InspectGPT - AI Chatbot

UCSD Capital Management Program Team

Timeline

Project Planning and Scoping

Attended kickoff
- Aligned with CPM stakeholders
- Defined objectives, constraints

Discovered pain points
- Interviewed inspectors
- Identified workflow bottlenecks
- Identified knowledge gaps

Finalized scope of work
- Narrowed down the problems
- Decided to make a chatbot

Design and Architecture

Drafted information architecture
- Defined how to export data
- Added object-oriented tags
- Added searchable metadata

Prototyped lo-fi user interface (UI)
- Developed Figma prototypes

Planned integration with chatbot

Technical Development

Mocked up data pipeline
- Showed how we process IRs

Prototyped mid- and hi-fi UI
- Developed our UI more

Testing and Validation

Interviewed inspectors in Figma
- Gathered feedback on usability

Revised based on feedback
- Incorporated user testing data and stakeholder feedback

Launch Preparation

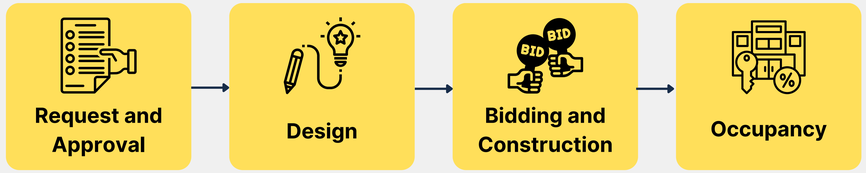
Created documentation
- Detailed process and solution

Prepared a live demo
- Created example use cases

UC San Diego
THE BASEMENT

Blackstone LaunchPad

What is Capital Program Management (CPM)?



CPM oversees **planning, design, and execution** of campus construction and renovation projects, **ensures compliance** with environmental safety and regulatory standards, and **manages budgets, timelines and coordination** with architects and contractors.

What was the challenge?

Together with UC San Diego's Capital Program Management (CPM) team, we tackled a growing issue:

How can we support a limited number of inspectors in overseeing a rapidly expanding and increasingly complex set of construction projects without sacrificing quality or compliance?

Our mission was to amplify inspection capacity, reduce manual burden, and enhance construction oversight, all while staying scalable and regulation-compliant.

Narrow it down, please.

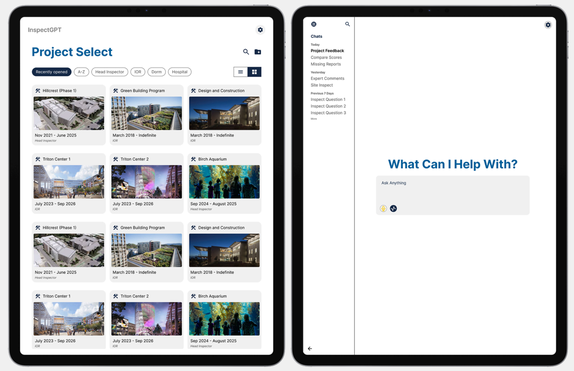
After interviews, observations, and systems analysis, we quickly identified a pressing and addressable pain point: **knowledge management and data accessibility.**

We asked:
→ How can newer inspectors learn from past cases?
→ How do we avoid repeating mistakes?
→ Can we make scattered lessons searchable without changing the tools already in use?

Our answer: a conversational AI chatbot that retrieves insights from inspection reports using natural language.

Show me the build?

We developed a **working chatbot prototype** that allows inspectors to ask natural language questions and receive contextually relevant insights drawn from past inspection records. Behind the scenes, we built a structured data pipeline to **convert inspection reports into searchable content**, and we designed an interface tailored to real construction workflows.



Summarize the learning outcomes, please.

We learned a lot, and fast. With only one team member familiar with construction management, we had just over 15 weeks to immerse ourselves and build a solution. Building InspectGPT exposed us to the fundamentals of AI/ML implementation, query optimization, and human-centered data modeling. We conducted independent research on tooling, evaluated trade-offs across accuracy, privacy, and usability, and developed a functional demo from scratch using just standard laptops and Python. Equally important was our learning from field interviews. By speaking with inspectors and iteratively refining our prompts, we learned to "think like an inspector" surfacing the kinds of queries that would truly matter on the ground.
This project taught us that impactful solutions emerge when technical experimentation meets deep respect for user experience and domain expertise.

Our contact info + prototype

Learn more about this i4X project