



PMtron: An AI-Powered Project Management Solution for Effortless Collaboration

A cutting-edge tool developed by **Web Surfing Studios** (<https://websurfingstudios.com>) to enhance project workflows.

Introducing PMtron

PMtron is an **AI-powered** project management tool designed to automate proactive communication, streamline workflow tracking, and enforce standard operating procedures (SOPs). Created by a collaborative team of developers, PMtron combines automation, analytics, and 3rd party integrations with communication platforms such as **Slack** and **Microsoft Teams** to help teams deliver projects with greater efficiency, transparency, and consistency.

A Smarter Alternative to Existing Tools

Project managers and teams often face challenges that limit productivity and communication quality. There are existing tools that help with task tracking but they do not proactively check in with teammembers, identify blockers, or enforce consistency.

PMtron addresses several pain points in project management, including insufficient proactive communication, redundant communication, stretched project managers with large teams, limited visibility, and inconsistency in workflows and SOPs.

Product Vision

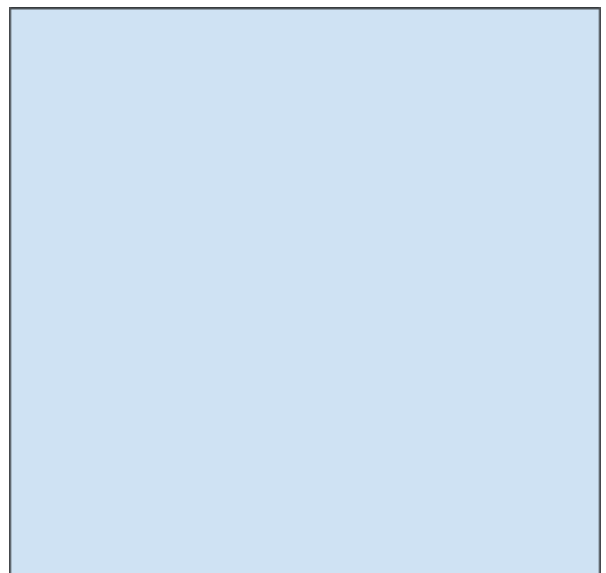
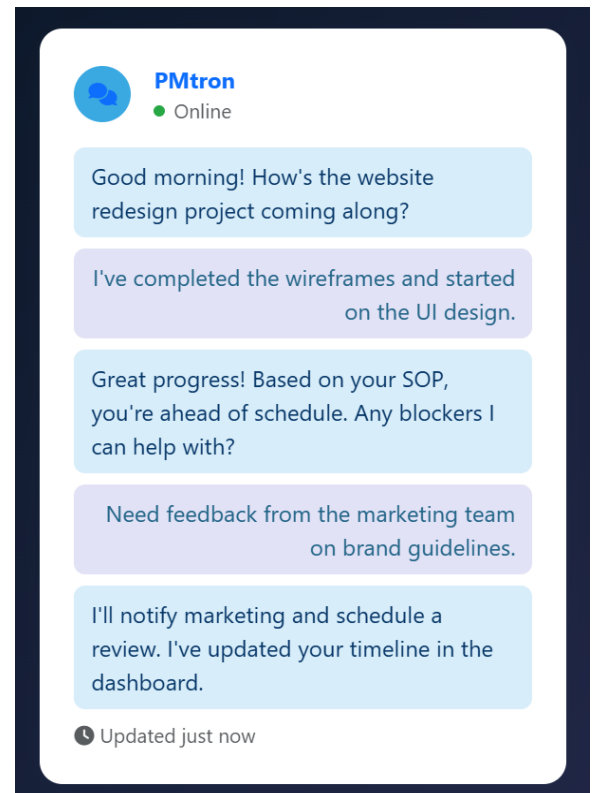
The PMtron team aimed to create a tool that improves productivity by:

- Automating certain project management tasks
- Highlighting potential blockers and timeline changes
- Enhancing visibility and decision-making through customizable dashboards
- Streamlining communication by integrating with tools that teams already use
- Maintaining consistency in workflows and SOPs

Technical Challenges

Throughout development, the team overcame and gained hands-on experience with several technical challenges, including:

- **Prompt Engineering:** Developers learned to structure prompts that produced relevant, consistent responses from the AI
- **API Integration:** Configuring secure, reliable connections between PMtron's backend and third-party messaging systems
- **Real-Time Updates:** Implementing live dashboards and task boards with minimal latency.
- **Security and Access Control:** Protecting sensitive project data while allowing proper access for different user roles.
- **AI Context Management:** Maintaining conversational context over multiple messages to ensure accurate AI responses in complex workflows.
- **Cross-Platform Integration:** Ensuring seamless interactions between PMtron, Slack, and Microsoft Teams across different environments.
- **Version Control in a Large Team:** Coordinating 20 developers across multiple branches, avoiding merge conflicts, and maintaining code stability.

