

Talk Agile to Me

(The AI Chatbot Enhancing Project Work Flows)

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Abstract—"Talk Agile to Me" is an AI-driven chatbot enhancing project management across platforms like Jira and Azure DevOps (ADO). It automates task and bug creation using NLP to interpret inputs, ensuring accurate setup with summaries, assignees, and story points. The chatbot dynamically assigns tasks based on roles and manages workloads. It supports multiple languages, extracts tasks from documents, and generates solution documentation for each issue, providing step-by-step guidance. Key features include role-based management, custom alerts, real-time analytical reports, and the ability to close tickets through its interface. Designed for seamless cross-platform integration, it simplifies workflows and boosts productivity with a user-friendly interface.

Keywords— Talk Agile to Me; AI-driven chatbot; user-friendly interface; manages workloads

I. INTRODUCTION

NLP enables computers and digital devices to recognize, understand and generate text and speech by combining computational linguistics—the rule-based modeling of human language—together with statistical modeling, machine learning (ML) and deep learning. NLP research has enabled the era of generative AI, from the communication skills of large language models (LLMs) to the ability of image generation models to understand requests. NLP is already part of everyday life for many, powering search engines, prompting chatbots for customer service with spoken commands, voice-operated GPS systems and digital assistants on smartphones. **Talk Agile to Me** employs NLP to interpret and process user inputs in multiple languages, facilitating the automatic generation, updating of tasks and other features based on textual/conversational commands.

II. DESCRIPTION OF THE INVENTION

A. What problem does the Invention solve?

The invention, '**Talk Agile to Me**,' addresses several critical problems in project management, particularly in agile and dynamic environments:

Efficiency in Task Management: It automates the creation, updating, and tracking of tasks, reducing manual input errors and saving significant time. This automation ensures that tasks are updated in real-time, improving the overall workflow and productivity.

Communication Barriers: By supporting multiple languages, the chatbot ensures that global teams can communicate effectively without language barriers impacting project progress. This feature is particularly beneficial for international projects involving diverse teams.

Consistency Across Platforms: It provides seamless integration across multiple project management platforms like Jira and Azure DevOps (ADO), addressing interoperability issues and eliminating the need for manual data transfer between systems.

Resource Allocation: The chatbot dynamically assigns tasks based on roles and available capacity, ensuring an even distribution of workloads and preventing overburdening team members. This is crucial for maintaining team morale and efficiency.

Real-Time Insights: With capabilities to generate real-time analytical reports such as burndown charts, the tool helps teams make informed decisions by providing current data on project status and progress.

Document Handling: It parses detailed project requirements from documents to create tasks accurately, ensuring all specifications are met and reducing the chances of oversight or misinterpretation.

Proactive Management: Custom alerts and reminders keep team members aware of deadlines and updates, fostering proactive project management and ensuring timely completion of tasks.

Support for Product Owners (POs) and Scrum Masters (SMs): POs can better prioritize backlogs as the chatbot provides detailed insights into task progress and team capacity. SMs benefit from enhanced sprint planning and tracking capabilities, ensuring that agile ceremonies are more data-driven and effective.

Quality Assurance: By ensuring that all tasks are created and tracked with precision, and by enabling thorough

documentation and timely updates, the chatbot helps maintain high standards of quality throughout the project lifecycle. By addressing these challenges, 'Talk Agile to Me' enhances productivity, streamlines project workflows, and improves team coordination in a user-friendly manner, making it an invaluable asset for modern project environments. This tool not only supports the administrative functions of managing tasks but also enhances the strategic roles of POs and SMs, driving higher quality and better project outcomes.

III. EXISTING SOLUTIONS AND THEIR DRAWBACKS

Current project management tools like Jira, Trello, and Asana offer varied functionalities to organize tasks, track progress, and manage team resources.

Despite their capabilities, these tools exhibit several limitations:

Limited Automation: Most platforms require manual entry for task creation and updates, leading to time consumption and potential human errors.

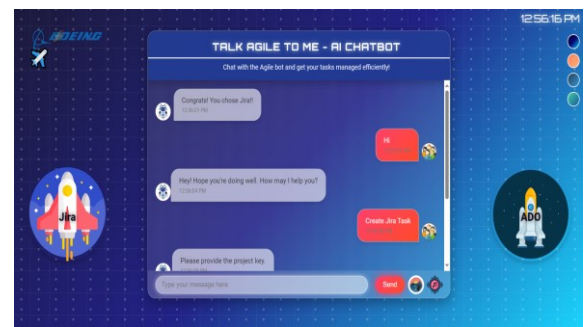
Complex User Interfaces: The intricate interfaces of many project management tools can deter new users, featuring a steep learning curve that may hinder user adoption.

Language Barriers: Commonly, these tools lack multi-language support, which complicates communication in diverse global teams, potentially leading to misunderstandings and project delays.

Interoperability Issues: These tools often lack seamless integration with other systems, resulting in disjointed workflows and inconsistent data across platforms.

