Krish Vishal Soni, 2025, 13:4
ISSN (Online): 2348-4098
ISSN (Print): 2395-4752

International Journal of Science, Engineering and Technology

An Open Access Journal

Voice & RAG-Based Business Management Query System for SMEs

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Abstract- This paper introduces BizzOps, a business manage- ment platform built with applied AI to automate and simplify essential operations for small to medium enterprises (SMEs) using voice commands. Leveraging Retrieval-Augmented Gen- eration (RAG), BizzOps supports natural language interaction in multiple Indian languages, including Hindi, English, Marathi, Tamil, and Gujarati. The platform integrates inventory manage- ment, sales tracking, invoice automation, expense monitoring, and financial reporting into a single, unified system accessible through voice queries such as "Kitna profit hua last month?" or "Show me unpaid invoices." Built using LangChain, OpenRouter APIs, and advanced AI models such as Anthropic Claude and Google Gemini Pro, BizzOps directly addresses the digital transforma- tion challenges commonly faced by Indian SMEs. Evaluation results show a 50% reduction in task completion time and a 75% decrease in manual errors. Notably, 90% of participants with limited technical skills reported high user satisfaction, demonstrating that voice-based RAG enables automated business management solutions even for users with minimal tech expertise.

Keywords - Applied AI, Retrieval-Augmented Generation, Business Automation, SME, Multilingual InterfaceBased Anonymization, Big Data Privacy.

I. INTRODUCTION

Small and Medium Enterprises (SMEs) are key drivers of India's economy, contributing nearly 30% to the national GDP and employing over 120 million people. However, many SMEs still rely on outdated methods for business management—such as handwritten ledgers for inventory tracking, paper-based sales records, manually generated invoices, and spreadsheet- based financial reports. These traditional practices are time- consuming, error-prone, and difficult for business owners who may have limited technical expertise or are not fluent in English.

Despite the clear benefits of digitization, the transition to digital tools has been challenging for SMEs. Existing software systems often have complex interfaces that require extensive training, and many operate only in English, creating a language barrier. High setup costs and insufficient technical support further discourage adoption. Studies indicate that only about 25% of Indian SMEs have embraced digital tools for business management, largely due to these constraints.

To address these challenges, this study introduces BizzOps, a voice-enabled platform that integrates Retrieval-Augmented Generation (RAG) with natural language processing. Unlike

Table I
Comparison Between Traditional Method and Bizzops

Factor	Traditional Method	BizzOps
Time	Time-consuming	Fast
Errors	Error-prone	Few
User Satisfaction	Low	High
Average Response Time	2–5 minutes	2–5 seconds
Voice Interaction	Limited	Integrated Voice-based AI Assistant
Scalability	Difficult to scale	Highly scalable

traditional business software that demands complicated nav- igation or manual input, BizzOps allows users to interact with their data through voice commands in their preferred language. Business owners can access real-time information on inventory, sales, employees, payments, expenses, and orders simply by asking questions. They can also generate invoices and forecast future requirements without navigating complex interfaces.

The key contributions of this research are as follows:

- Development of a multilingual voice interface support- ing Hindi, English, and other regional Indian languages.
- Implementation of RAG-based AI agents to accurately process business-related queries.
- Integration of essential business modules—such as inventory, sales, invoicing, and expense manage- ment—into a single platform.
- Demonstration through real-world testing that BizzOps significantly improves operational efficiency and user satisfaction.

II. RELATED WORK

AI in Business Automation

In business process automation, artificial intelligence (AI) has become a major shift, helping companies improve accu- racy, speed up tasks, and make decisions based on data faster. Across various industries such as manufacturing, logistics, banking, and healthcare, AI-powered tools like predictive ana- lytics, robotic process automation (RPA), and smart decision- support systems are becoming more common. These technolo- gies are especially beneficial for large organizations, which can afford expensive cloud solutions, skilled data science teams, and strong IT systems.

