//user research
//user concerns
//conversation design principles

'24

Graduation Project



JK LAKSHMIPAT UNIVERSITY
Institute of Design
NAAC 'A' Grade Accredited

AI interactions beyond chats

Designing framework of the chatbots in AI Fintech space

VOL. 1

Student : **Sanyukta Bhave**

Sponsor : **Hyprbots Systems**

Mentor : **Yash Raizada**

Consultant : **Deepak Pakhare**

Programme :
Bachelor of Design (B.Des)
Interaction Design

THE GRADUATION PROJECT 2023

The Evaluation Jury has recommended **Sanyukta Bhave**

for graduation from **Institute of Design, JK LAKSHMIPAT UNIVERSITY**

with specialization in **Interaction design**

Herewith, for the project titled **"AI interactions beyond chats : Designing to integrate LLMs into interfaces without chat or prompt boxes**" on fulfilment of requirements by

Jury Chairman _____ _____

Jury Member _____ _____

Jury Member _____ _____

Subsequent remarks regarding fulfillment of requirements

_____

_____

_____

_____

_____

Dean, Institute of Design
JK Lakshmipat University

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Thank you for understanding and supporting the confidentiality measures for the graduation project.

Acknowledgment

This document marks the culmination of my experiences and learnings over the past four years at JK Lakshmipat University (JKLU), particularly from my graduation project.

I am profoundly thankful to Prof. A. Balasubramaniam, the founding Director of the Institute of Design at JKLU, as well as to all the faculty members Dr. Devanuj Balkrishnan and visiting lecturers Karthekeyan and Chandni Naidu who have guided me throughout my 4 year academic journey.

I would like to thank my university mentor, and faculty of Interaction Design Yash Raizada, for his unwavering support throughout this project.

I would also like to extend my sincere appreciation to my industry mentor, Deepak Pakhare, for his domain expertise, and practical inputs that have enriched the project. His professional guidance and mentorship have been instrumental in aligning my project with real-world requirements.

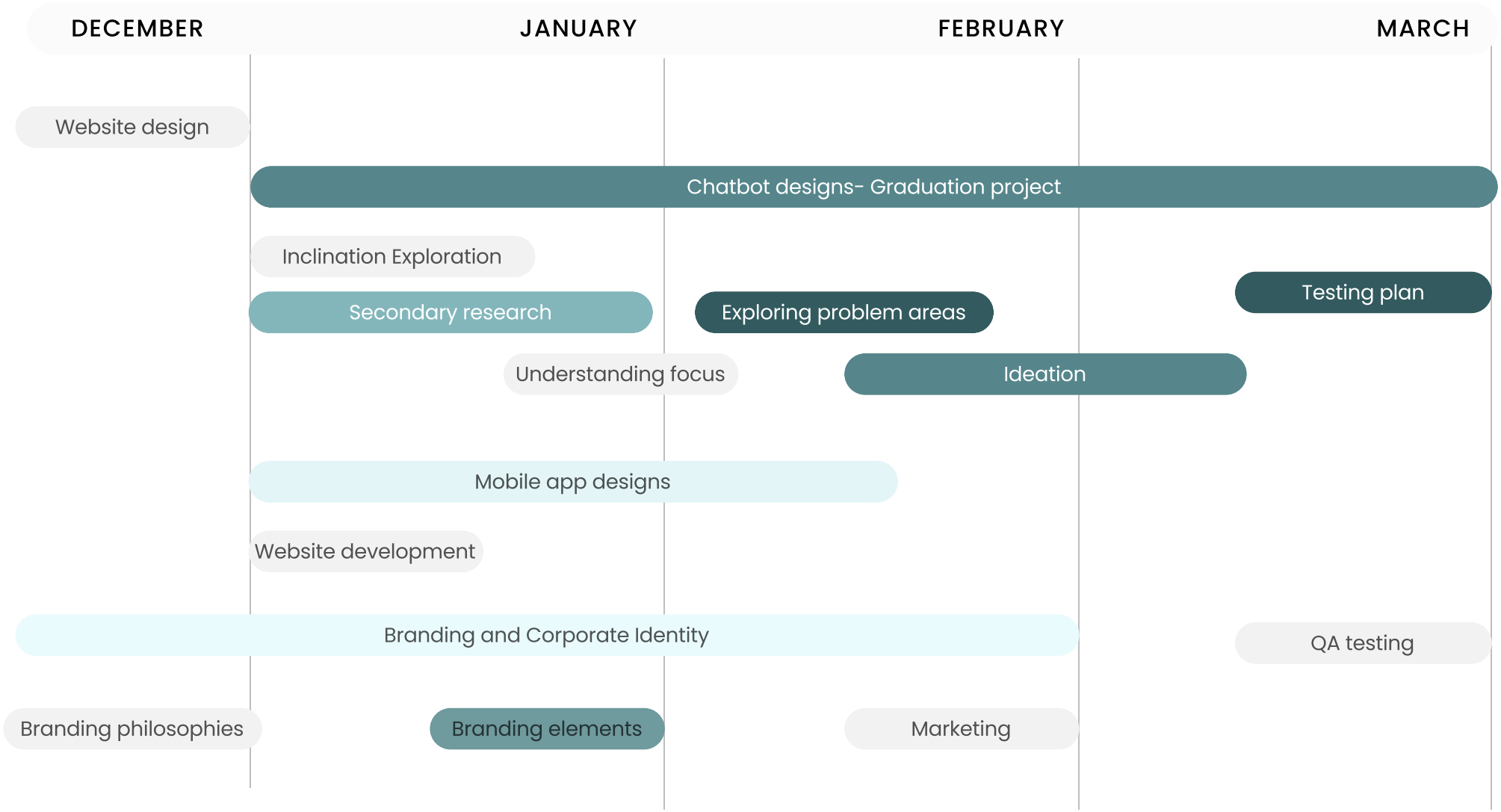
I am also thankful to Senior Product Designer Dhruv Benipuri, as well as my design peers Ayush Dubey and Ishita Chitturi, for their continuous support and motivation. Their assistance helped me understand the project briefs more easily and stay grounded in my design decisions.

The contributions, suggestions, and collaborative efforts from the tech team and design team members I interacted with during this project were invaluable in overcoming challenges and achieving my project goals.

Furthermore, I would also like to extend my gratitude to our Adminstrative Officer Punyavardhan Singh Rathore for providing me with the necessary resources, facilities, and academic support.

Last, but not least, I am deeply thankful to my family, friends, and loved ones for their support, encouragement, and motivation throughout this journey.I have made every effort to acknowledge all individuals who have contributed to my graduation project, and I am grateful for their support, guidance and contributions.

Project Roadmap



VOLUME 1 | PROJECT 1

AI Interactions Beyond Chats

Designing to integrate LLMs into interfaces without chat or prompt boxes

VOLUME 1 | PROJECT 2

Establishing a Startup's Branding

Designing their website and setting up the colours which would be reflected in marketing as well as in product.

Note

The graduation project consisted of one major projects and two minor project with different nature of work, showcasing the versatility as a designer and ability to work on diverse projects with varying objectives.

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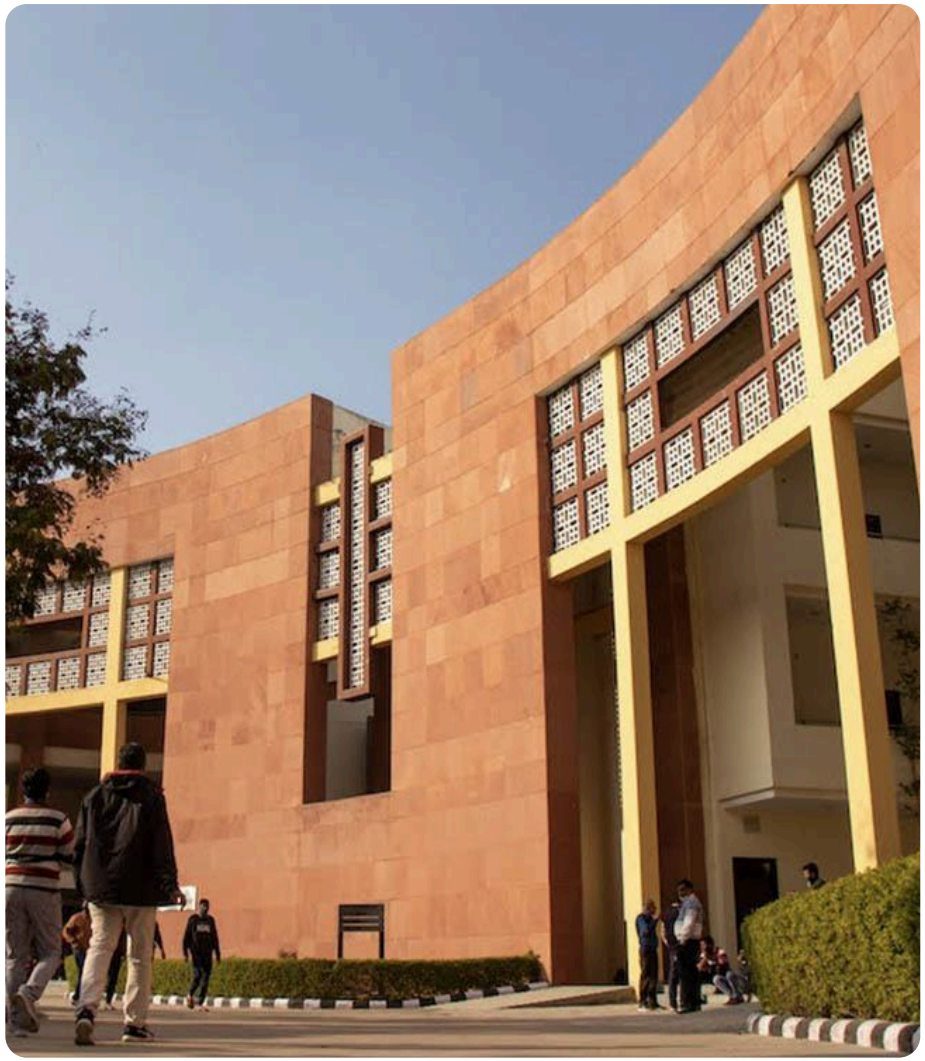
Introduction



Institute of Design, JK Lakshmipat University

Established in 2011, JKLU is inspired by the futuristic vision of Lala Lakshmipat Singhania, the key founder of Lakshmipat Singhania Education Foundation. Under the aegis of J.K.Organisation, the Foundation has been extending its legacy and vision of 'Education to all' for decades.

Institute of Design at JKLU aims to shift from conventional design education towards a more future-ready and transformative way of learning to enable students to become successful designers.



Interaction Design, JKLU



The program enables students to create analog and digital experiences that reimagine the way people connect with products and services. It is about cognitive sciences as well as computer sciences.

Courses such as cognitive ergonomics, user research, ethnographic research, habitat studies, prototyping and testing, information architecture, accessibility, and inclusive design help students understand the way people think, feel, and behave as the foundation for any product, environment, or system.

Courses on typography, UI design, micro-interaction, color and form, visual documentation, composition, semiotics, and data visualization aid in developing visually delightful interactions.

Students have the opportunity to work on real-life projects, including designing apps, web design, IoT-based projects, human-machine interfaces, and system design projects.

About Me



Internship
(6-month)

Graduation project
Hyprbots, Bangalore

Summer internship
HDFC bank

College JK
Lakshmipat University,
Jaipur

High school in
Thane, Maharashtra

Born in Vadodara,
Gujarat

I never imagined I would end up pursuing a design degree. During my school years, I was particularly fond of math and chemistry and always envisioned myself becoming a scientist. However, as I reached high school, I shifted my focus to economics.

In my final year of school, I began thinking about backup plans. What if my primary plan didn't work out? That's when I considered design, inspired by a senior who was pursuing a career in that field. Her approach to preparing, solving problems, and thinking creatively intrigued me. Eventually, I decided to make design my Plan A.

I've always been driven by a curiosity to understand the root of any problem—why someone chooses to do something in a particular way. I also enjoy thinking of unconventional methods to approach ordinary tasks.

Throughout my four-year academic journey, I have been immensely grateful for the opportunity to learn from both my faculty and visiting professors. Their guidance has been invaluable. My peers have also played a crucial role, making each year more enjoyable and challenging.

As I reflect on this journey, I am filled with gratitude for the experiences and connections that have shaped me. I look forward to applying the knowledge and skills I've gained to future endeavors in the field of design.

Sponsor

Hyprbots Systems



At Hyprbots, their mission is to liberate humans from repetitive finance tasks such as invoice processing, matching, accruals, and GL updates through advanced AI. These tasks require secure and state-of-the-art AI innovations in NLP, Vision, Language Models, Recommenders, Intelligent Document Processing, and more.

Hyprbots' research in these domains aims to deliver significant ROI for AI adoption in finance. Developed with insights from numerous CFOs, their AI Assistants are designed to transform finance operations with end-to-end automation, reducing per-invoice processing costs by 80% and slashing processing time from days to minutes.

These AI-native assistants are flexible, easy to configure, and integrate seamlessly with widely used ERP and CRM systems, eliminating the need for custom IT projects. Hyprbots' solutions are ready to deploy and tailored to meet specific financial needs efficiently.

Leadership

Committed to building the best AI for finance



Rajeev Pathak
Co-Founder & CEO



Niyati Chhaya
Co-Founder & VP, AI



Ram Jayaraman
Co-Founder & Head of Engineering



Deepak Pakhare
VP, Product Experience

Products

AP-AI Assistant

Accounts payable

Software solution designed to automate and optimise the accounts payable process within an organisation.