Inadequate Real-Time Insights: While some analytics are provided, they often lack the immediacy and depth required for agile project management and decision-making.

- **Cross-Platform Integration:** Built with a flexible API architecture, the chatbot integrates smoothly with multiple project management platforms such as Jira and ADO. This capability ensures consistent data and workflow across different systems, enhancing interoperability.
- **Real-Time Analytics Engine:** Features a robust analytics engine that generates real-time reports, including burndown charts, providing immediate insights into project progress and team performance.
- **Proactive Alert System:** Incorporates an advanced notification system that sends custom alerts and reminders based on specific project timelines and task deadlines, promoting proactive project management.
- **Document Parsing Capability:** Capable of extracting detailed requirements from project documents and converting them into structured tasks, ensuring precise adherence to project specifications.
- **Multi-Platform Functionality:** Specifically designed to function across multiple operating systems and devices, ensuring accessibility and consistent user experience whether on mobile, desktop, or web platforms.



By addressing the challenges posed by traditional project management tools, "Talk Agile to Me" not only facilitates task management but also enhances strategic project oversight and execution, making it a critical tool for modern, dynamic project environments.

A. Key technical differences between our invention and any existing prior solutions:

"Talk Agile to Me" introduces several key technical advancements that distinguish it from traditional project management solutions. These innovations address the limitations of existing tools and offer a more integrated, dynamic approach to project management. Here are the primary technical differences:

Advanced Natural Language Processing (NLP):

Prior Solutions: Traditional tools often rely on basic text input with limited understanding, requiring structured and specific command inputs.

Talk Agile to Me: Uses sophisticated NLP algorithms capable of interpreting complex, natural language inputs across multiple languages. This allows users to interact with the system in a conversational manner, enhancing usability and reducing the learning curve.

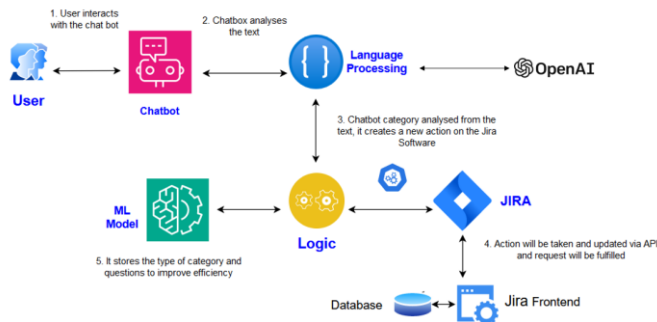


Figure 1

IV. TECHNICAL FEATURES OF THE INVENTION

"Talk Agile to Me" is designed to overcome these shortcomings through several advanced technical features:

- **Natural Language Processing (NLP):** Employs NLP to interpret and process user inputs in multiple languages, facilitating the automatic generation and updating of tasks based on conversational commands.
- **AI-Driven Automation:** Powered by sophisticated AI algorithms, the chatbot automates task assignments based on team roles, current workloads, and capacity, ensuring efficient resource allocation and workload balance.

AI-Driven Task Automation and Assignment:

Prior Solutions: Most project management tools use simple rule-based automation for task assignments, which can be rigid and unable to adapt to changing project dynamics.

Talk Agile to Me: Employs AI algorithms to dynamically assign tasks based on real-time analysis of team roles, workload, and capacities. This ensures optimal distribution of tasks, preventing overburdening and underutilization.

Cross-Platform Integration:

Prior Solutions: Integration capabilities are often limited, requiring additional middleware or manual synchronization efforts.

Talk Agile to Me: Features a robust API architecture designed for seamless integration with a variety of project management platforms (like Jira and ADO) and other enterprise systems, ensuring fluid data transfer and consistent workflows across platforms.

Real-Time Analytical Reporting:

Prior Solutions: Analytics in traditional tools are generally not real-time and often require manual compilation, which can delay decision-making.

Talk Agile to Me: Incorporates an advanced analytics engine that provides real-time, actionable insights through automated reports, such as burndown charts, helping teams make informed decisions quickly.

Proactive Management and Custom Alerts:

Prior Solutions: Most tools provide standard notifications with limited customization, which may not align perfectly with specific project needs.

Talk Agile to Me: Offers a highly customizable alert system that proactively notifies team members about deadlines, changes, and other critical project events, tailored to the unique requirements of each project.

Document Parsing and Requirement Extraction:

Prior Solutions: Typically, project documents need to be manually reviewed and tasks manually entered into the system.

Talk Agile to Me: Capable of parsing complex documents to extract project requirements automatically and create detailed, structured tasks within the project management system, significantly reducing manual data entry and potential errors.

Multi-Platform Functionality:

Prior Solutions: Often restricted to specific operating systems or platforms.

Talk Agile to Me: Designed to operate seamlessly across multiple platforms, including mobile, desktop, and web, ensuring a consistent and accessible user experience regardless of the device used.

