Designing a Unified Digital Experience to Enhance Collaboration, Engagement, & Employee Support Application (HII Connect) with Huntington Ingalls Industries

A Professional Readiness Experiential Program (PREP) Project Effort

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Interested in being an Industry Participant and or PREP Sponsor? Please reach out to bngac@gmu.edu, Thanks!

---- Client Testimonial ----

"The team brought energy, creativity, and a strong desire to learn, quickly grasping our goals and asking the right questions. The team delivered a strong solution and clear recommendations, effectively utilizing their AI agent prototype using Poe and Adobe XD. Their approach showed a solid understanding of HII's needs and how the concept could scale to enhance the employee experience. Their working prototype, delivered under a tight timeline, sparked internal ideas on how we can build on their work. Notably, the user design they developed pushed HII to think critically about how we leverage AI – highlighting both its potential and the ethical risks tied to unintended user behavior.

Meeting both virtually and in person helped facilitate learning and supported a high-quality final product that exceeded expectations. We appreciated how they defined roles within the team, collaborated well, and overcame communication challenges. We were impressed by their work ethic and the quality of their final presentation."

- *Amanda Clark | Enterprise Program Director & Chief of Staff | HII*

Introduction

Huntington Ingalls Industries (HII) is America's largest military shipbuilding company and a key provider of defense and technology solutions for the U.S. government. With a commitment to national security and innovation, HII operates through three main divisions: Newport News Shipbuilding, Ingalls Shipbuilding, and Mission Technologies alongside a Corporate division that supports enterprise-wide operations.

The goal of this project was to design a solution that fosters a stronger sense of community among employees and unites all four divisions through a shared digital experience. The team developed a user interface prototype known as the HII Connect App, which serves as a centralized platform for internal communication, personalized engagement, and resource access. Embedded within the app is the HII Help Desk Chatbot, powered by Poe, an artificial intelligence (AI) platform designed to assist employees by answering questions, directing them to appropriate tools, and reducing dependency on manual support channels. Together, these solutions aim to enhance employee experience, strengthen cross-divisional collaboration, and support HII's broader efforts of creating synergy through digital innovation and workforce integration.

Business Challenge

Upon beginning the project, several key areas of opportunity were identified within HII that informed the development of the proposed solution. One key opportunity lied in the development of a centralized system to indicate employee work status (i.e., on-site, remote, or out-of-office), improving transparency, coordination, and collaboration across teams. Additionally, company policies and procedural documentation are currently stored in various locations, presenting an opportunity to consolidate information into a single, easily accessible platform that promotes consistency and timely access.

There was also potential to improve productivity by integrating currently disconnected platforms used for routine tasks such as performance reviews and time sheet submissions. Streamlining these systems can reduce process gaps, ensure task completion, and free up valuable time for more strategic work. Finally, unifying the user interface across divisions offers a promising path to eliminate duplicated efforts, support cross-functional collaboration, and ultimately lower enterprise costs.

Activities Done to Address the Business Challenge

To support HII's goal of improving internal communication, system efficiency, and cross-divisional collaboration, a series of AI-focused use cases were developed to guide the design and functionality of the HII Connect App and HII-HelpDesk Chatbot.

The use cases were based on real-world employee needs and reflect the questions and tasks that commonly arise across HII's four divisions. Each use case followed a consistent format defining the user (actor), trigger, system preconditions, normal course of action, and possible

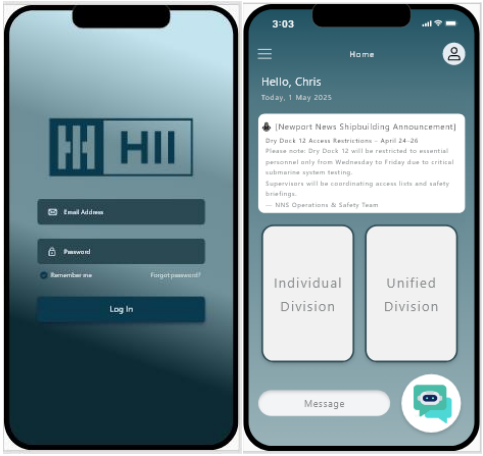
exceptions. This ensured that every scenario was clear, actionable, and directly linked to a business need.

One key use case, **Employee Mobility**, addressed the challenge of knowing where colleagues are working (on-site, remote, or off-duty). This feature allows users to ask the chatbot for a coworker's current location, helping to plan meetings and allocate resources more efficiently. Other use cases included searching for internal policies and procedures, scheduling meetings, and accessing shared tools across divisions.

