

BIZZBUDDY: AI AGENT FOR ENTREPRENEURS

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Abstract—Managing a small business usually means juggling many responsibilities at the same time, such as keeping track of sales, checking inventory, and staying connected with team members. When these tasks are handled manually or with limited tools, it can slow things down, increase mistakes, and make it harder to see how the business is actually doing. This project introduces a web-based system that brings everything together in one place. It includes an online sales platform and an admin dashboard supported by an AI assistant. The system collects everyday business data, like sales and stock levels, and turns it into simple insights that can guide better decisions. It also makes communication easier by helping business owners draft messages for their coworkers, saving both time and effort. By combining smart automation, data insights, and AI support, the system aims to make running a business more organized, efficient, and easier to grow.

Index Terms— Agentic AI, Generative AI, Intelligent Assistants, Task Decomposition, Tool Integration, Business Innovation, Entrepreneurship.

I. INTRODUCTION

Most of the existing business management systems rely on separate software tools for handling different tasks such as sales tracking, stock management, reminder scheduling, and customer communication. These traditional systems often use fixed workflows and require entrepreneurs to manually switch between multiple platforms. Such approaches may not fully address the real-time needs of solo business owners, where quick decisions, task prioritization, and simplified interaction are essential for smooth operations.

To overcome these limitations, the proposed system introduces BizzBuddy, an AI-powered personal business assistant that combines multiple operational tasks into a single intelligent platform. The system uses Artificial Intelligence, natural language processing, and data analysis techniques to help entrepreneurs manage daily business activities through a simple chat-based interface. By allowing users to interact naturally through both text and voice commands, the system creates a more user-friendly and efficient way of controlling business operations.

The assistant is capable of understanding user requests related to sales monitoring, stock checking, low-stock alerts, and reminder notifications. Instead of manually navigating dashboards and spreadsheets, business owners can simply ask the assistant for insights, request stock status, or set important reminders. The system processes the request, retrieves the relevant data, and provides instant responses, making routine tasks faster and less error-prone.

For example, if a product is running low in stock, the system can automatically detect the issue and generate an alert for the entrepreneur. Similarly, if the user wants to review daily or monthly sales performance, BizzBuddy can analyze the available sales data and present meaningful summaries that support decision-making. This reduces manual workload and improves operational efficiency.

In addition to task automation, the system supports intelligent notifications for important business events. Reminder alerts for payments, customer follow-ups, inventory restocking, or scheduled meetings ensure that entrepreneurs can stay organized without constantly monitoring each task manually. This creates a more proactive business workflow compared to traditional management tools.

Human business decisions are dynamic and often depend on multiple real-time factors such as sales trends, inventory levels, customer demand, and pending tasks. By recognizing and integrating these operational parameters, BizzBuddy provides a more adaptive and intelligent support system. Its ability to respond instantly to user queries and changing business conditions makes it highly relevant for modern solo entrepreneurs.

Beyond personal business use, the potential applications of this system can extend to small retail stores, startup founders, online sellers, freelancers, and service-based entrepreneurs, where a lightweight AI assistant can simplify day-to-day management. By combining conversational AI with practical business tools, BizzBuddy enhances productivity, reduces manual effort, and allows users to focus more on strategic growth.

Thus, the integration of AI-driven chat assistance into business management opens new possibilities for smarter and more personalized entrepreneurial support systems. By combining natural interaction, automation, and real-time insights, BizzBuddy aims to transform how individual entrepreneurs manage their businesses efficiently.

II. LITERATURE SURVEY

“Advancing Agentic Systems: Dynamic Task Decomposition, Tool Integration and Evaluation using Novel Metrics and Dataset” [1] presents a framework for agentic systems that perform task decomposition, tool selection, and adaptive execution. It introduces evaluation metrics and the AsyncHow dataset, while highlighting efficient planning, tool integration, and improved reliability through self-verification, despite challenges like tool retrieval and prompt design.