Despite these benefits, small and medium-sized businesses (SMEs) are still facing challenges when trying to adopt AI. High costs, a lack of technical skills within the company, and concerns about data security and integrating with old systems are some of the main issues. Studies show that while big companies use AI to improve operations, SMEs often struggle with even basic automation, especially in places with limited resources like developing countries. SMEs are not well represented in the current AI environment, which shows a big gap that future research needs to address. If simple, affordable AI structures and easy-to-use tools (such as no-code platforms or AI-as-a-Service) are created, SMEs could find automation both possible and long-term sustainable.

Additionally, AI offers more than just efficiency gains for SMEs. It also has the potential to lower entry barriers in competitive markets, increase the ability to handle unex- pected challenges, and support fairer, more inclusive economic growth.

Voice Recognition in Business Applications

Over the past ten years, voice recognition technology has evolved quickly, reaching almost human-level accuracy in tran- scripts and interpretations of English speech. Applications in the business world, like hospital dictation systems, call centre automation, intelligent assistants, and smart banking services, demonstrate the effectiveness of

speech-based interaction as a natural and practical form of communication. Voice interfaces, in contrast to conventional keyboard- or touch-based inputs, provide hands-free, real-time, and more intuitive engagement, which boosts business operations efficiency and lowers user complexity.

However, much less work has been done on multilingual and resource-poor languages, and the majority of these systems are built around English or a few globally dominating languages. Existing speech technologies frequently perform far worse in the Indian environment, where there is a great deal of language variation and regional dialects. Due to the digital divide, a sizable portion of the populace is unable to fully utilize voice-based solutions. Adoption of technology in multilingual communities is strongly correlated with linguistic accessibility and cultural significance. Thus, the creation of culturally aware, language-independent speech interfaces is regarded as essential. Such developments could improve accessibility in e- commerce, digital health, banking, and education by enabling users in their native tongues, especially for individuals who do not speak English. More precise speech systems for regional languages have the potential to greatly increase digital involvement, lower transaction friction, and enhance customer engagement from a business standpoint. Therefore, it is crucial from a technological and socioeconomic standpoint to develop strong speech recognition for regional and minority languages.

Retrieval-Augmented Generation (RAG)

A hybrid AI technique called Retrieval-Augmented Genera- tion (RAG) blends two potent paradigms: generative language modelling and information retrieval. Despite their prowess at producing fluid replies, large language models (LLMs) are frequently constrained by their predetermined training data and may yield information that is out-of-date or erroneous. In order to solve this, RAG incorporates a retrieval method that grounds the model's output in reliable information sources by retrieving pertinent, current domain-specific articles. This greatly improves the precision, openness, and reliability of content produced by AI.

Numerous domains have been investigated for RAG ap- plications. By locating case precedents and combining argu- ments, it helps attorneys in legal settings. It makes clinical decision-support systems possible in the healthcare industry, which combine patient-specific data with medical knowledge libraries. RAG can deliver contextually accurate responses without causing hallucinations, as shown by its use in cus- tomer service applications. Even while RAG has demonstrated success in these high-stakes areas, not enough study has been done on how to incorporate it into business management systems for SMEs. Knowledge overload and a lack of funding to hire qualified analysts or consultants are two issues that SMEs frequently confront.

A RAG-powered system might serve as an inexpensive intelligent assistant for these kinds of businesses, processing regulatory paperwork, giving real-time insights, or making practical suggestions based on particular market situations. In addition to democratizing access to cutting-edge AI, this gives SMEs a way to compete with bigger businesses in strategic planning and decision intelligence.

Additionally, RAG's intrinsic flexibility offers a chance to create scalable and domain-adaptive solutions that allow SMEs in a variety of industries, including manufacturing, retail, and agricultural, to fine-tune and tailor the system to meet their particular needs.

III. SYSTEM ARCHITECTURE

Overview

The service-oriented, modular architecture of the suggested system, BizzOps, is made to be accessible, flexible, and scal- able. Data Management Layer, Presentation Layer, AI Query Handler, and Voice Interface are its four main parts. Every module works as a loosely linked unit, enabling upgrades or enhancements without interfering with the overall operation of the system.

With its support for voice-first engagements and AI-driven decision support, the architecture is particularly well-suited for SMEs operating in resource-constrained and multilingual environments. By utilizing cloud-based AI services, BizzOps lowers adoption hurdles by providing

sophisticated compu- tational capabilities without requiring expensive on-premise hardware.