The AP AI Assistant streamlines various tasks, including Invoice Processing, Matching, Accruals and Capitalisation, GL Mapping and Updates, Early Payment Discounts, Procurement Process, Expense Management, and Receivables and Collections

EP-AI Assistant

Expense processing

Software tool designed to automate and streamline the management of employee expenses within an organisation.

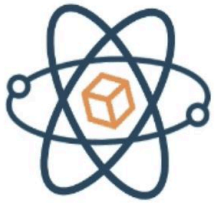
Key features and functions include Expense Report Submission, Receipt Recognition, Approval Workflow, and Reimbursement Processing

AR-AI Assistant

Account receivables

Software solution that uses artificial intelligence and machine learning to optimize and automate the accounts receivable process within an organization. This technology helps improve cash flow, reduce outstanding receivables, and enhance overall financial efficiency

Goal of Hyprbots



AI-native

AI at the heart of crafted solutions



Purely finance-focused

End-to-end and exhaustive



Built-in flexibility

No upfront set-up effort, simple to configure

The best AI for finance

Our mission is to free up humans from mundane and repetitive finance tasks with top-notch AI.

Key finance stakeholders

Hyperbots AI Assistants work hand-in-hand with various key stakeholders. They help CFOs achieve strategic objectives like cash flow optimization, improved EBITDA, compliance and auditability.

CFO

Streamline finance operations, end-to-end

Powerful AI recommendations, actionable insights, comprehensive reporting & deep configurability keep you on top of your game.

- Manage cashflow better
- Ensure desired control, audit and compliance
- Monitor financial health & bottomline

Accountant

Manual invoice & expense processing, a thing of the past

Focus on higher-value tasks. Let the omnipresent AI Assistants do all the grunt work.

- Automated invoice and expense processing
- AI-recommended accruals, payments, credits, capitalization & AR reconciliation
- Easy, automated collaboration with vendors, employees, and customers

Procurement officer

Support for simplified procurement

Facilitate automated PO changes and approvals during procure to pay process.

- AI-enabled vendor dashboard
- Automated Purchase Order (PO) change management
- Vendor rationalization for cost optimization

Business team member

Department level control

Get powerful functionality for approvals and analytics for your span of control.

- Department-specific KPI & analytics dashboard
- Easy collaboration with finance, procurement, vendor, and customers
- Improved Days Payable Outstanding (DPO) and Days Sales Outstanding (DSO)

Vendor

Improved visibility of payments

Get regular updates on invoices and payments.

- Unified system to send, track, and view all invoices
- Collaboration features like chat and email with company stakeholders
- Faster resolution of discrepancies and issues

Customer

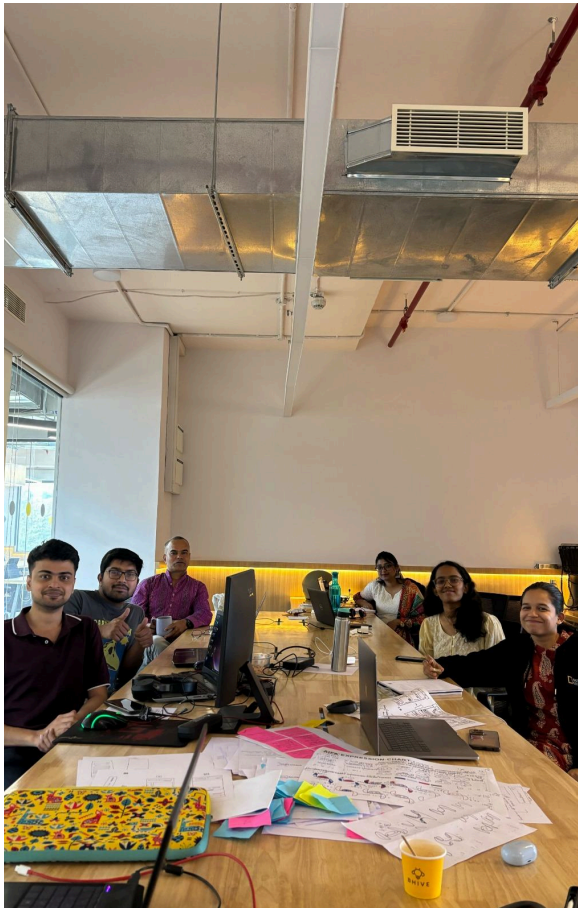
Improved visibility of payments

Share regular updates on invoices and payments.

- Unified system to receive, track and view all invoices
- Collaboration features like chat and email with company stakeholders
- Faster resolution of discrepancies and issues

Design team







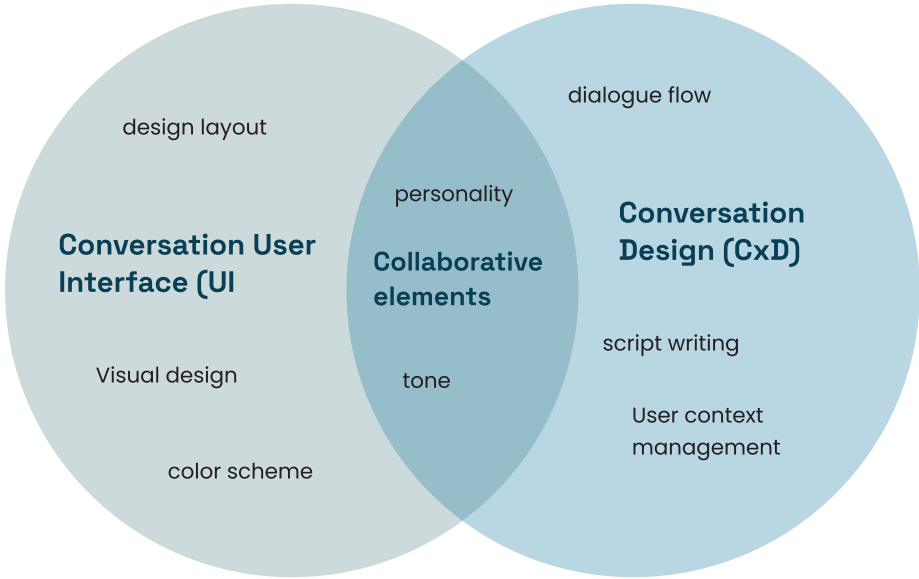
Project 1

AI Interactions beyond Chat

What is conversation design?

Conversation design is the process of creating natural, intuitive dialogues between humans and machines, such as chatbots, virtual assistants, and voice interfaces.

To put it very simply, there are two parts of designing conversations: Conversation User Interface (UI and the User Experiences around using it) and Conversation Design (CxD). These two disciplines often overlap and they must work together to produce a user experience that is positive and effective



Key components of Cxd

User Centered Approach | Dialogue Flow | Language And Tone | Context Awareness | Testing And Iteration

According to **Marlinda Galapon**, Conversation Design Senior at Salesforce,

"Conversation design is more than simply writing dialogs for chatbots and voice assistants. It's the practice of designing interaction flows and strategizing forms of language to build a natural conversation between a user and a system. Conversation designers take into consideration the voice and tone, every exclamation point and comma, discourse markers and more"

Examples:

Customer service chatbots on websites — Depending on the brand's voice and tone, the bot could say something more formal like, "I see you're having an issue. Tell me a little more so that I can help." Or something less formal like, "Yikes! I can help you with that."

IVR (interactive voice response) systems that route your conversation to the right customer experience. When you hear "If you want to speak to a presentative, press 1." For these experiences, it's best to keep the menu items short, as it's hard for the user to remember all the options. etc

How helpful Cxd is in AI and fintech?

Conversation design plays a crucial role in the intersection of AI and fintech by enabling natural, intuitive, and efficient interactions between users and financial technology systems. Here's a discussion on how conversation design proves to be helpful in the context of AI and fintech:

Intuitive User Interactions: enabling users to engage with AI-powered chatbots or virtual assistants for tasks such as invoice processing, status inquiries, and payment approvals. This ensures that users can efficiently interact with the AP system, leading to improved productivity and satisfaction.

Automation and Workflow Streamlining: conversation design facilitates the automation of AP workflows by enabling chatbots to understand and execute complex tasks, such as invoice capture, coding, and approvals, through natural language interactions.

Expert Support and Guidance: Chatbots can provide real-time assistance, training, and clarification on AP procedures, addressing user queries and facilitating a smoother transition to AP automation.

Seamless Integration with ERP Systems: AI-powered chatbots can communicate effectively with ERP platforms, retrieving and updating relevant financial data, thereby maintaining accuracy and consistency across the organization's financial systems.

Personalized Responses and Assistance: Effective conversation design enables chatbots to provide personalized responses and assistance tailored to individual user needs, such as specific vendor inquiries, approval hierarchies, or payment status updates

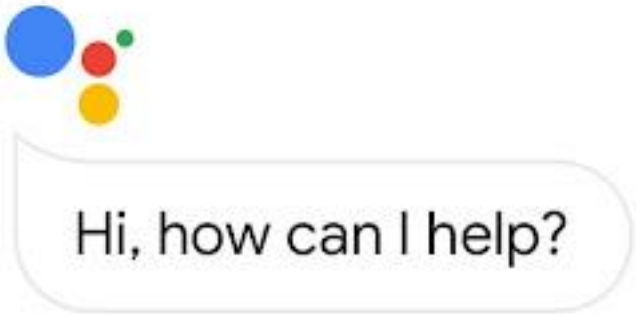
What is virtual assistant?

Virtual assistants are AI-powered applications that understand natural language and perform tasks for users. They automate tasks, retrieve information, and offer personalized assistance. They integrate with various applications, support voice recognition, and continuously learn from interactions. In business, they can handle tasks such as scheduling meetings and providing customer support. Popular examples include Amazon's Alexa, Apple's Siri, Google Assistant, and Microsoft's Cortana.









Sources: *amazon.in (1st image), apple.com (2nd image), HT tech (3rd image), google.com (4th image),*

What is an AI assistant?

An AI assistant is a software agent that uses artificial intelligence to perform tasks or provide services for individuals. These tasks can range from simple ones like setting reminders and playing music to more complex functions like managing schedules, answering questions, and controlling smart home devices. Here are key features and functionalities

Natural Language Processing (NLP): Understanding and processing human language to interact naturally with users.

Voice Recognition: Identifying and responding to voice commands.

Task Automation: Performing tasks such as sending emails, making phone calls, and managing calendars.

Personalization: Learning from user preferences and behaviors to provide customized responses and recommendations.

Integration: Connecting with other apps and services to enhance functionality, such as smart home devices, calendars, and messaging apps.

Machine Learning: Continuously improving performance and accuracy based on user interactions and feedback.

How fintech companies using bots to enhance

Automating Routine Tasks: Stampli's "Billy the Bot" and Nanonets utilize AI-powered chatbots to automate tasks such as invoice processing, approvals, fraud detection, and data extraction. This automation streamlines processes, reduces manual effort, and improves operational efficiency.

Providing assistance: Chatbots like "Billy the Bot" and Nanonets' AI engines offer expert assistance by learning and adapting to specific business processes, providing support for invoice management, data extraction, and decision-making.

Improving customer experience: By automating processes, providing accurate data extraction, and offering insights, chatbots contribute to improved customer experience and operational effectiveness within the organizations.

Personalised: Yellow.ai's chatbots offer dynamic responses, continuous learning, 24/7 availability, scalability, cost-effectiveness, and robust integration capabilities

Type of bots

What is a chatbot?

Simply put, a chatbot is a sophisticated piece of software designed to engage users in conversation. While it might feel like you're having a chat with another human. offering predefined answers to common questions.

Rule-based chatbots: Rule-based chatbots operate on predefined rules and patterns to respond to user queries and execute tasks

Keyword recognition-based chatbots: Keyword recognition - based chatbots operate by identifying specific keywords or phrases within user inputs to understand intent and generate responses.

Menu-based chatbots: A menu-based chatbot is a type of conversational interface that presents users with a structured menu of options, allowing them to navigate through predefined choices to access information or perform tasks.

Contextual chatbots (Intelligent chatbots): are advanced AI-powered conversational interfaces designed to understand and respond to user inputs in a contextually relevant manner.

Hybrid chatbots: Hybrid chatbots are a combination of different chatbot technologies, often integrating rule-based, keyword recognition-based, and contextual AI capabilities to create a more versatile and effective conversational interface.