“Agentic AI: Autonomous Intelligence for Complex Goals—A Comprehensive Survey” [2] provides an overview of agentic AI systems that perform complex tasks with minimal human input. It describes a three-layer architecture perception, cognition, and action and highlights capabilities such as task planning, tool usage, memory, and self-reflection. The study also reviews frameworks like ReAct and AutoGPT, proposes evaluation metrics, and addresses ethical concerns for reliable AI systems.

“The Impacts of Artificial Intelligence on Business Innovation” [3] reviews studies on how AI technologies drive innovation across business functions. It highlights applications, challenges, ethics, and human–AI collaboration, and concludes that AI is crucial for transformation, requiring adaptability, explainability, and human oversight.

“ChatGPT and Other AI Copilots as Knowledge Partners for Entrepreneurs and Small Business Owners” [4] examines how AI tools support decision-making, automation, and planning. It finds Microsoft Copilot preferred for structured tasks and ChatGPT for brainstorming, highlighting their effectiveness in entrepreneurial learning driven by ease of use, reliability, and performance.

“Intelligent Assistants: Conceptual Dimensions, Contextual Model, and Design Trends” [5] presents a framework for designing intelligent assistants, identifying augmentation and compensation as key functions. It proposes a typology based on context and attributes like autonomy, and emphasizes human-centered, ethical design with focus on trust, privacy, usability, and adaptability.

“AI Business Model: An Integrative Business Approach” [6] explains how AI drives digital business models through decision-making, automation, and innovation. It highlights AI’s role in data-driven systems like CRM and ERP, and presents a framework aligning strategy, architecture, and implementation to improve efficiency, personalization, and growth.

“An Artificial Intelligence-Based Virtual Assistant Using Conversational Agents” [7] presents a 24/7 academic chatbot using AI and NLP. Built with a multi-layer architecture, it delivers context-aware responses with features like intent recognition, context memory, and admin control, improving student support and engagement.

“Designing Towards Productivity: A Centralized AI Assistant Concept for Work” [8] presents a unified chat-based AI assistant that integrates workplace tools to handle tasks like scheduling, emails, coding, and ticketing. It emphasizes simple interfaces, natural interaction, and features like workflow suggestions and split-screen views to improve efficiency and user experience.

“Generative AI in Entrepreneurship Research” [9] presents a framework using generative AI to augment research tasks like literature review, data analysis, coding, and writing. It introduces the 4D model Discover, Develop, Discuss, Deliver and emphasizes prompt strategies and human–AI collaboration to improve efficiency and creativity while maintaining quality.

“Meta-Entrepreneurship: Integrating Generative AI, Agentic AI, and Metaverse for Entrepreneurship” [10] proposes a framework that combines advanced technologies to support digital entrepreneurship across virtual and real environments. It introduces a three layer model infrastructure, content, and experience with AI as the core driver for automation and decision-making. The study also highlights hybrid models and addresses challenges like privacy, sustainability, and governance.

In conclusion, these studies highlight how Agentic and Generative AI enable task automation, decision-making, and entrepreneurship through intelligent assistants and AI copilots. They also demonstrate the role of AI in improving business models, productivity, and innovation.

These concepts are directly reflected in the proposed BizzBuddy system, which integrates AI-driven assistance with real-time data processing to support business operations. By combining natural language interaction, automated data analysis, and modular functionalities such as messaging and scheduling, the system applies the principles discussed in the literature to provide a practical, user-friendly solution for efficient and data-driven decision-making.

III. METHODOLOGY

The methodology of the proposed BizzBuddy system is built to bring all key business tasks into one easy-to-use platform. The architecture is designed to support small business entrepreneurs by integrating data analysis, inventory monitoring, content generation, and communication functionalities within a unified web-based platform. The proposed system consists of five major modules: Bizz Agent, Content Generator, Data Analyzer, Stock Checker, and Internal Messenger. The architecture of the proposed system is illustrated in Fig 1.