These technical enhancements make "Talk Agile to Me" a more efficient, user-friendly, and adaptable solution compared to existing project management tools, addressing not only the administrative aspects of project management but also enhancing strategic project oversight and execution.

B. Most important technical feature of the invention

The most important technical feature of "Talk Agile to Me" is its **Advanced Natural Language Processing (NLP) capabilities**. This feature is crucial as it serves as the foundation for several of the system's functionalities, ensuring that the invention operates effectively across various aspects of project management.

Why NLP is Critical?

- ✓ **User Interaction:** The NLP component allows the chatbot to understand and process complex, natural language inputs from users. This capability is essential for interpreting a wide range of verbal and written communications into actionable data that the system can use to create, update, and manage tasks. Without this level of comprehension, the system would be unable to automate processes based on user inputs effectively.
- ✓ **Multi-Language Support:** NLP enables the chatbot to support multiple languages, which is vital for global teams. This functionality helps eliminate communication barriers and ensures that the chatbot is accessible and useful to non-English speakers, enhancing the tool's versatility and user adoption rate across different regions.
- ✓ **Automation of Task Creation and Updates:** By processing natural language inputs, NLP allows the system to automatically generate tasks with detailed attributes such as summaries, assignees, and deadlines based on casual user commands. This reduces manual entry requirements and the associated risks of errors, streamlining workflow management.
- ✓ **Integration and Interoperability:** The NLP engine facilitates smoother integration with existing project management tools by translating and formatting data into the appropriate forms required by different platforms like Jira and Azure DevOps (ADO). This ensures that data remains consistent and workflows are uninterrupted across different systems.
- ✓ **Scalability:** NLP is key to scaling the system for more complex project management scenarios as it can adapt to various types and complexities of user inputs and project requirements. This adaptability makes the system robust and flexible, capable of meeting diverse user needs.

Overall, the NLP technology in "Talk Agile to Me" is indispensable for its operation, underpinning its ability to function as an intelligent, responsive, and highly adaptive project management tool. It enables the system to deliver a seamless, intuitive user experience while maintaining the accuracy and reliability needed in professional project environments.

Time Taken / Sprint: (Before chatbot implementation)

SM	PO	Dev/Test
8 – 10 hours	4 hours	6-8 hours

Total : ~25 Hours

Optimized Time Taken / Sprint: (After chatbot implementation)

SM	PO	Dev/Test
2 hour	1 hour	1 hour

Total : ~4 Hours

Description: Enabling the system to dynamically adapt project workflows based on ongoing project performance and external factors, using AI-driven scenario analysis.

Advantages: Enhances the agility of project management, allowing teams to pivot and adapt to changes swiftly, thus maintaining project momentum even in volatile conditions.

Additional Technical Features

Enhanced Security Features for Sensitive Projects:

Description: Incorporating advanced encryption and user authentication mechanisms to ensure that sensitive project information is securely handled.

Advantages: Makes the tool suitable for use in industries where data security is paramount, such as healthcare, finance, and government projects.

tailored guidance and support, speeding up the learning curve and enhancing productivity.

V. BUSINESS VALUE

TABLE I

Current State	AI State
No proper documentation and acceptance criteria	Generative AI Description & Acceptance Criteria
Manual Documentation, Updates on boards	Use of Conversation AI to update the Boards
Manual Assigning and Story Estimates	Automatic Assigning and Story Estimates based on the description
Scrum Master following up throughout the Sprint.	The Chatbot analyses the board and sends reminders to owners if not completed
No Effective Utilization of the SM & PO's time	Effective Utilization of the SM & PO's time to enhance Quality & Ensure faster completion
Manual Burndown and Velocity calculation	In-built Smart analyzer to provide Burndown & velocity

C. Alternative embodiments or additional technical features

In addition to its core functionalities, "Talk Agile to Me" can be extended or adapted through several alternative embodiments and additional technical features. These enhancements aim to increase its versatility, improve user experience, and extend its applicability to a broader range of project management scenarios:

Voice Command Interface:

Description: Integrating voice recognition capabilities to complement the text-based NLP system.

Advantages: Facilitates hands-free operation, making the system more accessible for users in environments where typing may be inconvenient or impossible. Enhances usability for visually impaired users.

Project Prediction Analytics:

Description: Implementing machine learning algorithms to analyze historical project data and predict future project outcomes or potential bottlenecks.

Advantages: Provides proactive insights for project managers, allowing for better resource allocation and risk management based on predictive analytics rather than just reactive measures.

AI-Assisted Resource Optimization:

Description: Utilizing advanced AI algorithms to optimize resource allocation by analyzing current and past project data to identify the most efficient deployment of personnel and materials.

Advantages: Minimizes waste and maximizes productivity by ensuring resources are allocated to the most impactful tasks, reducing costs and timelines.

Dynamic Workflow Adaptation:

Overall Sprint Efficiency is increased by 25%

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