Voice-enabled chatbots: Voice-enabled chatbots, also known as voice assistants or conversational agents, are AI-powered interfaces that allow users to interact with technology using spoken language. These chatbots use speech recognition and natural language processing (NLP) to understand user voice commands and respond with relevant information or actions

Rule based chatbots Vs AI chatbot

Aspect	Rule-based chatbot	AI chatbots
Learning ability	Cannot learn from user interactions	Dynamic, continuously learns and improve from user interactions
Response flexibility	**can only respond to predefined queries**	**Versatile, can understand and respond to a wide range of user inputs**
Conversational flow	Rigid, follows a linear flow	Natural: Mimics human conversation
Complexity of queries	**Basic, can handle straightforward queries**	**Advanced: Can handle complex queries**
Integration	Basic, limited to certain pre defined integrations	Extensive: can be integrated with plethora of tools
Scalability	**Requires manual intervention to update**	**Automated, can easily be evolve as business grow**
User experience	Predictable, offers the same repetitive interactions	Personalised, offers tailored interactions based on user preferences

Defining problem space



Financial professionals



Procurement and operation team



Accountants



Vendors

Use AI assistants for

- **Accounts payable**
- **Expense processing**
- **Account receivables**

The current chatbot designs

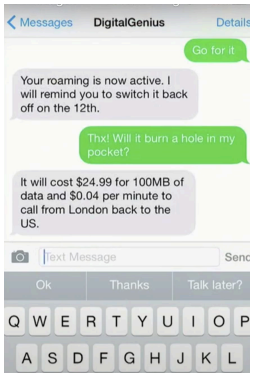
- Didn't provided answers in a concise manner
- Requiring users to input a lot of information to understand their questions
- The chatbot was not very accessible on the platform
- Due to lack of clarity in answers, the conversations didn't seem humane

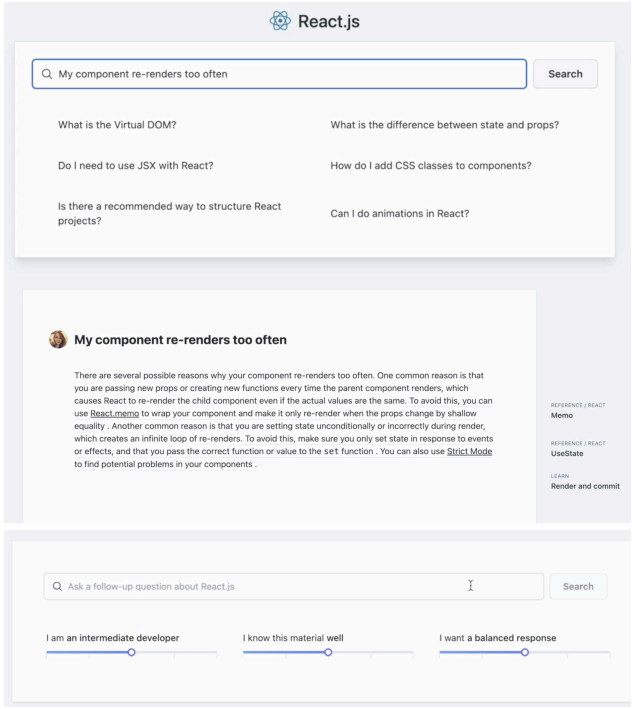
The challenge

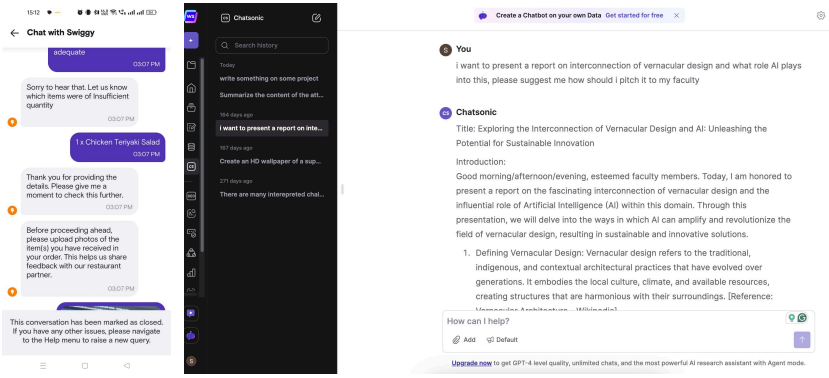
How might we develop a chatbot that converses naturally like a human, intervening to aid users when they encounter difficulties, thus expediting task completion?

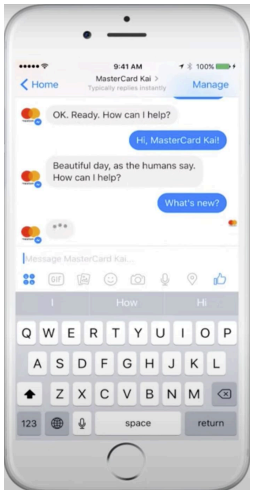
Studying how other chatbots work

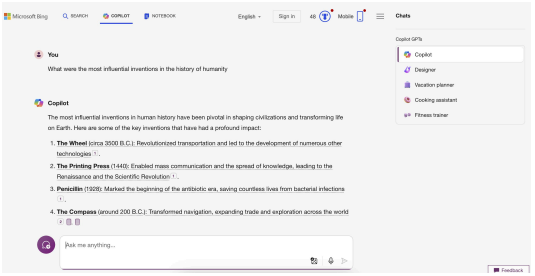
Studied the iterfaces of kasisto in collaboration with mastercard, Digital genius, Github copilot, writesonic, slice, google help and Gemini

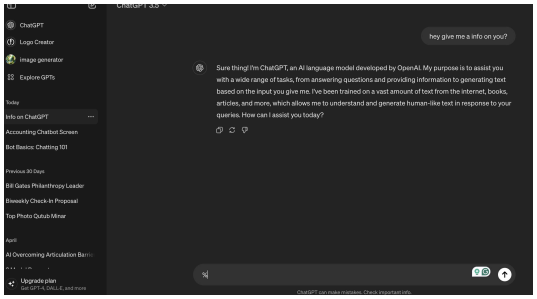


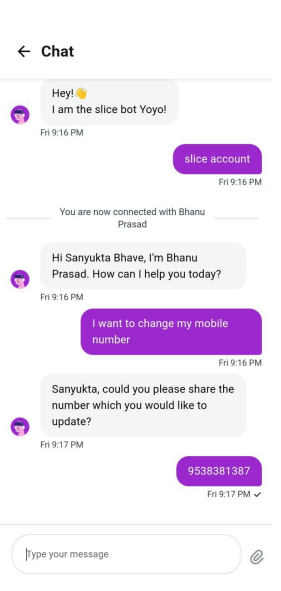


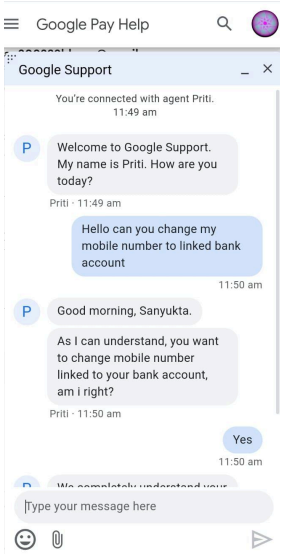












Studying how other chatbots work

Competitor List	How does the conversation is designed?
Kasisto conversational AI platform, KAI	• Friendly • Answers to the point • Hyper-personalised responses
Digital genius	• Great understanding of user's questions • Intent recognition is strong-thought of every probable answers to the user questions
Writesonic	• Gives the user permission to set a persona for the chatbot • provides chatbot scripts • Dynamic Content: Personalize responses based on user data and previous interactions.
Microsoft copilot	• Has assigned some different personas options to choose a conversation style
Github copilot	• Provides autocomplete suggestions for code completion as developers • Contextual Suggestions: Suggestions are tailored to the current code context • Github copilot interfaces doesn't provide chat boxes or limit the conversation to a chat box like interfaces
ChatGPT	• Customisation of chats provided with proper questions. Used mostly for content creation and coding...

Gaps noticed

Current AI Interfaces and Articulation Barrier:

- Current generative AI systems like ChatGPT rely on user prompts in prose format for interaction.
- While this approach is efficient, it requires users to be highly articulate in their writing, which can be a usability barrier.
- Studies suggest that a significant portion of the population, particularly in rich countries, struggles with low literacy, which likely extends to low articulation skills.

Empirical Evidence and Prompt Engineering:

- The prevalence of "prompt engineers" who specialize in crafting prompts for AI systems suggests that many users struggle to articulate their needs effectively.
- Traditional enterprise software development experiences similar challenges with accurately capturing user needs in specifications.

Lack of Discussion on Usability Issues:

- Despite the ongoing AI gold rush, there's a lack of discussion around the serious usability problems related to articulation barriers.
- This may be because analyses are often authored by academics or journalists, professions that typically require high literacy skills.

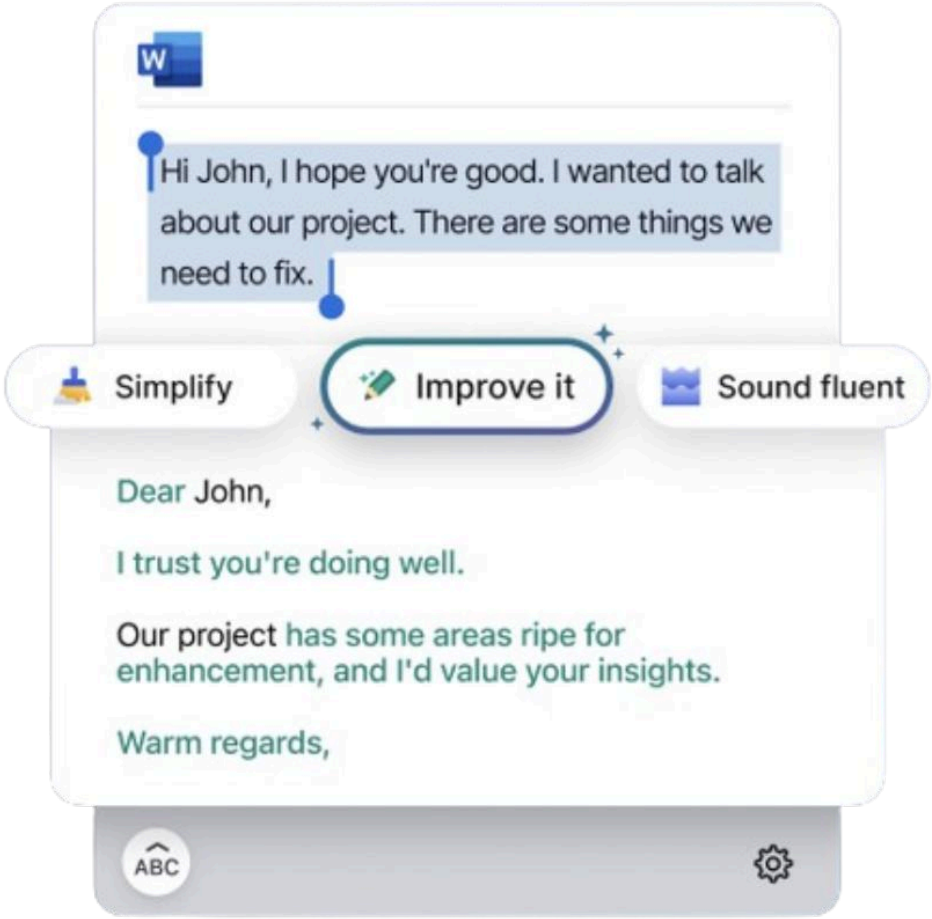
Estimates of Articulation Skills:

- The author estimates that in countries like the United States, Northern Europe, and East Asia, less than 20% of the population is sufficiently articulate in written prose to make advanced use of prompt-driven generative AI systems.
- Only about 10% may be capable of using such systems effectively, based on the lack of precise data.

Gaps noticed

Overcoming the Articulation Barrier:

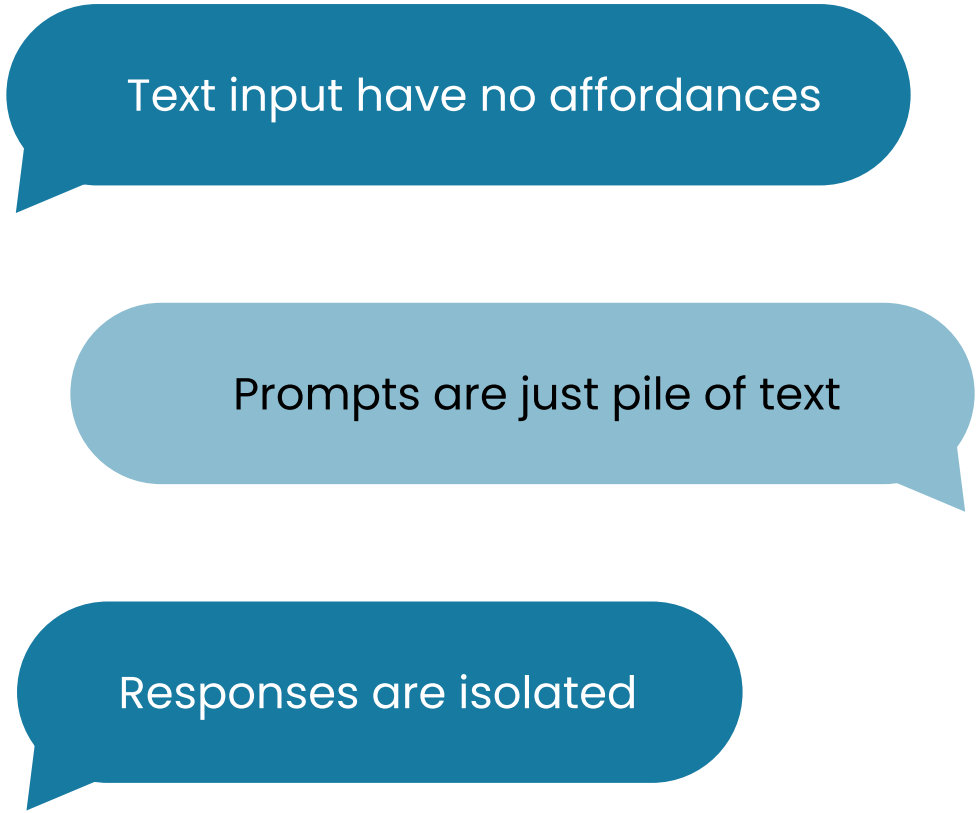
- To improve AI usability, one should be conducting detailed qualitative studies on users with varying literacy skills.
- These studies should inform the design of user interfaces, potentially incorporating elements of graphical user interfaces (GUIs) to complement prose-based interactions.
- The Grammarly writing assistant is cited as an example of a design that combines intent-based input with GUI elements.