1. Bizz Agent Module:

- Acts as the core component of the proposed system.
- Receives user input from the dashboard and converts it into executable commands.
- Supports both text and voice-based interaction for better usability.
- Allows users to interact in English and Malayalam.
- Voice input is processed using Whisper AI, which converts speech into text accurately.
- Includes key sub-processes:
 - Command generation
 - Intent detection
 - Action execution
- Analyzes user requests (text or voice) to determine the required action.
- Routes requests to appropriate system modules such as:
 - Data Analyzer
 - Stock Checker
 - Content Generator
- Provides a centralized control mechanism that:

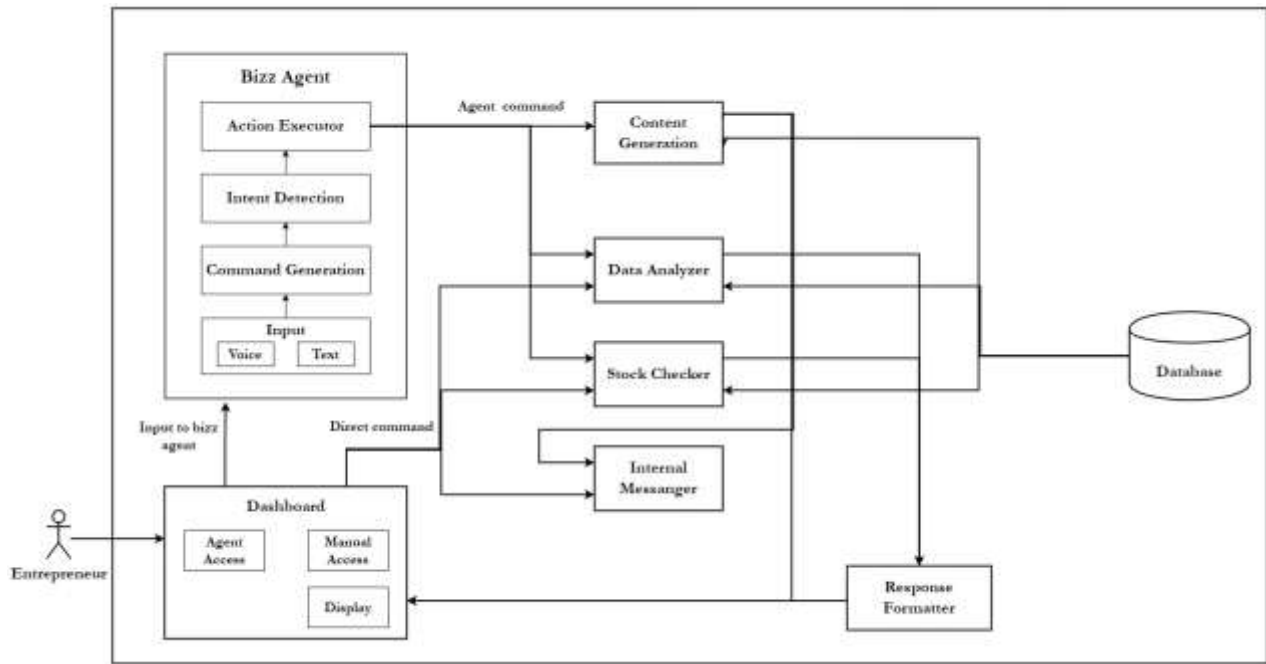


Fig. 1. System Architecture

- Improves system coordination
- Enhances accessibility for diverse users
- Reduces processing delays

2. Data Analyzer Module:

- Responsible for processing business related data such as:
 - Sales transactions
 - Customer records
- Retrieves collected data from the database.
- Analyzes data to generate meaningful insights about business performance.
- Identifies sales trends and evaluates performance indicators.
- Generates visual graphs for better understanding.
- Supports decision making by providing summarized analytical results.
- Helps entrepreneurs understand their business status.

3. Stock Checker Module:

- Manages inventory related operations within the system.
- Detects low stock conditions.
- Helps entrepreneurs maintain adequate inventory levels.
- Continuously tracks inventory data to:
 - Reduce risk of stock shortages
 - Improve supply chain management
- Plays a critical role in maintaining business continuity.
- Prevents operational disruptions.

4. Content Generator Module:

- Responsible for generating textual content based on business requirements.
- Creates:
 - Product descriptions
 - Communication messages for coworkers
- Uses processed data and predefined templates.
- Produces structured and meaningful message content.
- Reduces manual effort required for content creation.
- Ensures consistency in communication and product representation across the organization.