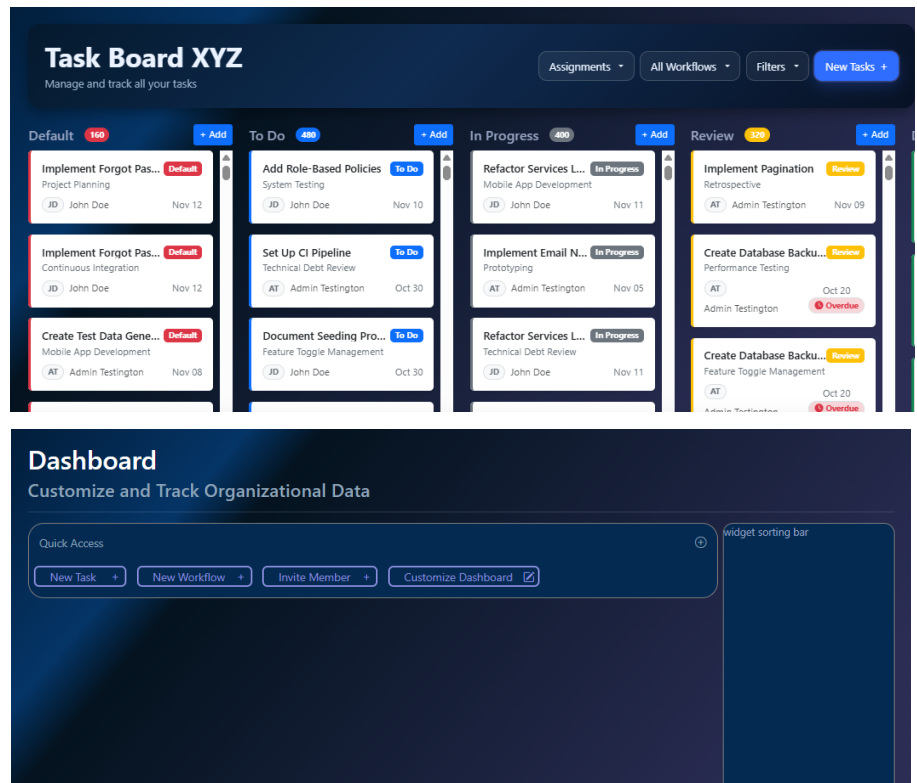


Key Features

PMtron includes several features that directly address project management pain points.

These features include:

- **AI Chatbot:** available within the site or connects with Slack and Teams to **automate check-ins, provide status updates, and flag potential blockers.**
- **Customizable Dashboards:** offer visibility into project metrics
- **Task Boards:** displays tasks across workflows with live task updates and filter options
- **Automated SOP Enforcement:** ensures teams follow workflows and send task updates
- **Project and Chat History:** uses historical data to display metrics on the dashboard and estimate task completion times



Development Approach

The development team followed a structured, collaborative approach to bring PMtron from concept to completion. They used modern technologies, agile practices, and clear communication, to build a scalable, user-focused product.

Tools and Technologies

- Languages: **C# (.NET Framework 4.8.1) with MVC and Razor front-end**
- Tools: **Git, Azure DevOps, MySQL database**

Skills

Developers demonstrated strong technical and teamwork skills, including:

- Implementing **version control workflows** to manage multiple feature branches
- Collaboratively resolving merge conflicts and blockers through peer review and testing
- Designing **prompt structures for AI** interactions with accurate responses
- **Integrating APIs** to enable real-time communication automation
- Adhering to **Agile development** principles with sprints and iterative deliverables
- Working with UI/UX designers to implement a user-centered experience

Accomplishments

While building PMtron, developers demonstrated their skills through several accomplishments:

- Designing and implementing AI-driven automation
- Delivering a **scalable** project management tool that can handle increasing numbers of users, tasks, and project data.
- Gaining experience in collaborative **version control, DevOps pipelines, and cross-platform API integration**
- Integrating messaging AI using **AWS Bedrock (Nova Pro)**
- Developing a robust data layer with **MySQL and Entity Framework 6**
- Strengthening problem-solving and teamwork skills through agile collaboration and peer review
- Diagnosing and resolving bugs to ensure smooth functionality