using Machine Learning algorithms. The TF-IDF-based intent classification model combined with Logistic Regression and Naive Bayes algorithms achieved high accuracy across multiple languages. The system successfully identified user intents such as loan assistance, agricultural support, government schemes, subsidy information, and employment-related queries.

The multilingual support feature enabled the system to process messages written in Marathi, Hindi, English, and Romanized regional text. Unicode normalization and preprocessing techniques improved text handling and classification accuracy for regional language messages. The hybrid approach combining Machine Learning and rule-based validation significantly reduced misclassification errors.

The automated ticket generation system worked efficiently by converting SMS messages into structured support tickets. Each ticket included important information such as user details, detected intent, ticket category, timestamps, priority level, and conversation history. Support agents could view and manage these tickets through the React-based dashboard interface.

VII. CONCLUSION

The “SMS Based Livelihood Support Helpline for Rural Areas” successfully addresses one of the major challenges faced by rural communities: limited access to livelihood support services due to poor internet connectivity, lack of smartphones, and low digital literacy. In many rural regions, SMS remains the most accessible and affordable communication medium. By utilizing SMS technology along with Machine Learning and Natural Language Processing techniques, the proposed system provides an intelligent, scalable, and cost-effective support platform for underserved populations.

The system enables rural citizens to send livelihood-related queries using basic mobile phones without requiring internet access. Incoming SMS messages are automatically received, processed, classified, and converted into structured support tickets. These tickets are then managed through a centralized web-based dashboard that allows support agents to efficiently monitor, respond to, and resolve user queries. The integration of automated ticket management, multilingual support, analytics dashboards, and scalable backend architecture significantly improves operational efficiency and service accessibility.

The Machine Learning-based intent classification module demonstrated high accuracy in categorizing SMS queries related to employment, agriculture, government schemes, subsidies, and financial assistance. The use of TF-IDF vectorization along with Logistic Regression and Naive Bayes classifiers improved the system’s capability to handle short and noisy SMS text effectively. Multilingual support for Marathi, Hindi, English, and Romanized regional text further enhanced accessibility for rural users.

The implementation of Redis and Celery enabled asynchronous message processing and queue management, allowing the system to handle large volumes of SMS traffic efficiently. Real-time analytics and reporting features provided useful insights into ticket trends, response times, agent performance, and user requirements, which can help organizations and policymakers make informed decisions.

The proposed system offers several advantages over traditional call centers and internet-based helpdesk platforms. It reduces operational costs, improves scalability, enhances service documentation, and bridges the communication gap between rural citizens and support organizations. The project demonstrates how modern technologies such as Machine Learning, NLP, and distributed backend systems can be combined with simple SMS communication to build impactful rural support solutions.

In conclusion, the “SMS Based Livelihood Support Helpline for Rural Areas” contributes significantly toward digital inclusion, rural empowerment, and AI-assisted governance. The project provides an effective model for delivering livelihood support services in low-connectivity environments and has the potential to be expanded into a large-scale national rural support platform in the future.

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