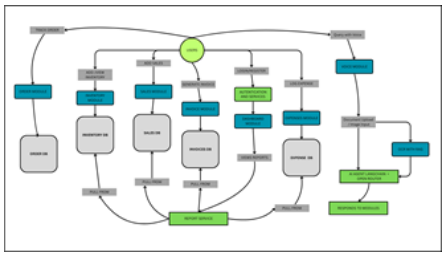

Fig. 1. Overview of the BizzOps system architecture.

The application utilizes React.js, which offers a modular, component-based structure and facilitates a quick and dynamic single-page application, is used to build the frontend. Node.js and Express.js power the backend, providing scalable API processing via a RESTful methodology and non-blocking I/O. LangChain functions as an orchestration framework at the heart of AI, coordinating very big language models like Claude 3.5 Sonnet and Gemini Pro over OpenRouter. This connection facilitates multimodal capabilities and allows context-aware thinking.

The Web Speech API manages voice input, enabling real-time transcription with an emphasis on Indian languages, thus improving accessibility and inclusivity. Various business records are arranged using flexible JSON forms in a document-based NoSQL database. All stored data is protected using AES-256 encryption to guarantee secrecy. LangChain pipelines acquire contextual information from the database, guaranteeing that chatbot responses—whether writ- ten or audio—remain precise and pertinent to the user's busi- ness inquiries. A unified, SME-friendly solution that strikes a balance between enterprise-level security, multilingual acces- sibility, and responsiveness is produced by combining these technologies.

Agent-Based Architecture

We built specialized AI agents in that architecture to over- see, manage, and improve a number of business functions. The core of BizzOps is its agent-based architecture, which uses specialized AI agents to automate and streamline im- portant business processes. Every agent is made to oversee a certain task while working with others to guarantee seamless operation. The Inventory Agent, for example, keeps a close eye on stock levels, sends out notifications when certain thresholds are met, and makes wise replenishment recom- mendations. In order to support data-driven plans, the sales agent monitors performance metrics, examines patterns, and produces insights. By creating invoices, monitoring payments, and sending out timely reminders for payments, the Invoice Agent streamlines financial processes and reduces human error and manual intervention. The Expense Agent keeps track

Fig. 2. Agent interaction diagram illustrating communication and data sharing among agents.

of outgoing transactions, spots spending trends, and makes recommendations for cutting back on wasteful expenditure. In order to attain cross-functional intelligence, these agents work together, sharing contextual data via the LangChain framework. For instance, inventory tactics might be influenced by sales data, and invoice management can be informed by expense analysis. BizzOps is transformed into an intelligent, AI-powered business assistant by this multi-agent ecosystem, which helps SMEs make more strategic decisions in addition to improving daily operational efficiency

IV. IMPLEMENTATION

Voice Interface Implementation

By utilizing the Web Speech API, BizzOps' voice interface enables smooth speech-to-text conversion in a variety of Indian languages. The system has unique language models that are optimized to identify regional accents and business-specific terms in order to cater to the rich and varied linguistic environment of Indian users. For domain-specific

words that are frequently difficult for generic speech recognition algo- rithms to recognize, like product names, pricing expressions, and typical transactional phrases, this customisation greatly increases recognition accuracy. By eliminating the need for conventional input devices and facilitating natural, hands-free contact, the voice interface lowers the technical barrier for small and medium-sized businesses. As illustrated in figure Language selection and real-time speech detection are the first steps in the workflow. Next come text conversion, backend processing by large language models to understand user intent, retrieving contextual data from a document-based database, and, lastly, providing the user with a pertinent and useful response. Designed to meet the demands of Indian SMEs, its strong architecture guarantees effective, multilingual, and context-aware voice communication.

Inventory Management Module

The inventory system lets users use voice commands to add new items directly into the inventory. Simply state, "Add 50 iPhones at 80,000 each," and the stock will update itself.