Gaps noticed

The problem with Prompt Boxes

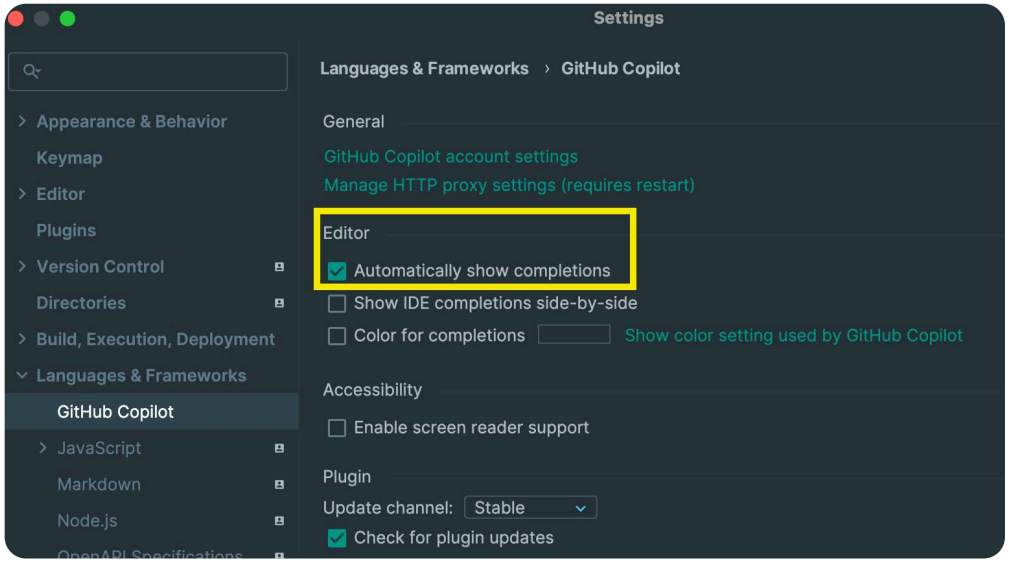
Prompt boxes have a similiar problem to blank pages - people can find themselves staring at one with no idea of what to do. Instead of solving the problem, we've merely moved it from the main document to a smaller box. This approach puts a burden on users to craft effective prompts, a task that assumes a comfort with writing and a strong understanding of what LLMs are good at.



Gaps noticed

Autocomplete— eg: github, grammarly

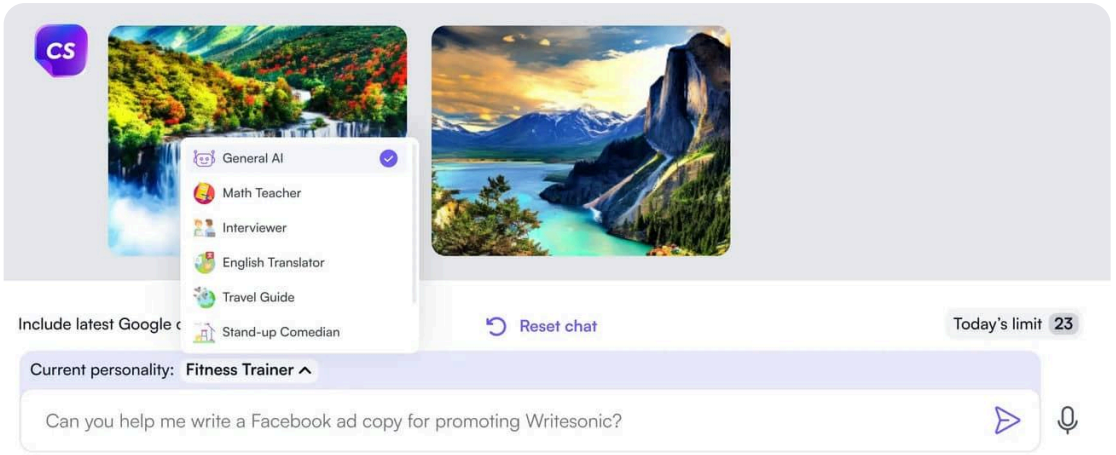
Github Copilot has a fascinating interaction where typing a comment suggests a piece of code that does what the function describes. This works well in coding because it mirrors the comment-code structure of well-documented software. Applying this model to English writing is more challenging since writers rarely describe the content of a forthcoming paragraph. Still, autocomplete could potentially suggest the next few words, streamlining the writing process.



Gaps noticed

Assistants with personality

Endowing an LLM with a “persona” could make interactions more intuitive and tailored. The persona would shape the type of assistance provided and could be adjusted according to user needs.
For example, *a “Professor” persona might critique academic writing, checking for plagiarism and suggesting sources.*
An “Orator” persona, on the other hand, could offer feedback on speeches and presentations, even providing live commentary during rehearsal.
Example: *writesonic does give the user option to select the persona before entering the prompt so that the answer is tailored to the chatbot persona*
Example:
Github copilot for docs



How one should ideally write

Who are you?
I want you to act as a dream interpreter. How should you respond? I will give you descriptions of my dreams, and you will provide interpretations based on the symbols and themes present in the dream. How should you not respond? Do not provide personal opinions or assumptions about the dreamer. What type of information do I want? Provide only factual interpretations based on the information given. How should we start? My first dream is about being chased by a giant spider.

If one knows the pattern or the way on how to write then handling a LLM model is easy right?



How might we's?

- How might we overcome the articulation barrier?
- How might we design prompt boxes that guide users effectively without relying solely on their writing abilities?
- How might we ensure that the interface design of prompt boxes abstracts away complexity, making it intuitive for users without assuming strong writing skills?
- How might we shift the focus of prompt boxes so that they give helpful suggestions instead of always needing users to come up with their own ideas, making the technology easier for everyone to use?
- How can we create an interaction model that suggests relevant content for English writers, taking into account the differences in writing styles between technical documentation and language composition?
- How might we develop AI personas that provide contextually appropriate feedback and assistance?
- How might we design interfaces that adapt to different writing styles and purposes, from academic papers to speeches?

Putting thoughts into context

Interviewing the users to know how they look at the LLM models



Anna • CFO



Bimal • Strategic advisor



Ayo • CFO



John • CEO



Mike • Strategic advisor

- Can you walk us through your daily work?
- Have you used other integrated LLM models into your workflow?
- How do you prioritise your tasks?
- Can you provide examples of common errors you encounter during interacting with any chatbots you've used?
- How do you manage communication with internal stakeholders and vendors regarding discrepancies?
- How do you envision automation helping with your current tasks?
- What other higher-value tasks would you focus on if invoice processing were less time-consuming?

Current workflow	Communication	Pain points
writing style	Overall experiences	Desired solutions

* Got to talk to mostly CFO's and strategic advisors

Key findings

Primary Research

Guided query initiation

When the conversation gets initiated, it is helpful that chatbots provide clues about what kind of queries they can tackle

"I often find it confusing when interacting with chatbots because I'm not sure what they can actually help with. It would be really helpful if they could give some hints or examples of the types of questions they can handle."

John • CEO

- The chatbot should hint the user to rephrase the question
- The chatbot should guess the user needs

Personality-optional chatbots

Not all participants agree that it is obligatory for chatbots to have “personalities” or abilities to do small talks

"I often find it confusing when interacting with chatbots because I'm not sure what they can actually help with. It would be really helpful if they could give some hints or examples of the types of questions they can handle."

Anna • CFO

Visual Cues

Use visual cues, such as buttons or icons, to help users understand their options and guide them through the conversation

Suggestive endings

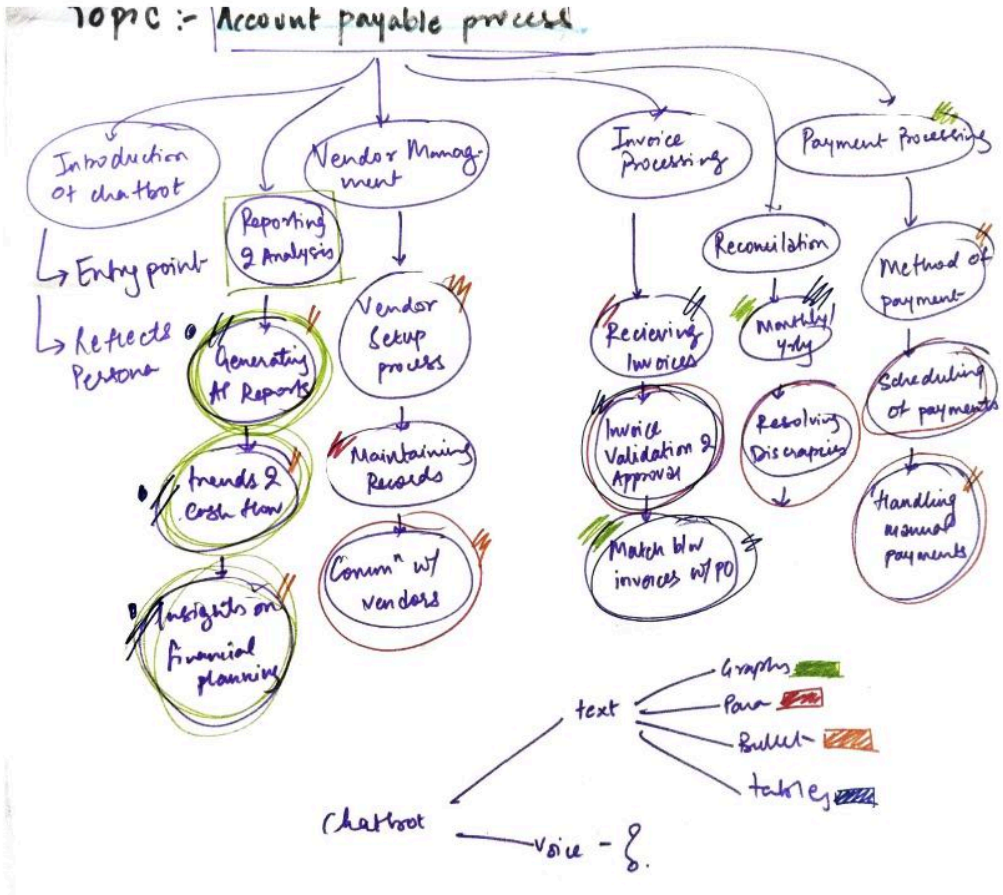
Prompting users to ask more questions and personalize the conversation, making interactions more dynamic.

Redefined problem statement

Establish a chatbot framework that unlocks seamless interaction, adapts to varying preferences, inspires further engagement and enhances navigation.

Outlining possible topics and looking for patterns

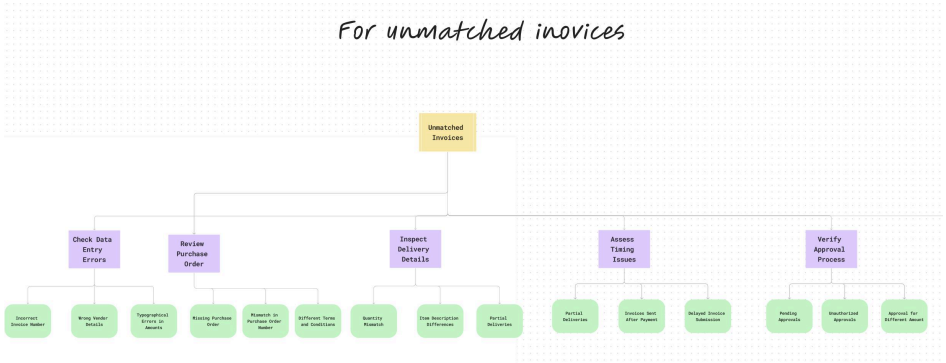
I am not starting from scratch! With a library of standard patterns, pre-built components, fleshed out to meet the common ways those patterns are used in everyday conversation, one's design process can be more efficient, since one does not have to rebuild these patterns each time. The designs also end up more robust, since you are less likely to leave out key components. The library of patterns is here to make it fast and easy to include a breadth of conversational competence. Thus I'm not starting from zero. I am starting with the basics already there.



Creating a tree diagram

A tree diagram allows users to visualize possible outcomes and probabilities for a given situation. Tree diagrams, also called decision trees, are particularly useful in charting the outcomes of dependent events, where if one element changes, it impacts the entire outcome. Tracking and analyzing cause-and-effect scenarios is much easier when you have a visual aid such as a tree diagram.