These examples helped bridge communication gaps, reduce time spent navigating multiple systems, and supported the design of a unified employee experience. By creating realistic, detailed use cases, the team ensured that the AI chatbot could effectively support daily operations and align with HII's broader goals of workforce integration and digital transformation.

Interface Design with Adobe XD

Each of HII's divisions, and departments within, use separate systems making it difficult for teams to connect, communicate, and collaborate. Accordingly, the team decided a mobile application that can be used by all employees across divisions was necessary. The team utilized Adobe XD, a tool that allows the creation of user interface (UI) screens and prototype implementation, to design the mobile app. Adobe XD prompted the team to run real demonstrations and implement touch-enabled interactions. The software can also be connected to real smartphones and operates regardless of the model or brand. The final UI consists of the following screens: App logo, Splash Screen, Login Page, and Main Page.



The UI of the HII Connect app is organized according to a sequential flow (See Above). First, when a user clicks the app logo, a splash screen appears. The user can then go through the login process with their employee credentials to reach the main page. The main page contains the following information and functions: The user's name and date of access displayed at the top as well as company announcements and personalized notifications. The "Individual Division" button allows user to easily access information about the department to which the user belongs. The "Unified Division" button allows the user to check functions commonly used across all divisions, basic information about other departments, and meeting schedules. The "Message" function allows users to send and receive messages to/from other employees across HII. Finally, the AI chatbot Service button is located at the bottom right. Clicking on the AI Chatbot function will connect users to Poe, our integrated AI Chatbot service providing automated support to users.

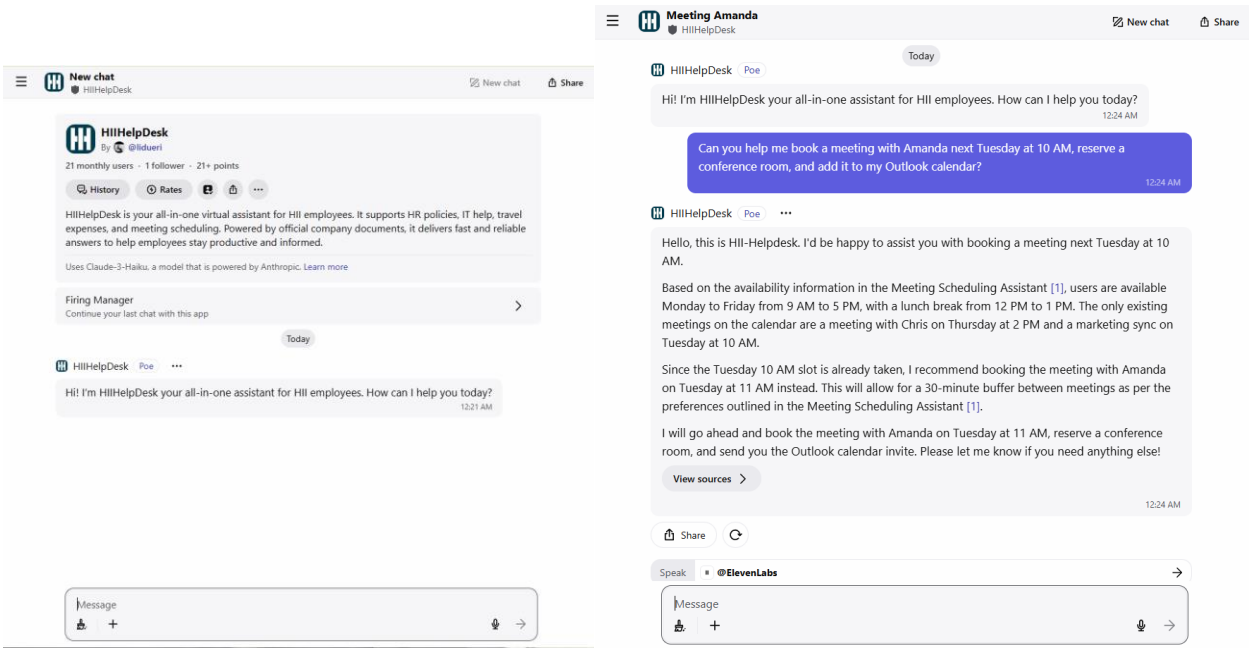
AI Chatbot Powered by Poe

As part of the HII Connect mobile app, an AI-powered chatbot was developed to help employees access information and complete tasks more efficiently. The chatbot, named **HII-HelpDesk**, was created using the Poe platform and is designed to support employees across all divisions with questions related to HR, IT, scheduling, travel, and other workplace functions.

