

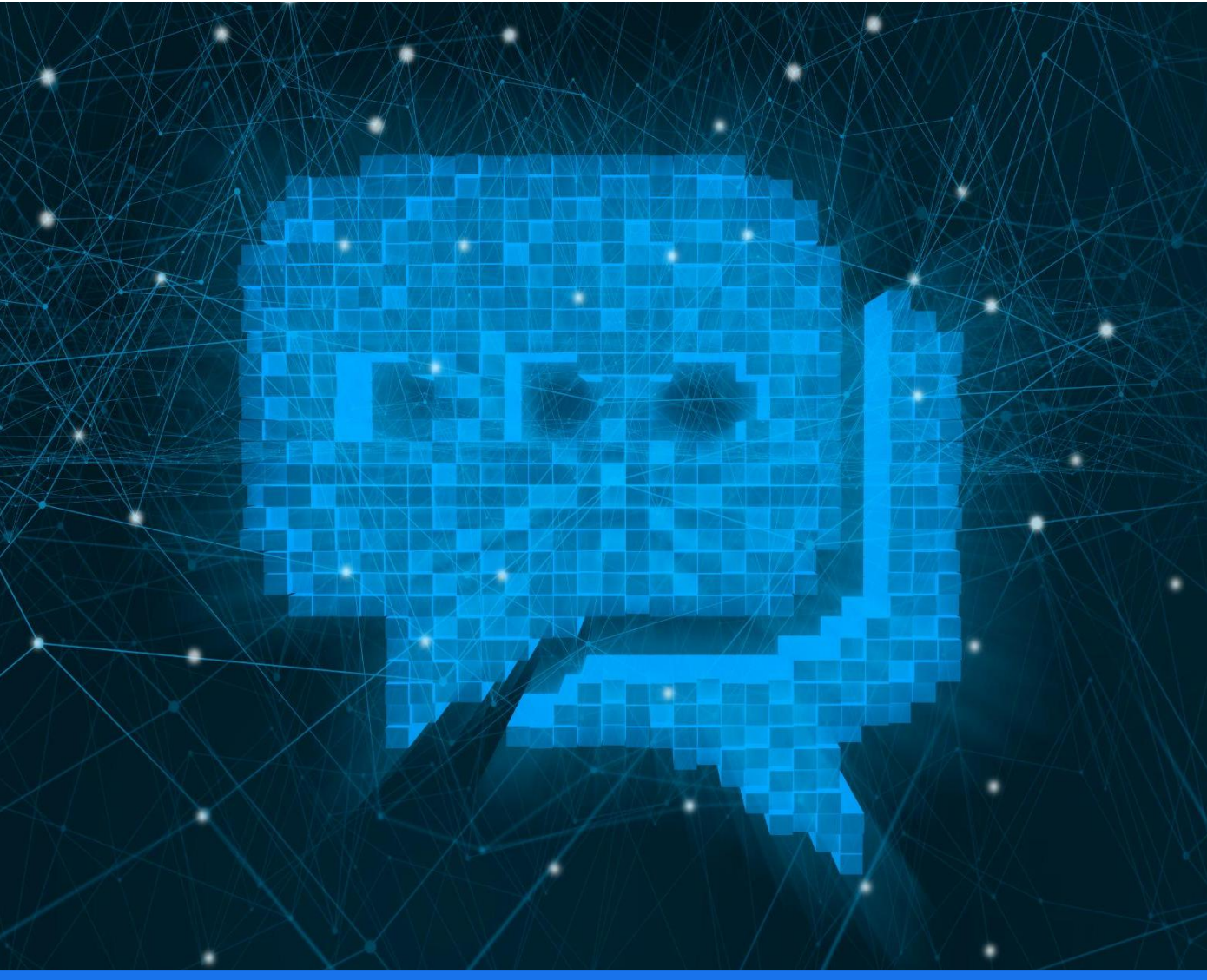
Introducing Bugbox AI Tutor Bot - BEX

LEADERSHIP, TECHNICAL
INNOVATION & TEAM
IMPACT

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SENIOR TEAM MEMBER & PROJECT LEAD





Introduction

Role & Focus Areas:

- Senior leadership & technical contributor
- Accessibility & usability improvements
- Security & safeguarding features
- Coordinating development tasks

Overview of Bugbox AI Tutor Bot - BEX

Key Technical Achievements

File Upload & Analysis System:

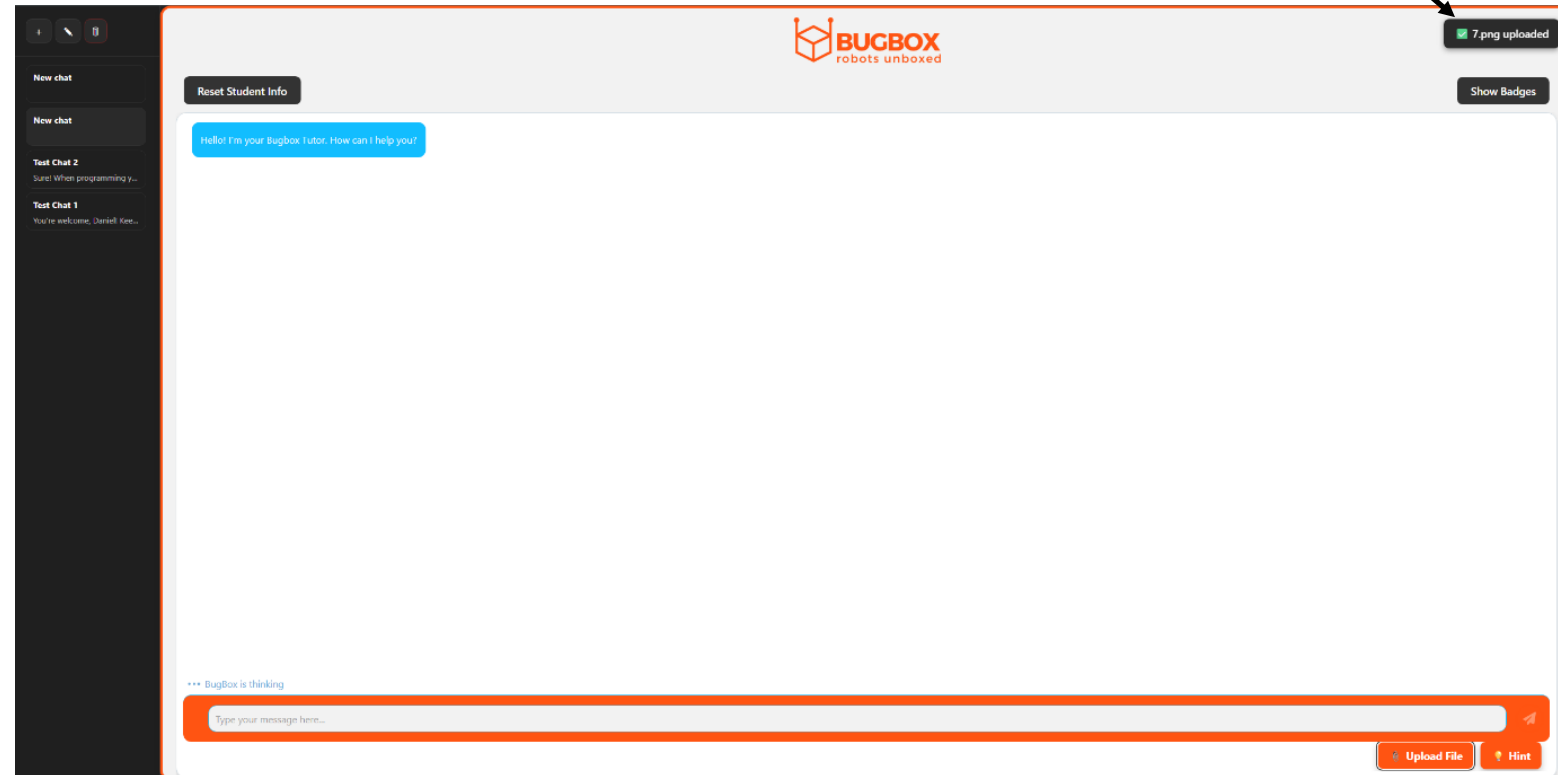
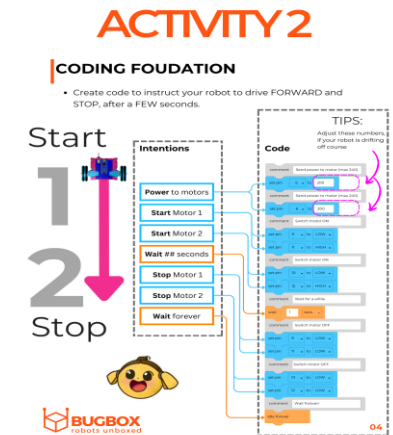
- Upload PDFs & images directly in chat
- Extract text using pdfjs-dist (PDF) & tesseract.js (images)
- Token-safe processing to protect performance