The same approach was taken for verticals like For unmatched invoices, reasons for credit request, AI matching requests, Vendor setup, Payments processes, Invoice processing, Payments processes, Vendor setup, cashflow trends and Match and unmathced invoices



tree mapping ex





















What questions user expects

Conversational UI questions - John S

Invoices

#	Questions	Relevant Role Access
1	Who are the top 20 payables?	All
2	How much is past due?	All
3	How much is approved to spend in the next week?	All

Conversational UI questions - Anna

Invoices

#	Questions	Relevant Role Access	Comments
1	List all outstanding invoices	Finance Controller	
2	List invoices that are due /overdue	Accountant and/or…	
3	List invoices that become due this week.	Accountant and/or…	
4	Summarize the amounts to be paid in the closest payment run	All	
5	Are there any invoices that are pending approval but alrealy due?	All	
6	Are there any open invoices in [EUR]	All	
7		All	

Conversational UI questions - Ayo

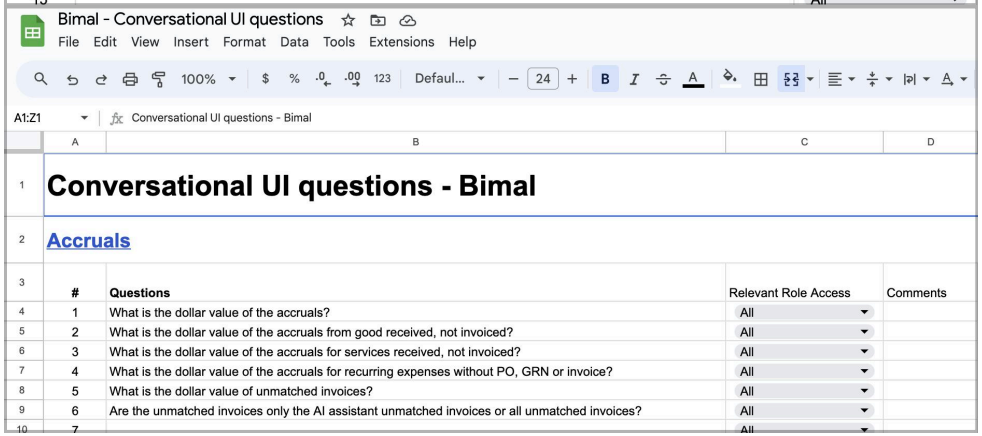
Invoices

#	Questions	Relevant Role Access
1	What is the total amount payable under the matched invoices?	All
2	Which company has the most unmatched invoices?	All
3	Which company has the most matched invoices?	All
4	How many of the matched invocies are past due?	All
5	How many of the matched invoices are not due for another week?	All
6	How many of the matched invoices can we get a discount on if we pay early?	All
7	How many of the people are the unmatched invocied pending on?	All
8	How many unmatched invoices are there last month?	All
9	Which department has the most unmatched invoices?	All
10	What is the most occuring reason invoices are unmatched?	All
11	How many invoices are pulled from the drive?	All
12	How many invoices are pulled from emails?	All
13	How many invoices came without any other matching documents?	All
14	How many invoices do not have a PO?	All
15	How many invoices do not have a GRN?	All
16		All

Conversational UI questions - Mike V

Dashboards

#	Questions	Relevant Role Access
1	Aging by vendor/entity	All
2	# of invoices/PO processed by vendor/entity/product/services	All
3	Early discount taken	All
4	Early discount forgiven	All
5	Available cash for the next batch of payment or for the next period	All
6	Invoices greater than any specific limit (eg. $100K) - total, by vendor, by products etc.	All
7	Status of invoice	All
8	Total invoices amount/number processed by vendor/product/services	All
9	Statement by vendor/period/product/services	All
10	Number/amount of invoices with/without discount	All
11	# of matched invoices	All
12	# of unmatched invoices	All
13	Communications and responses by vendors for specific queries	All
14		All
15		All



Conversational UI questions - Bimal

Accruals

#	Questions	Relevant Role Access	Comments
1	What is the dollar value of the accruals?	All	
2	What is the dollar value of the accruals from good received, not invoiced?	All	
3	What is the dollar value of the accruals for services received, not invoiced?	All	
4	What is the dollar value of the accruals for recurring expenses without PO, GRN or invoice?	All	
5	What is the dollar value of unmatched invoices?	All	
6	Are the unmatched invoices only the AI assistant unmatched invoices or all unmatched invoices?	All	
7		All	

Designing conversation

Started designing conversation by asking these simple questions:

1. **Who's the bot for?**

Answer: People in finance

2. **What should the bot help them do?**

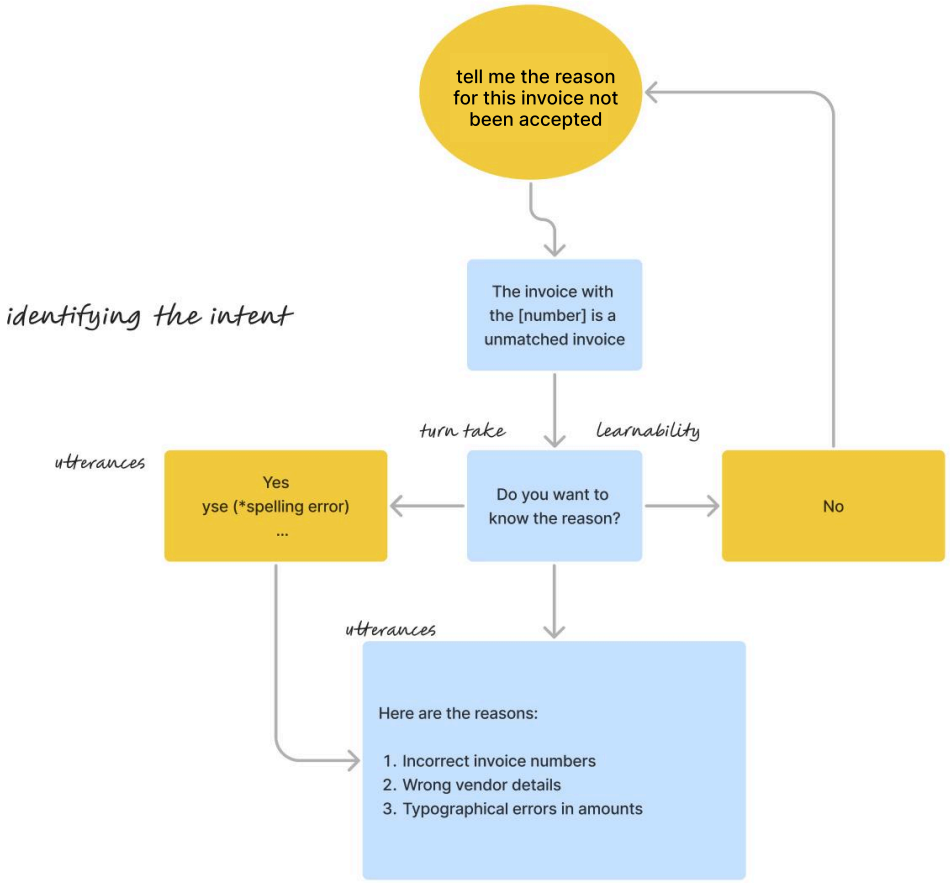
Answer: Status for the concerned invoice

3. **What information do we need to enable this?**

Answer: Lists of reason for the unmatched invoice

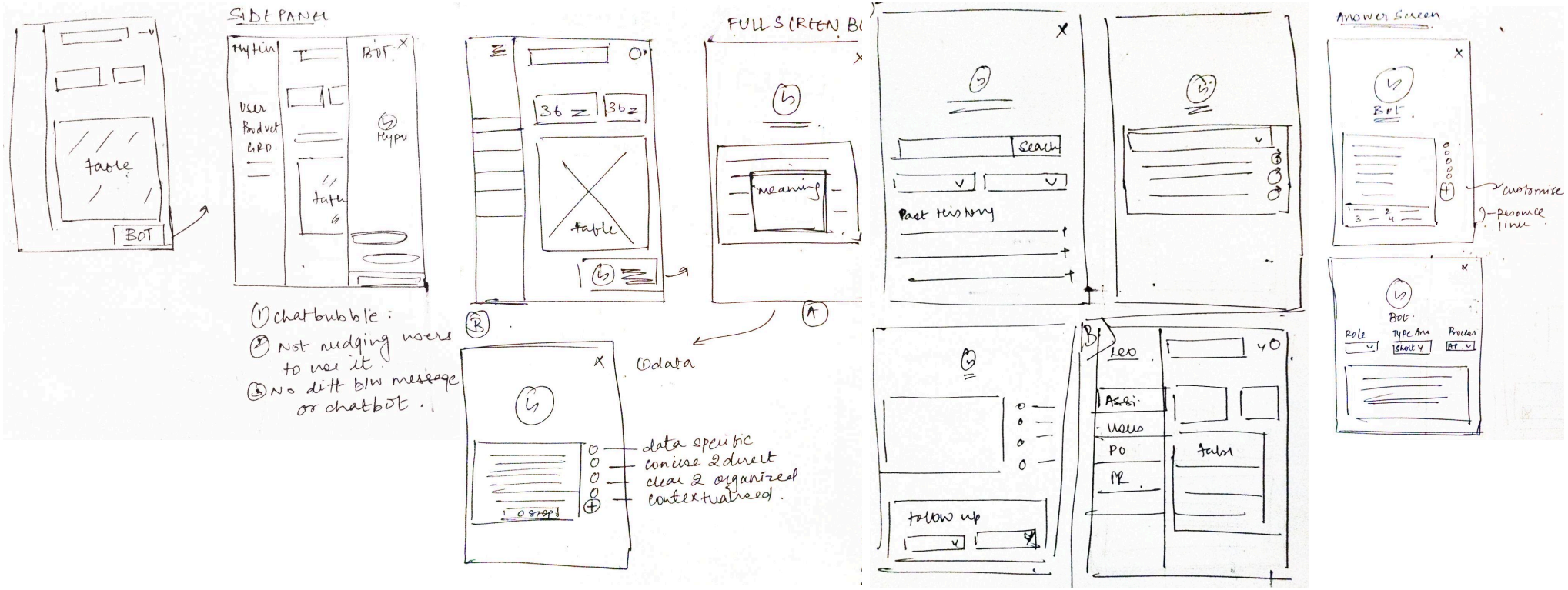
4. **Do we need a keyboard?**

Answer: No -- the bot is simple enough to work perfectly well without it



Sketches/Concepts

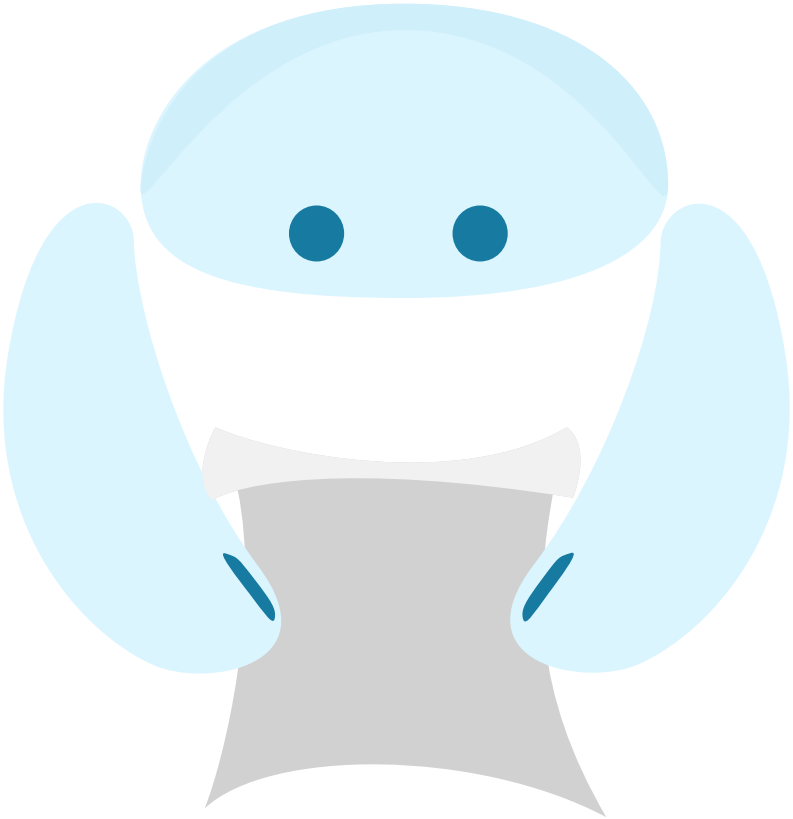
Ideating over how the interfaces would look like



Writing

The following is a collection of examples and best practices to guide you when writing copy for your bot

- Voice, tone, and Algo persona
- Greeting the user
- Keeping a user-focused tone
- Contractions
- Discourse words
- Apologies
- A single message or multiple?



Voice, tone and Algo persona

Primary perona attribute

Trust

Autonomy

Competence

Friendly

Secondary persona-nice to haves

Caring

belonging



Style and personality

- Helpful
- Considerate
- Straightforward
- Reliable
- Supportive
- Confident

But above all else, CLARITY wins.