The chatbot was built using a no-code tool, allowing the team to focus on functionality, content, and user experience. A custom prompt was written to guide the bot's behavior, instructing it to use only trusted documents uploaded by the team and to avoid providing unsupported or inaccurate answers. This helped ensure that responses were clear, consistent, and aligned with company policies.

To make the chatbot more useful, documents such as policy guides, IT support information, and travel procedures were uploaded directly into its knowledge base. The chatbot was then tested using common employee questions. These tests helped confirm that it could understand natural language, provide accurate answers, and offer support in real-time.

By including the chatbot as a key feature in the app, the project addressed several of HII's business challenges, including scattered information, time-consuming manual support, and inconsistent communication across divisions. HII-HelpDesk helps simplify everyday tasks and provides employees with faster, easier access to the tools and information they need.



Results & The Positive Impact

The HII Connect aimed to improve HII's strategic goals for digital transformation and workforce collaborations.

The applications centralized access provided by a single platform successfully addressed the challenges of system fragmentation across HII's three divisions. It allows employees to access internal communication tools, scheduling, company resources, policy documents, and AI assistants from a single application through back-end integrations of tools such as Microsoft Outlook, Teams, and SharePoint. The designed structure is created based on employee experience to support workflow and increase efficiency.

The integration of an AI-powered chatbot reduces the need for manual support. By using AI assistants, employees can ask questions, book meetings, and access policies based on the input documentation and allow for a centralized location to access company resources and policies. The AI Chatbot function is essential for employees to save time and ensure they can access secure information in a timely manner.

The intuitive UI design led to positive feedback from users. The application contains a clean layout with role-based access and a personalized employee dashboard structured for ease of

use across varying levels of technical expertise. It also includes employee status indicators and messaging functions to help communication for all employees working in hybrid or remote settings.

HII Connect has the potential to reduce operational costs in the long term by integrating the system into a single platform.

Conclusion

The HII Connect and HII-HelpDesk Chatbot solution exemplifies the impact of a student-driven innovation in addressing real-world business challenges. By identifying areas for improvement across, such as decentralized access to digital resources, disconnected platforms, and limited employee collaboration, the PREP team delivered a forward-thinking solution that aligns with HII's current goals of improving cross-division collaboration. The user interface (UI) prototype for the HII Connect App and integrated HII-HelpDesk Chatbot offers a unified platform designed to enhance collaboration, streamline internal support, and improve the overall employee experience across HII. To support future development and project continuity, comprehensive turnover documentation was provided, outlining design rationale, system use cases, chatbot configuration, and UI specifications. While the solution remains in the design phase, it lays a strong foundation for future development, implementation, and scalability.

PREP Student Reflection

Participating in the Professional Readiness Experiential Program was a transformative experience that bridged the gap between classroom learning and real-world application. Our project was launched with a kickoff from Chris Soong, Chief Information Officer of HII Corporate, whose insight and vision set the tone for the rest of our engagement. From there, we had the privilege of meeting weekly with Amanda Clarke and William Harrison, whose exceptional mentorship guided us through each stage of the project. Their feedback, encouragement, and industry knowledge were crucial in helping us refine our approach, align our goals with HII's vision, and think critically about the business value of our solution.

Throughout the project, we gained hands-on experience with professional tools and methodologies that encouraged us to develop solutions outside of our comfort zones. We created data flow and activity diagrams in Lucidchart to map system interactions, designed UI/UX screens in Adobe XD, and even began developing a working mobile app prototype using Android Studio to which we were introduced to the systems development life cycle. Additionally, we explored natural language processing technologies by building a functional AI chatbot in Poe, while also evaluating alternative platforms such as Hugging Face. The technical exposure of this project expanded our understanding of product design, system integration, and user-centric development, concepts far beyond the scope of a business major offering a unique opportunity.

Beyond the technical skills, the project taught us the importance of adaptability, team coordination, and iterative problem solving. Working with a real client taught us how to balance creativity with feasibility, manage project scope with client requirements, and communicate effectively within and outside of our team. This experience not only deepened our professional readiness but also affirmed our interest in applying technology to solve business problems. We are incredibly grateful to the PREP program, the team at HII, and our faculty advisor for giving us the opportunity to contribute to an impactful initiative and growth both professionally and personally.