UI/UX Layout Enhancements

- Extended full-screen chat layout for better readability
- Added chat history bar so users can revisit previous lessons or uploads
- Integrated upload notification pop-up for instant confirmation

Security Considerations:

- Anticipating misuse by younger users
- Plan for detecting & blocking inappropriate uploads (e.g., images/materials)
- Possible response: reject file or display educational warning message



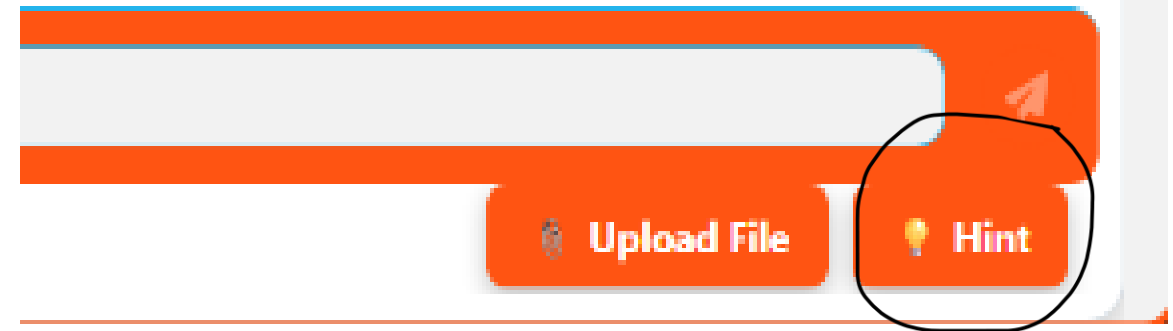
Key Technical Achievements – Continued

Hint Button for Student Support:

- Added a Hint button that students can press if they are stuck.
- Provides tailored guidance without giving away the full answer.
- Encourages independent problem-solving while keeping students supported.

Why this matters:

- Strengthens the tutor's role as a *guide* rather than simply an answer provider.
- Improves engagement by allowing students to try first before asking for hints.
- Makes the system more interactive and educationally effective, aligning with teaching best practices.



Security & User Protection

Current Measures:

- Inappropriate language filter
- Hidden extracted content (influences AI, but not shown to user)

Planned Measures:

- Inappropriate image/content detection for uploads
- Instant rejection or user guidance message
- Real-world testing at Open Day to identify vulnerabilities