What we need to convey to the users all the time, every time

Greeting the user

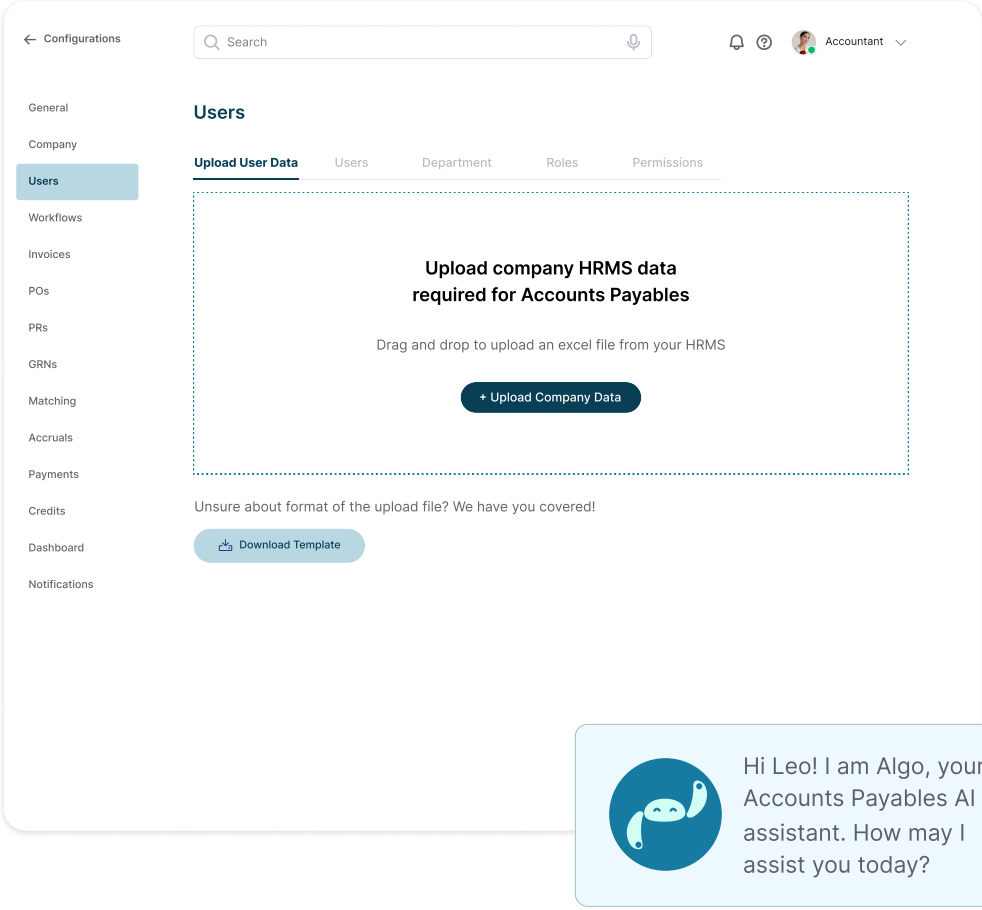
Greet the user in a quick but friendly way, by name if possible. Introduce the bot as a bot (not a human), and quickly get the interaction started with a call to action.

And if one has the bandwidth to get a bit more complex, greet repeat users with a quicker introduction or no introduction at all.

✅ Hi Leo! I am Algo, your Accounts Payables AI assistant. How may I assist you today?
🚫 What should I help you with?

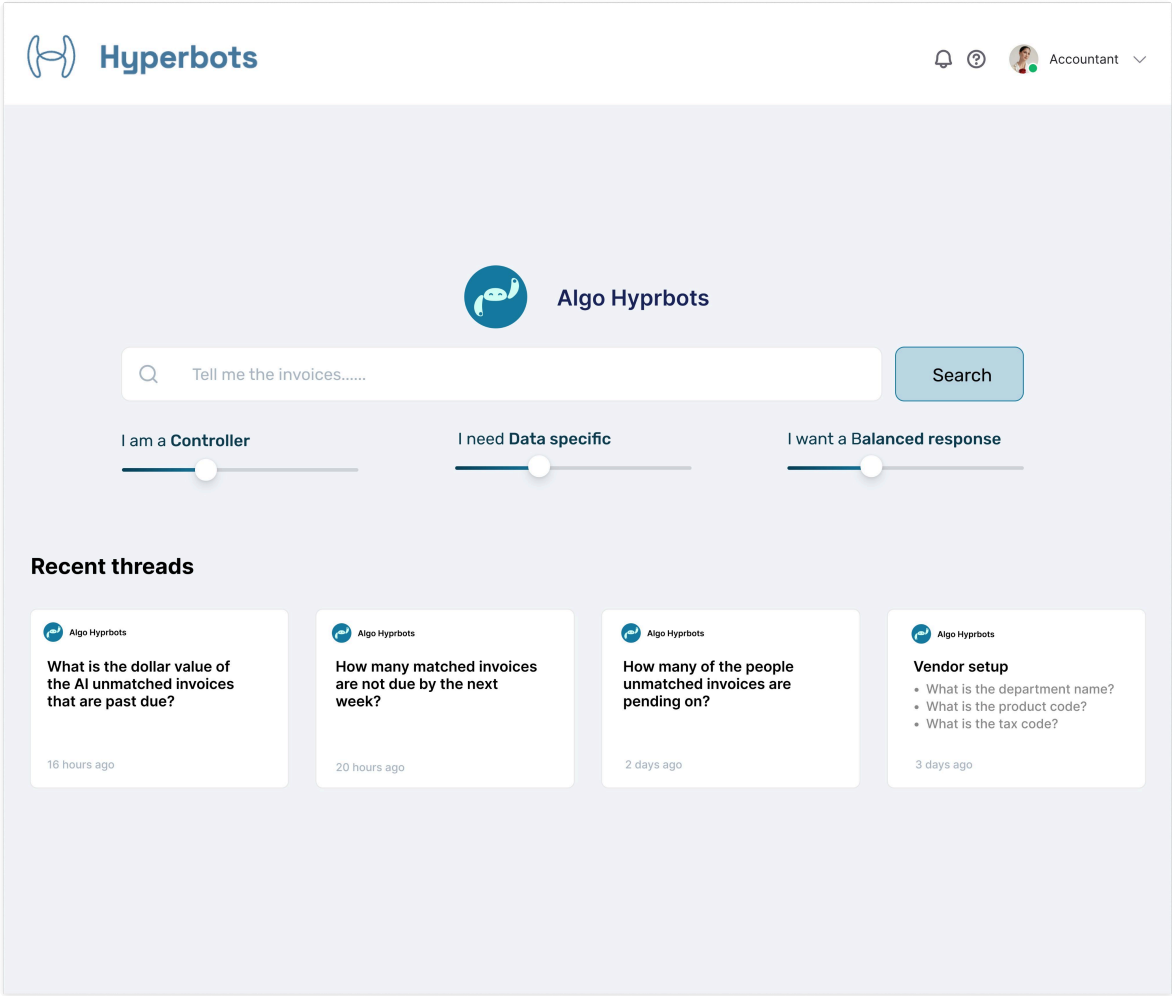
Repeat user:
✅ Hi Leo, welcome back. How can I help?

Context is also important here. If, for example, this is an AP (Accounts payable) bot and you know the invoice is unmatched, go ahead and acknowledge this right away:
✅
Hi Tony,It looks like the invoice you mentioned is unmatched. Do you want to know the reasons for this?



Keep a user focused tone

Keep prompts centered on the user, not the bot.
✅ How do you want to respond?
🚫 What should I respond with?

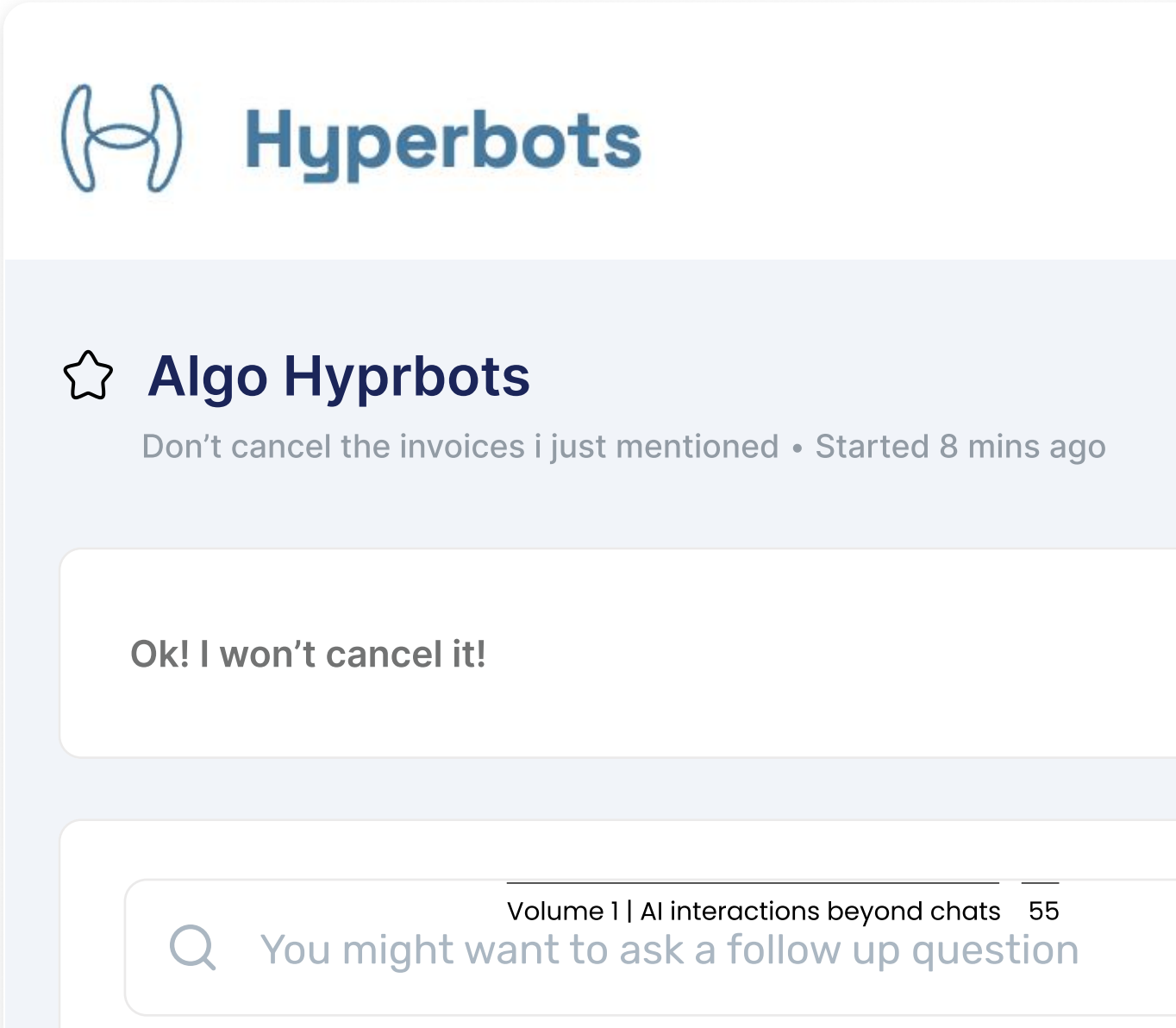


Use contractions

hey prevent the tone from getting too formal and they keep the content from sounding robotic.

✅ OK, I won't cancel it.

🚫 OK, I will not cancel it.



Use discourse words

They make content much more readable and improve the flow substantially. Some examples:

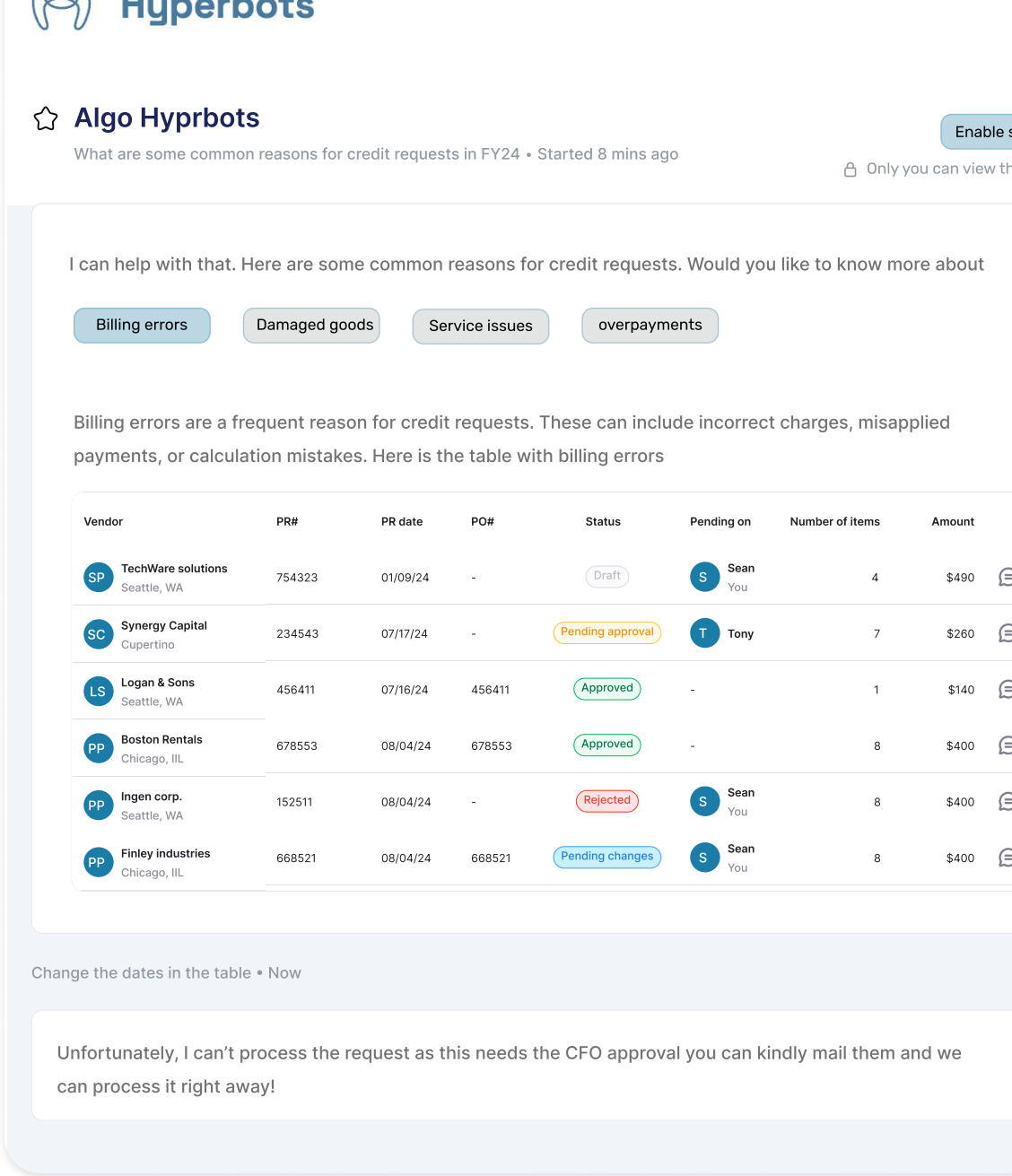
- Comparison: (also, similarly, too)
- Contrast: (but, however, on the other hand)
- Disclaimer: (just so you're aware, FYI)
- Example: (for example, for instance)
- Inferential: (in that case, otherwise, then)
- Replacement: (or, instead)
- Assessment: (unfortunately, luckily)

Example:

User: Change the dates in the table
✅ Unfortunately, it requires CFO approval, you can mail them and we can process it right away!