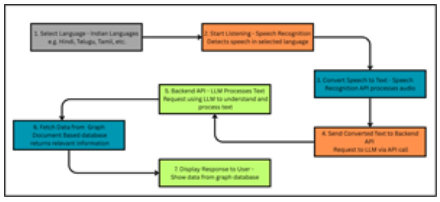

Fig. 3. Voice interface implementation workflow

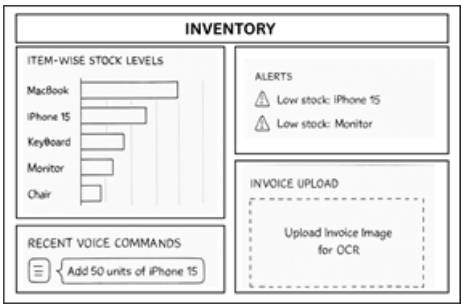

Fig. 4. Inventory dashboard with a voice-command example.

To find out what's running low in electronics, say "Tell me what's running low in electronics" and the system will tell you which items are missing. The system issues notifications when stock quantities dip under a specified limit, aiding in managing inventory requirements effectively. Moreover, you can upload images of invoices, and the system will use OCR technology to automatically update stock quantities based on the details from the scanned invoices. This arrangement simplifies tracking stock through speaking instructions and computerized processes.

Sales and Invoice Management

Users can effortlessly record sales and generate invoices using simple voice commands. For instance, to record a sale, they can say something like, "5 units of Product X sold to Customer Y for 5000," and the system will log the transaction. To generate invoices, users can simply request, "Create invoice for Ram Sharma with 3 items," and the system will create the invoice with the provided details. Additionally, users can track payments by asking, "Show me all unpaid invoices from last month," allowing them to easily manage outstanding payments and stay on top of financial records .

Financial Dashboard

The integrated financial dashboard offers a comprehensive, real-time overview of key business metrics essential for ef- fective decision-making. It enables users to visualize sales trends across daily, monthly, and annual intervals, facilitating the identification of growth patterns and seasonality within the

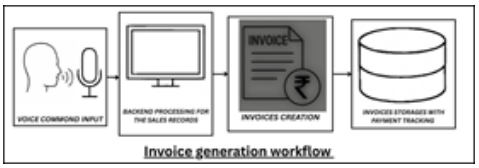

Fig. 5. Invoice generation workflow diagram.

Fig. 6. Financial dashboard with key charts and metrics.

business. The dashboard supports detailed profit and loss anal- ysis, allowing business owners to track financial performance and quickly identify areas of

concern or opportunity. Expense data is systematically categorized, providing clarity on cost distributions and aiding in budget management. Additionally, cash flow projections are generated to help forecast future liquidity and ensure long-term financial stability.

The dash- board also displays the current status of customer payments, empowering users to monitor receivables and address outstand- ing dues efficiently. Overall, this integrated tool streamlines financial oversight and enhances strategic planning for small and medium enterprises.

Multilingual Support Implementation

The system supports multiple languages by using strong language detection and translation tools. When a user sends input, the platform automatically figures out which language it is—whether it's Hindi, English, Marathi, Tamil, Gujarati, or another supported language—and smoothly translates the messages as needed.

This allows users to interact with the system in their preferred language, making it easier to com- municate without language barriers. It improves access for business owners from different regions. By enabling real-time multilingual communication, the platform makes advanced business tools easier and more effective for people who speak various Indian languages. .

V. EVALUATION METHODOLOGY

SME owners and employees from a range of industries, including manufacturing, services, and retail, participated in the evaluation. They had previously handled inventory, sales, invoicing, expenditure monitoring, and compensation man- agement manually using spreadsheets or handwritten records. Due to their lack of automation and repetitive data entry,

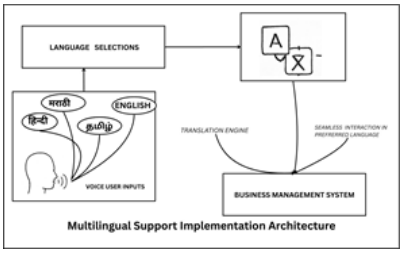

Fig. 7. Multilingual language-detection and translation flow.

these traditional approaches were time-consuming and prone to mistakes. Participants were split into two groups in order to thoroughly evaluate the suggested digital platform: one group continued to operate manually, while the other group used the BizzOps system, which automates important tasks like payroll computations, expense tracking, invoice generation, and real-time sales and inventory tracking. The assessment employed a number of metrics, including task completion time, which measured operational efficiency; error rate, which evaluated accuracy and usability; standardized questionnaires, which measured user satisfaction; the learning curve, which measured the time required to become proficient; and language comfort, which assessed how well the platform supported multiple languages. A number of realistic test scenarios were performed by participants in order to gauge usability and functionality.