5. Internal Messenger Module:

- Enables flexible communication within the system.
- Allows messages to be exchanged between:
 - Entrepreneur and coworkers
 - Coworkers among themselves
- Delivers messages generated by the Content Generator.
- Ensures smooth transmission of information between users.
- Enhances collaboration within the business environment.
- Supports efficient communication among team members.
- Improves workflow coordination by enabling timely information exchange.

6. Database and Response Handling:

- Stores all business-related data in a centralized database, including:
 - Sales records
 - Inventory details
 - Message users

- Calendar events
- Retrieves necessary data during processing.
- Updates records after completing operations.
- Passes the output to the response formatting component.
- Converts system results into user-friendly responses.
- Displays formatted responses on the dashboard interface.

IV. RESULTS AND DISCUSSION

The system demonstrated effective performance in handling both structured database queries and natural language inputs. The hybrid approach combining heuristic-based processing with AI model fallback enabled fast responses for simple queries such as count, aggregation, and data retrieval, while maintaining flexibility for handling complex analytical queries.

Table I presents the performance comparison of AI models used in the system. GPT-OSS 120B exhibited the best overall performance in terms of response quality and speed, making it suitable for complex analytical tasks. Llama 3.3 70B provided a balanced performance for general-purpose queries, while the Llama 3.2 local model, although slower, offered a cost-efficient alternative for basic operations without reliance on external services.

TABLE I
PERFORMANCE COMPARISON OF AI MODELS USED IN BIZZBUDDY

Model	Quality	Speed	Cost	Use Case
GPT-OSS 120B	High	Very Fast	High	Complex Analysis
Llama 3.3 70B	High	Fast	High	Data Queries
Llama 3.2 Local	Medium	Slow	Very High	Basic Tasks

The speech-to-text module demonstrated reliable performance in converting voice inputs into text. As shown in Table II, the Whisper-based model achieved high transcription accuracy for both English and Malayalam inputs. The model supports automatic language detection, enabling flexible multilingual interaction and improving accessibility for users who prefer voice-based communication.

TABLE II
SPEECH-TO-TEXT PERFORMANCE USING WHISPER

Model	Accuracy	Language Support	Remarks
Whisper (Grok API)	High	English, Malayalam	Fast and reliable transcription

The calendar module successfully handled event scheduling and automated reminders using a cron-based mechanism. Alerts were triggered at predefined intervals and delivered through webhook integration, ensuring timely notifications. Similarly, the messaging module enabled real-time communication using WebSocket connections, supporting message delivery, scheduling, and inbox management.

The results indicate that the integration of AI-driven interaction with real-time data processing improves efficiency and reduces the complexity of database operations. The modular architecture allows seamless coordination between different system components, enhancing overall usability and productivity.

However, the system has certain limitations. AI response quality depends on external API availability and network conditions. Voice transcription accuracy may be affected by background noise and variations in pronunciation. Additionally, heuristic-based query handling is limited to predefined patterns and may not generalize to all possible user queries.

Overall, the system demonstrates a practical and scalable approach for integrating AI into business management workflows, with scope for further improvements in natural language understanding, voice processing accuracy, and system optimization.

V. CONCLUSIONS

In conclusion, the proposed AI-based business assistant, BizzBuddy, offers a practical way to improve how small businesses manage their daily operations. By bringing together features like sales tracking, inventory management, data analysis, and internal communication into one platform, it helps business owners handle tasks more easily and efficiently. The system uses an intelligent agent to process inputs, analyze data in real time, and provide useful insights that support better decision-making. It also keeps track of stock levels and sales trends, sending alerts when attention is needed, such as in cases of low inventory. Additionally, the message generation feature simplifies communication by helping users create and share updates with their team, reducing manual effort.

Overall, this integrated approach improves productivity and allows entrepreneurs to focus more on growing their business. In the future, the system can be enhanced by improving data accuracy, adding predictive features for better forecasting, and connecting with external platforms like e-commerce and payment services. It could also become more adaptive by learning from user behavior over time, making it even more effective and responsive in real-world business environments.

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