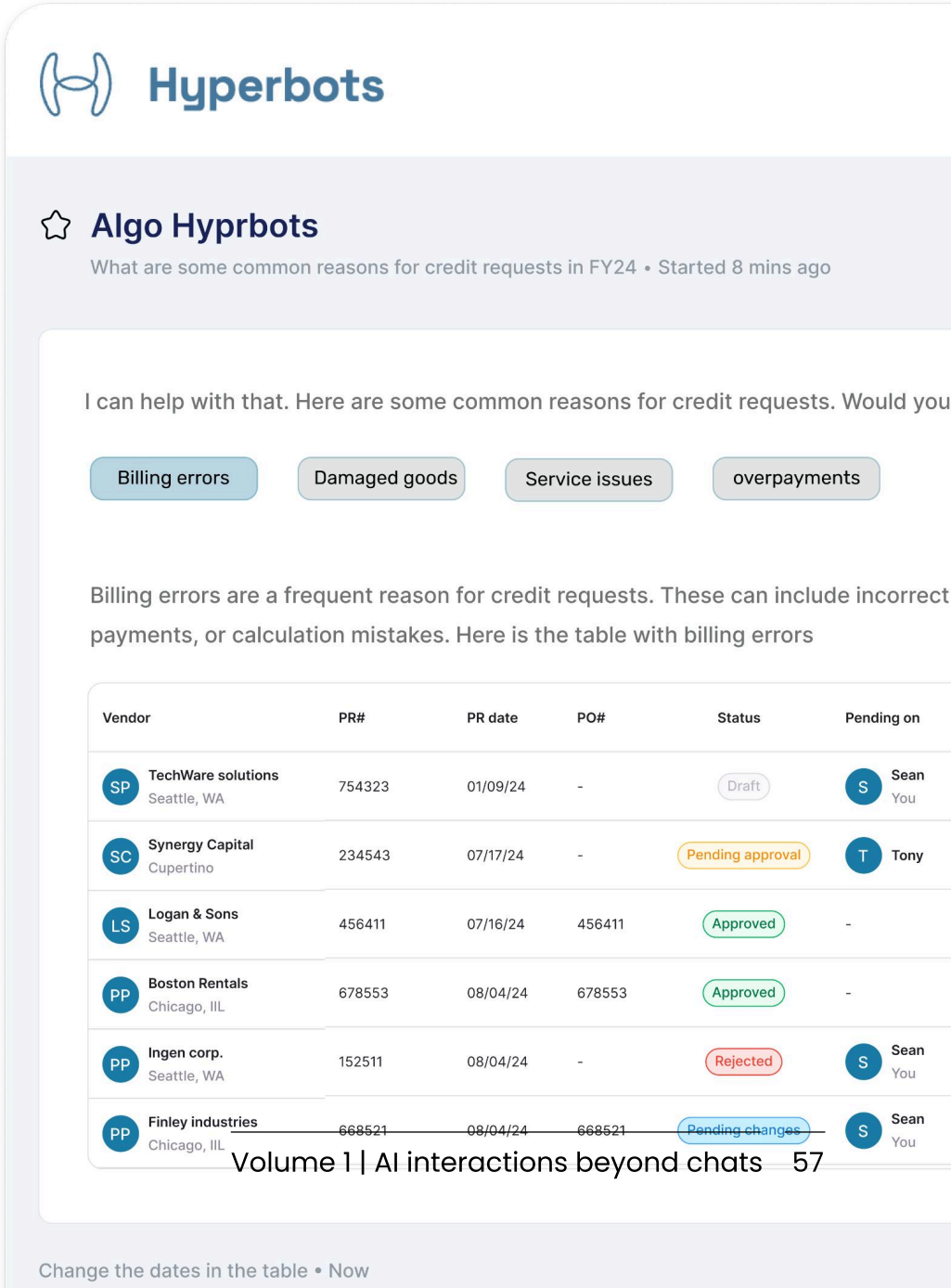
User : Change the dates in the table
🚫 This requires CFO approval. You have to mail them.

Without discourse words, strings can seem too blunt. They also help tie sentences together -- in this case, "Unfortunately" helps the string relate to the message that came before it.



Quick reply buttons

Buttons (also known as “quick reply buttons”) are an essential part of a chatbot. They’re useful to the user -- they save them time, allowing them to interact with a single tap rather than with a full sentences. And they’re invaluable to the success of the bot -- buttons are understood by the bot 100% of the time. Text input, on the other hand, is much less reliable.



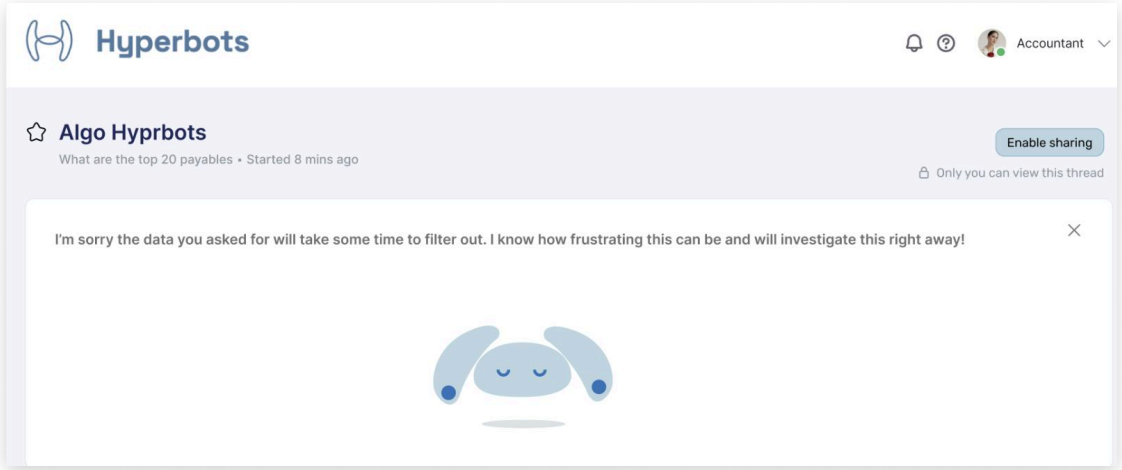
Apologise only when the system’s truly at fault

If the bot needs to apologise on behalf of Uber, keep it brief and quickly move to action.

✅ I'm sorry the data you asked for will take some time to filter. I know this could be frustrating we will make sure this doesn't happen in the near future

Apologize using the 1st person singular, but use the 1st person plural when assigning blame and action steps.

✅ I'm sorry that you had a poor experience. We don’t tolerate rude behavior, and we’ll investigate this right away.



Handling error

User input is complete gibberish

- The first time this happens, simply prompt the user to repeat themselves. They likely just made a mistake with the keyboard and need another try.

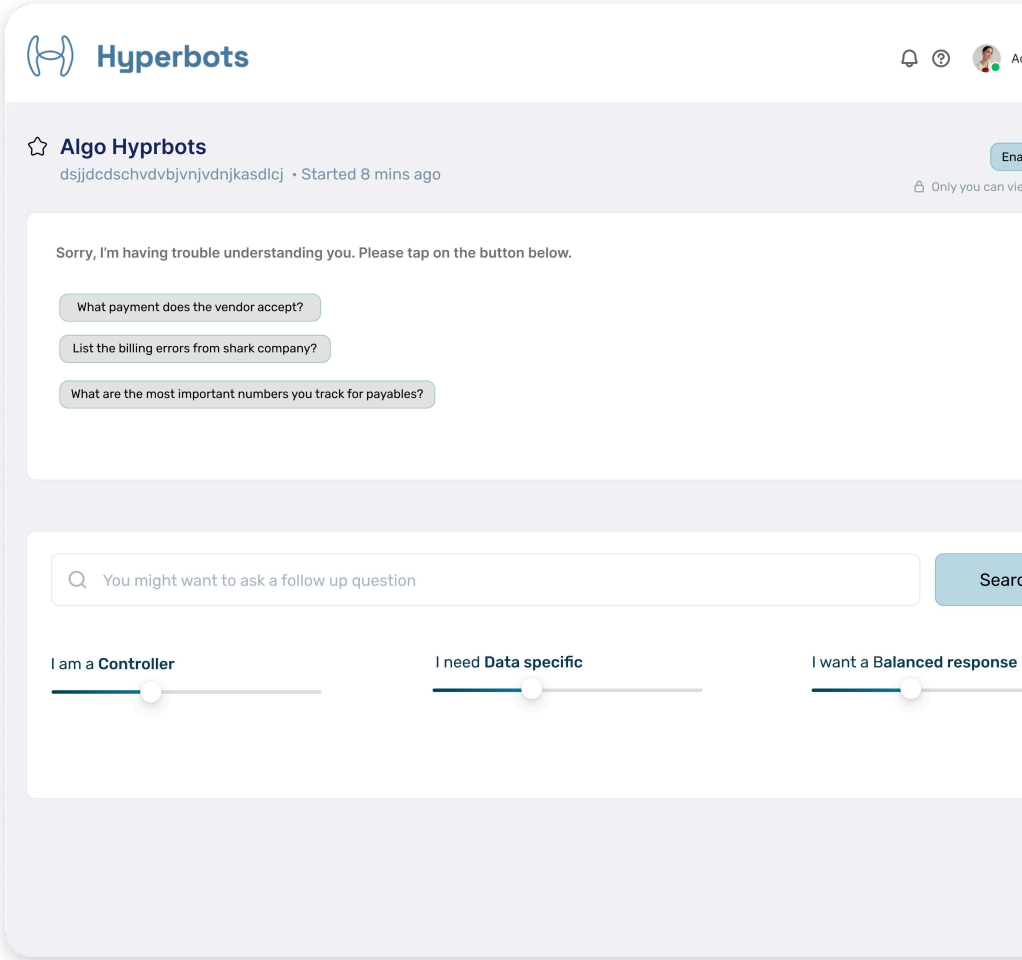
"Sorry, I didn't understand"

- The second time this happens, go into a bit more detail, vary your language, and encourage them to use the chatbot's buttons (if available).

"Sorry, I'm still having trouble understanding you. Please tap on a button below"

- If it happens 3 times in a row, transfer your user to an agent. It's likely that even if they get through this question, they'll continue to struggle with the bot.

"I still don't understand. One moment while I connect you to a support specialist who can help"



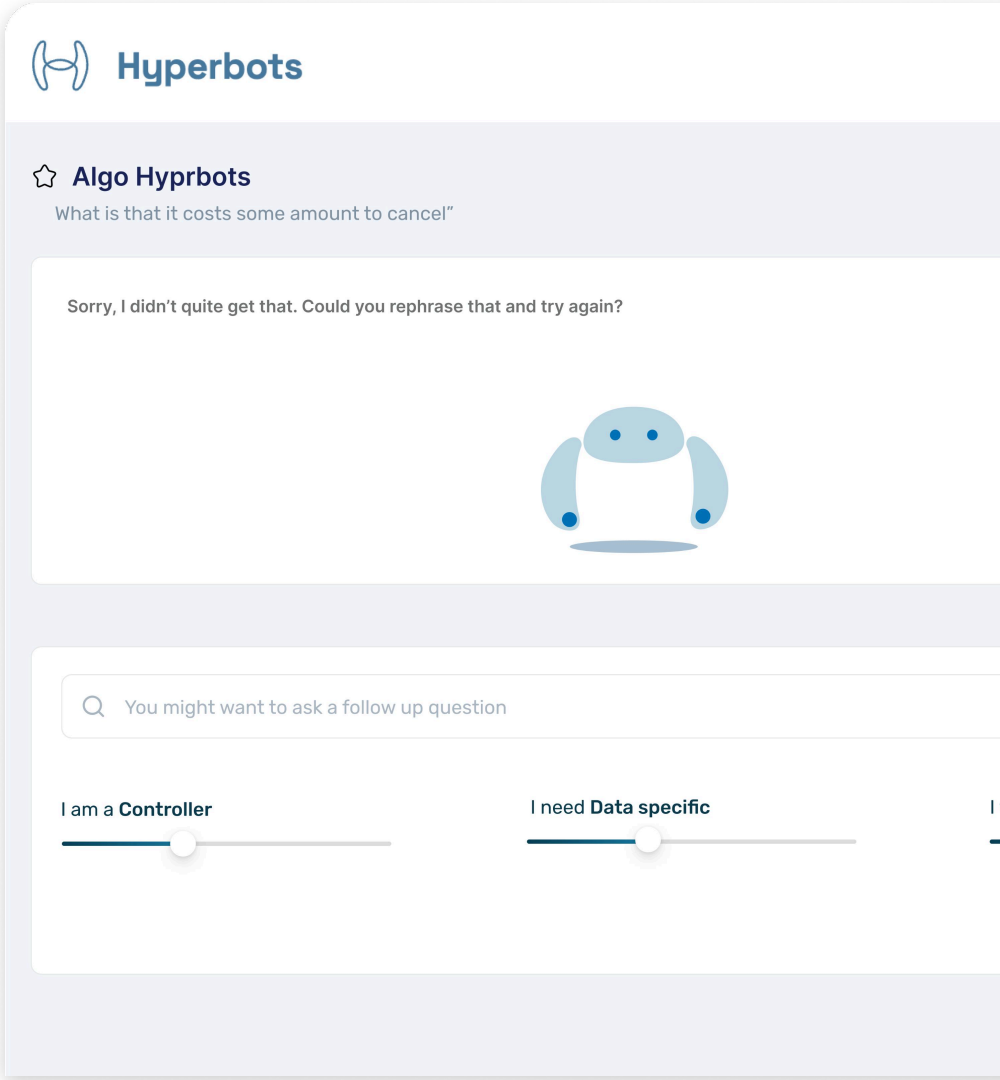
Handling error

User enters a well-formed message that the bot just doesn't quite understand

- The first time this happens, ask the user to rephrase. It's likely they have an intent in mind, they just didn't word it in a way that the bot was able to parse.
- "Sorry, I didn't quite get that. Could you rephrase that and try again?"