Ten sales transactions were voice-activated, five customer invoices were generated, inventory for twenty goods was updated, a one-week expense report was created, and a monthly company overview that combined financial and operational data was produced. To test the accuracy of speech recognition, sales tasks purposefully included a variety of product categories and regionally specific customer names. In- ventory updates replicated both bulk and single-item changes, and scenarios for creating invoices assessed the ability to handle unclear instructions. Both recurrent and ad hoc ex- penses were reported in order to verify the accuracy of the classification. The monthly summary assignment evaluated the robustness of data aggregation by accounting for times of varying company activity. The full test scenarios, comprising login authentication (medium), data entry validation

(high), expense recording (medium), report generation (high), and inventory update (high), are further summarized in Table 2 along with their corresponding complexity ratings.

VI. RESULTS AND ANALYSIS

Comparing the BizzOps platform to manual approaches, the evaluation showed significant gains in accuracy, user happi- ness, and operational efficiency. Users finished jobs almost twice as quickly; the average task duration decreased by 49.8%, from 25.3 minutes to 12.7 minutes. From 15.2% to 3.8%, error rates dropped precipitously by 75%, suggesting

Table II
Test Scenarios with Complexity Ratings

Test Scenario	Description	Complexity
Login Authentication	Verify correct/incorrect user login	Medium
Data Entry Validation	Field validation and data format checks	High
Expense Recording	Accurate expense classification/storage	Medium
Report Generation	Validity of sales/expense reports	High
Inventory Update	Stock level update accuracy	High

Table III
Performance Comparison Between Traditional Method And Bizzops

Metric	Traditional Method	BizzOps	Improvement
Average Task Time	25.3 minutes	12.7 minutes	49.8%
Error Rate	15.2%	3.8%	75.0%
User Satisfaction	6.2/10	8.9/10	43.5%
Learning Time	4.5 hours	45 minutes	83.3%

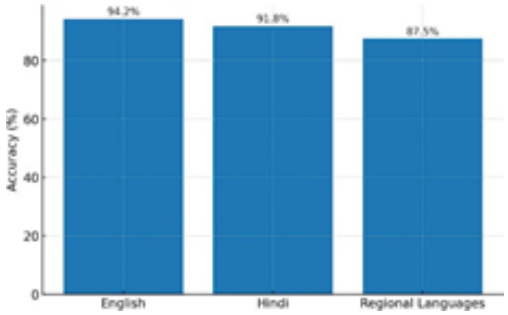

Fig. 8. Bar chart showing voice-recognition accuracy by language.

improved accuracy and fewer manual errors. From 6.2 to 8.9 out of 10, user satisfaction levels rose dramatically, indicating that the system's features and usability were well received. Users also experienced a significant reduction in the learning curve, becoming adept in an average of 45 minutes as opposed to 4.5 hours with legacy approaches, which represents an 83.3% reduction in training time. Language and user demo- graphics affected voice recognition accuracy; languages with more dialect variation had slightly lower recognition rates, while languages with more widespread usage, such Hindi and English, had higher recognition rates. The significance of continuously improving multilingual models that are adapted for local quirks is highlighted by this difference. Voice com- mands are a more user-friendly and less taxing way to manage corporate operations than typing, according to users study. Users from a variety of linguistic backgrounds found the platform's multilingual support to be very helpful in improving accessibility and comfort. As evidenced by the much better satisfaction scores and strong desire of participants to refer BizzOps to other SME owners, these elements collectively helped to reduce stress and enhance confidence throughout daily business chores.