Leadership & Collaboration - practical

Team Organisation

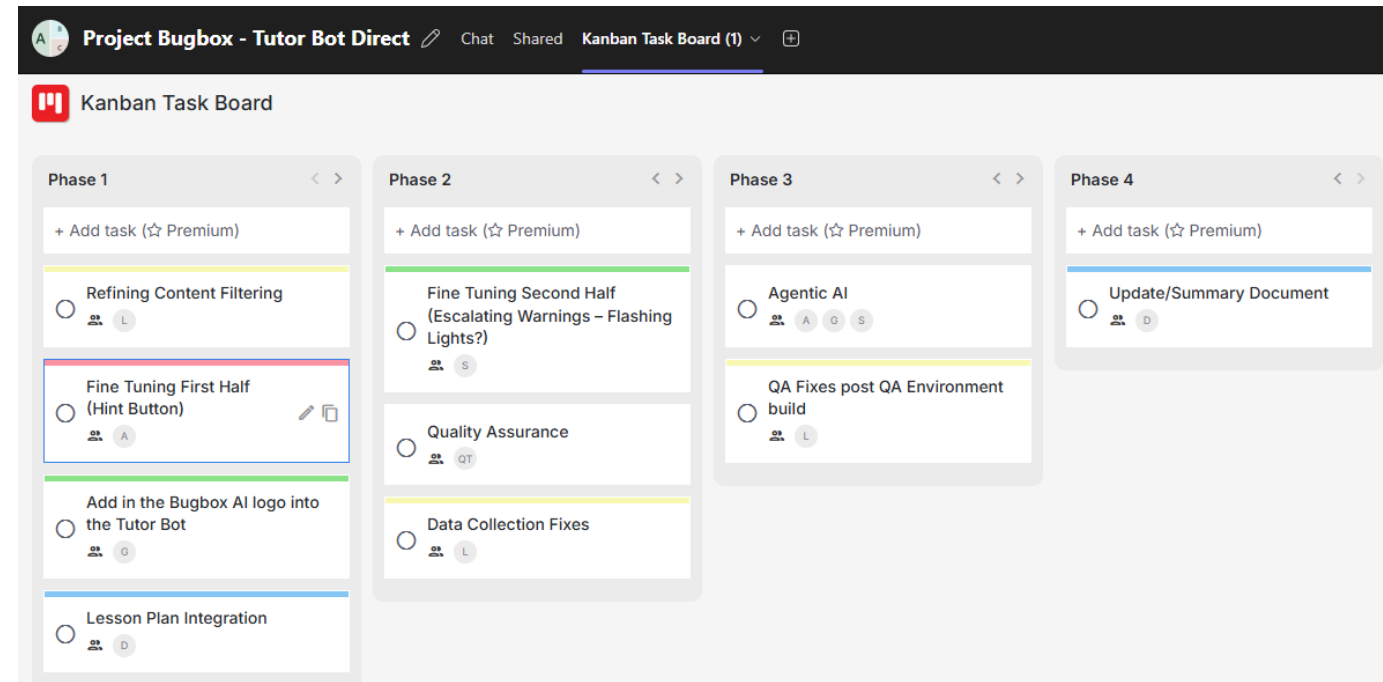
- Built a Kanban board with clear phases and sprint tracking
- Coordinated end-to-end testing: upload → parsing → AI output

UI/UX Leadership

- Led the chat history panel and layout redesign discussions
- Balanced creative ideas with deliverable scope (e.g., avatar animation vs. usability)

Mentorship

- Guided junior members through debugging file parsing and UI issues
- Encouraged ownership by letting teammates trial design ideas before finalising



Leadership & Collaboration – Strategic

Vision & Direction

- Set a clear vision for the team by connecting daily tasks to the broader project goals.
- Anticipated challenges (like scope creep or technical risks) and adjusted priorities before they became blockers.

Collaboration & Communication

- Acted as a bridge between technical and non-technical aspects of the project, ensuring everyone understood their role.

Mentoring & Growth

- Encouraged initiative by giving ownership of smaller features, building their confidence.

Professionalism & Accountability

- Demonstrated reliability by meeting deadlines and holding the team to a consistent workflow.
- Ensured transparency with testing and reporting so mentors and markers could clearly track progress.



Reflection & Learning



- Gained experience in UI layout design and integrating chat history into real projects.
- Improved technical confidence in secure feature development and user-focused design.
- Leadership growth: mentoring peers, mediating design choices, and ensuring structured team workflows.
- Learned to balance innovation with practical constraints while preparing the bot for real-world use.

Closing Summary

Delivering Lasting Technical Features

Implemented key systems including secure file uploads, lesson plan integration, and content filtering which are all designed to improve usability, security, and scalability for the Tutor Bot.

Leading and Collaborating Effectively

Organised the team with a structured Kanban board, led UI/UX improvement discussions, and coordinated testing to ensure transparency and high-quality outputs.

Planning for Future Improvements

Preparing for user testing, developing safeguards for inappropriate uploads, and continuing to refine accessibility and engagement features in the final project phase.