VII. DISCUSSION

Voice-enabled Retrieval-Augmented Generation (RAG) sys- tems have the potential to greatly transform small and medium-

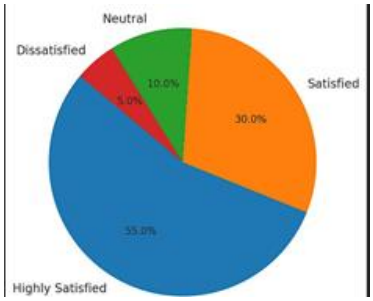

Fig. 9. Pie chart showing user-satisfaction categories.

sized businesses (SMEs), as this study demonstrates. The platform allows for more accurate, context-aware, and user- friendly interactions by combining specialized information retrieval with advanced natural language processing (NLP). This reduces the need for manual input, cuts down on errors, and boosts productivity and user satisfaction by letting SMEs perform complex tasks using simple voice commands. How- ever, there were several challenges during the implementation process.

To ensure accurate and smooth data flow between document-based databases and AI models, multiple large language models (LLMs) had to be integrated, as they can process OCR data from documents. High background noise greatly affected voice recognition accuracy, lowering reliability in real-world business environments that are often noisy. The reliance of AI services on the cloud also introduced limita- tions, as it requires a stable internet connection, which may not always be available in SME settings. To gain user trust, strong security measures are essential to address concerns about the privacy of voice data processing and storage. Despite these challenges, the project advances the application of RAG in business management and creates a multilingual interface that effectively supports several Indian languages, which are major technical accomplishments. The agent-based, modular design of the system makes it simple to grow and change as business needs evolve. By emphasizing ease of use and accessibility, the platform enables small and medium-sized businesses, even those without technical expertise, to use advanced AI tools. This encourages broader participation and helps empower more people through technology.

VIII. FUTURE WORK

Future developments aim to enhance the system's linguistic capabilities by incorporating additional regional languages and dialects. This will enable the platform to be used by people from various backgrounds and regions. With addi- tional languages included, much effort will go into enhancing the system's capability to identify various accents, thereby improving its proficiency in comprehending diverse speech styles and pronunciations. This will significantly enhance both the precision and speed of voice-based communications. The system will incorporate offline voice processing, enabling users to utilize voice-based functions regardless of their lack of a steady or dependable internet connection. Voice functions will continue to be accessible even when there's no continuous internet connection.

In addition to making the system easier to understand and use, we'll create smart tools that can do more things better. Predictive analytics tools assist businesses in forecasting demand precisely, minimizing wastage and en- hancing inventory management effectively. The platform will provide automated business insights and useful suggestions to assist users in making wise choices and enhancing their work processes. The system connects with tax, banking, and finance apps for easy data exchange and automates many financial operations, cutting down paperwork and ensuring adherence to rules. Future studies will concentrate on developing native applications for both Apple's iOS and Google's Android plat- forms. These apps will have offline features, letting users do essential work without needing an internet connection, giving them greater freedom and guaranteeing their systems stay running smoothly. Apps will let users scan and send documents like invoices and receipts easily by using their cameras, which makes work easier for them and helps people feel better about how they use the app. The system provides an accessible mobile-first approach with improved offline capabilities and simplified document management, enabling efficient operation for small and medium-sized

enterprises from any location, significantly enhancing usability and interaction.

IX. CONCLUSION

This research successfully Voice-enabled RAG systems have the potential to completely transform company management for SMEs, as this study effectively illustrates. The user- friendly, multilingual interface offered by BizzOps removes significant obstacles to digital adoption while requiring little technical know-how. When compared to conventional ap- proaches, the evaluation's findings demonstrate notable gains in effectiveness, precision, and user satisfaction. Scalability and adaptability to a range of business requirements are guar- anteed by the system's agent-based design and modular archi- tecture. Most significantly, by emphasizing accessibility and language support, advanced AI technology is now accessible to a wider range of business owners who were previously shut out of the advantages of digital transformation. The success of BizzOps validates the potential for AI-powered solutions to democratize business automation, particularly in developing economies where traditional software solutions have failed to gain widespread adoption.

Acknowledgments

We would like to express our sincere gratitude to Prof. Dr. Shailendra K. Mishra for his invaluable guid- ance, continuous support, and encouragement throughout the course of this research. His expertise, insightful feedback, and constructive suggestions were instrumental in shaping the direction and quality of our work. We are truly grateful for the opportunity to work under his supervision and for the knowledge and experience gained through his mentorship.

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