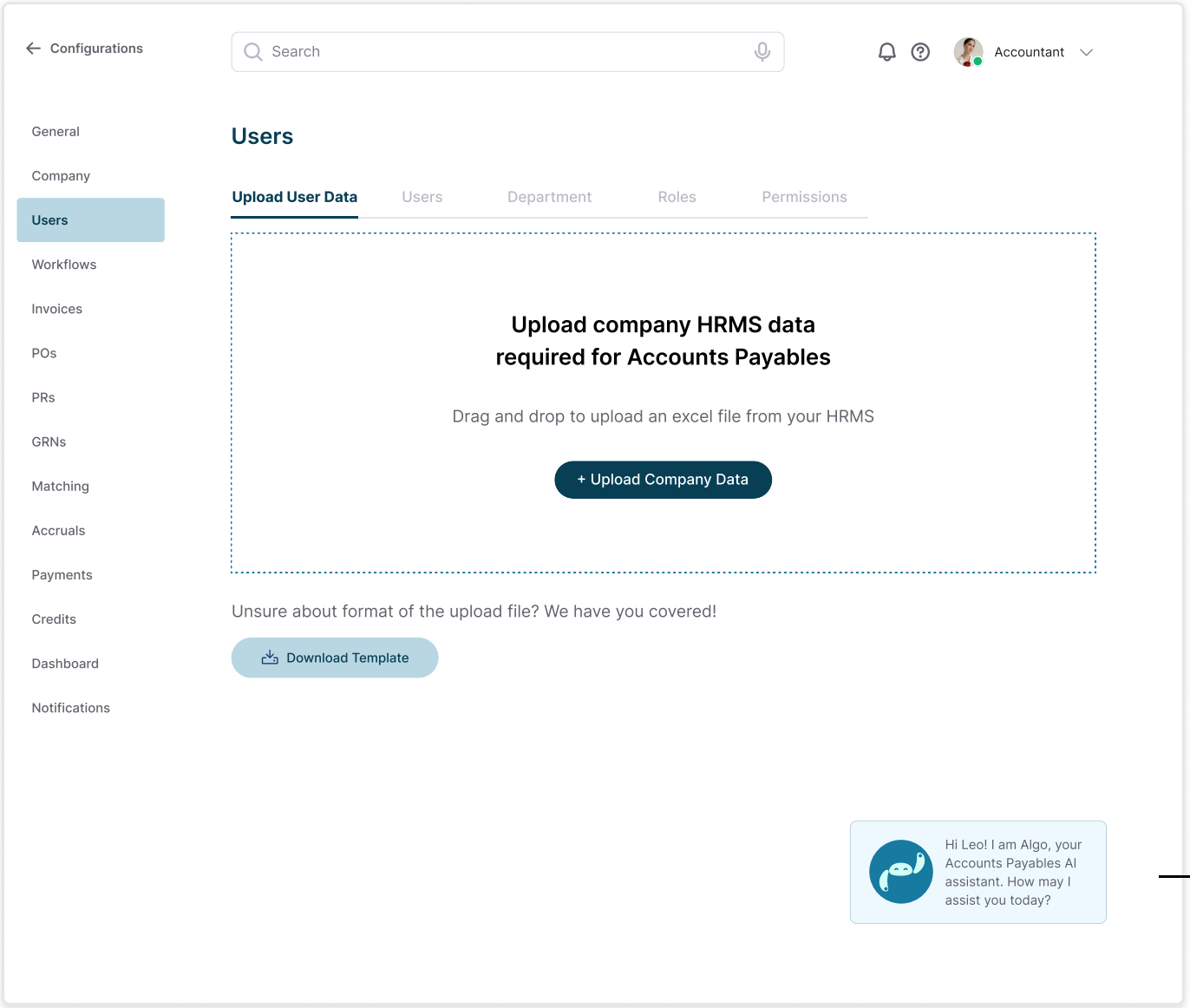
- The second time this happens, go into a bit more detail, vary your language, and encourage them to use the chatbot's buttons (if available).
- "Sorry, I'm still having trouble understanding you. Please tap on a button below"

- If it happens 3 times in a row, transfer your user to an agent. It's likely that even if they get through this question, they'll continue to struggle with the bot.
- "I still don't understand. One moment while I connect you to a support specialist who can help"



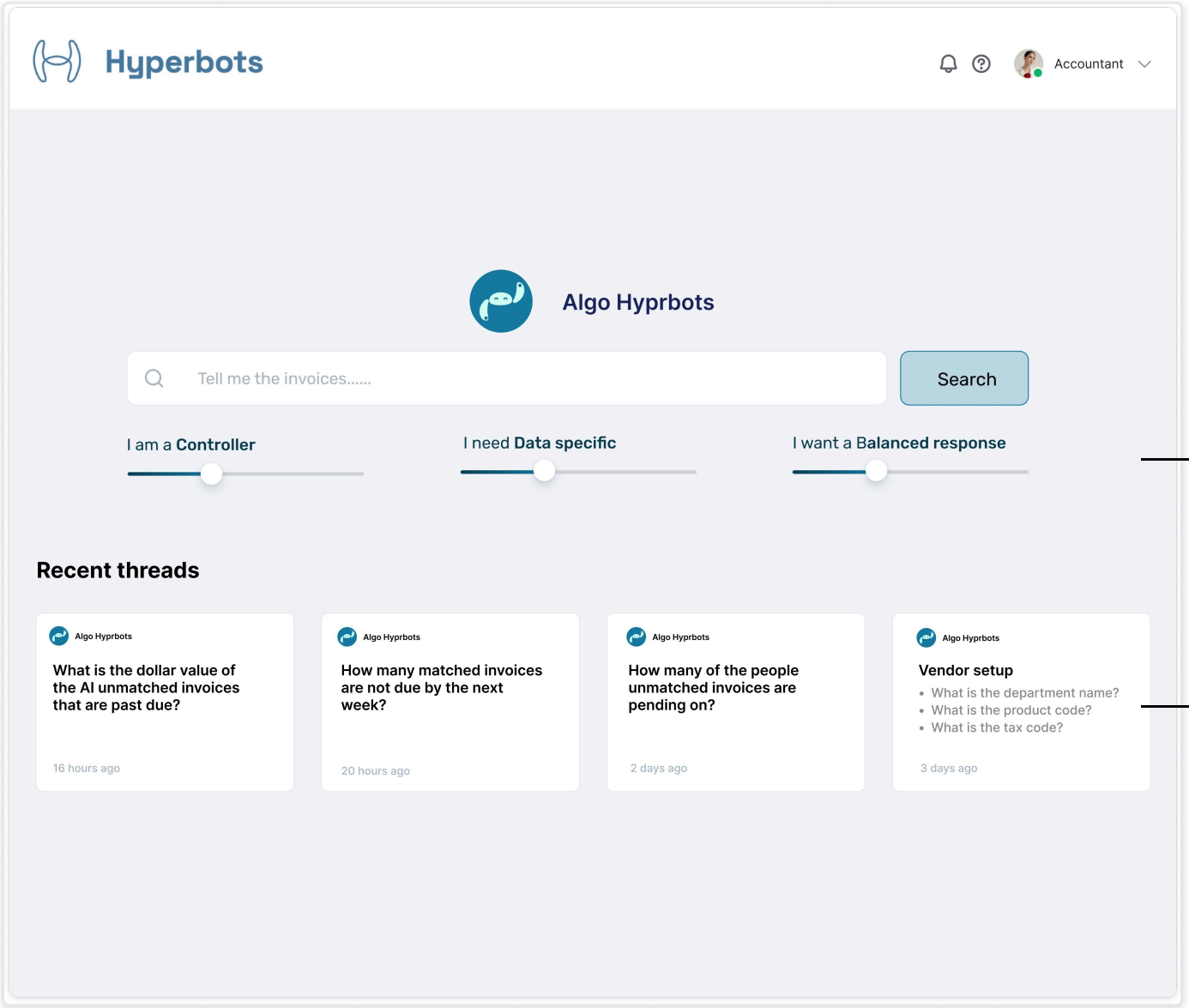
Chatbot Interfaces

Entry Point



Acts as a widget for the entry point

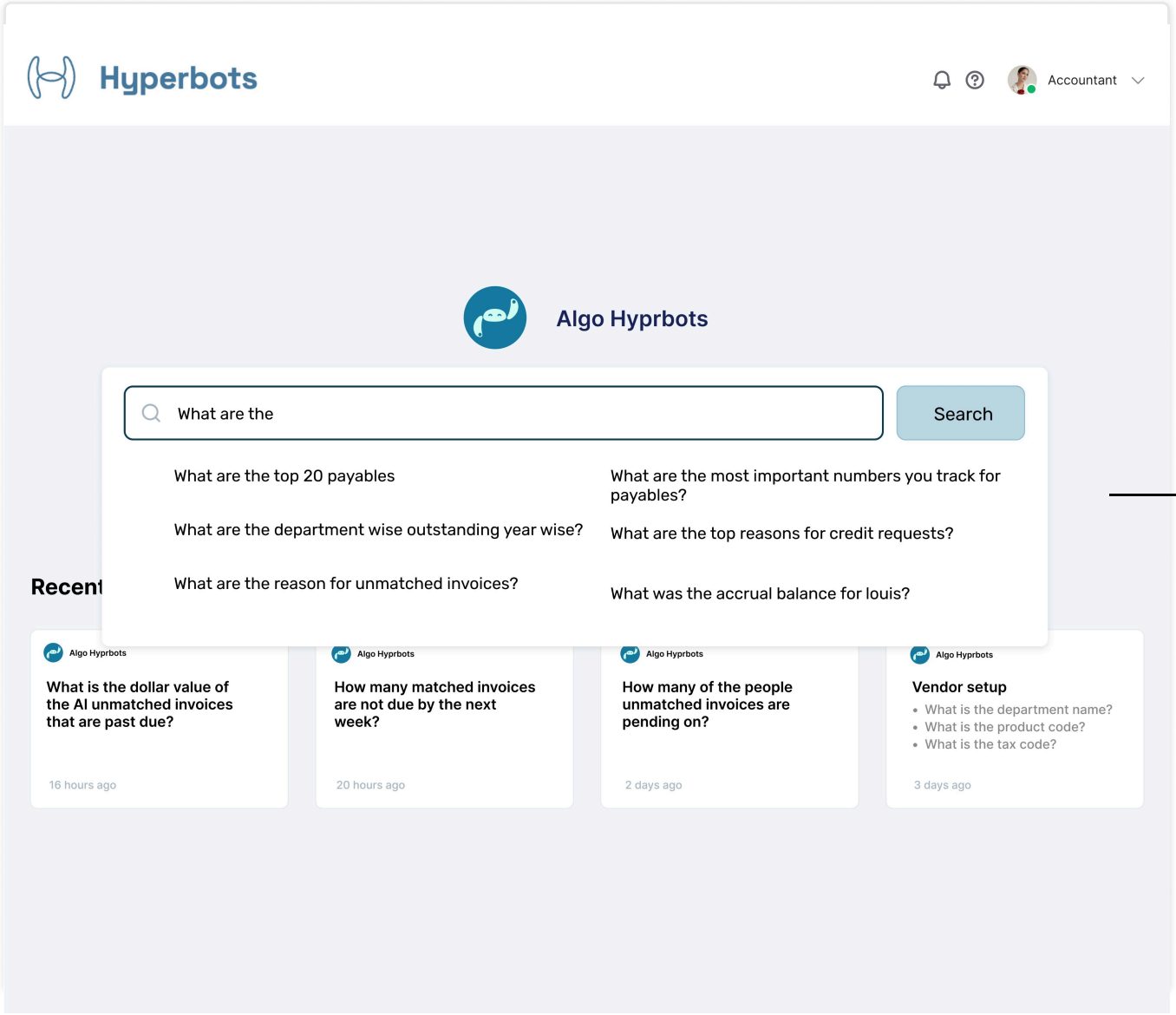
Homescreen



user control over the output

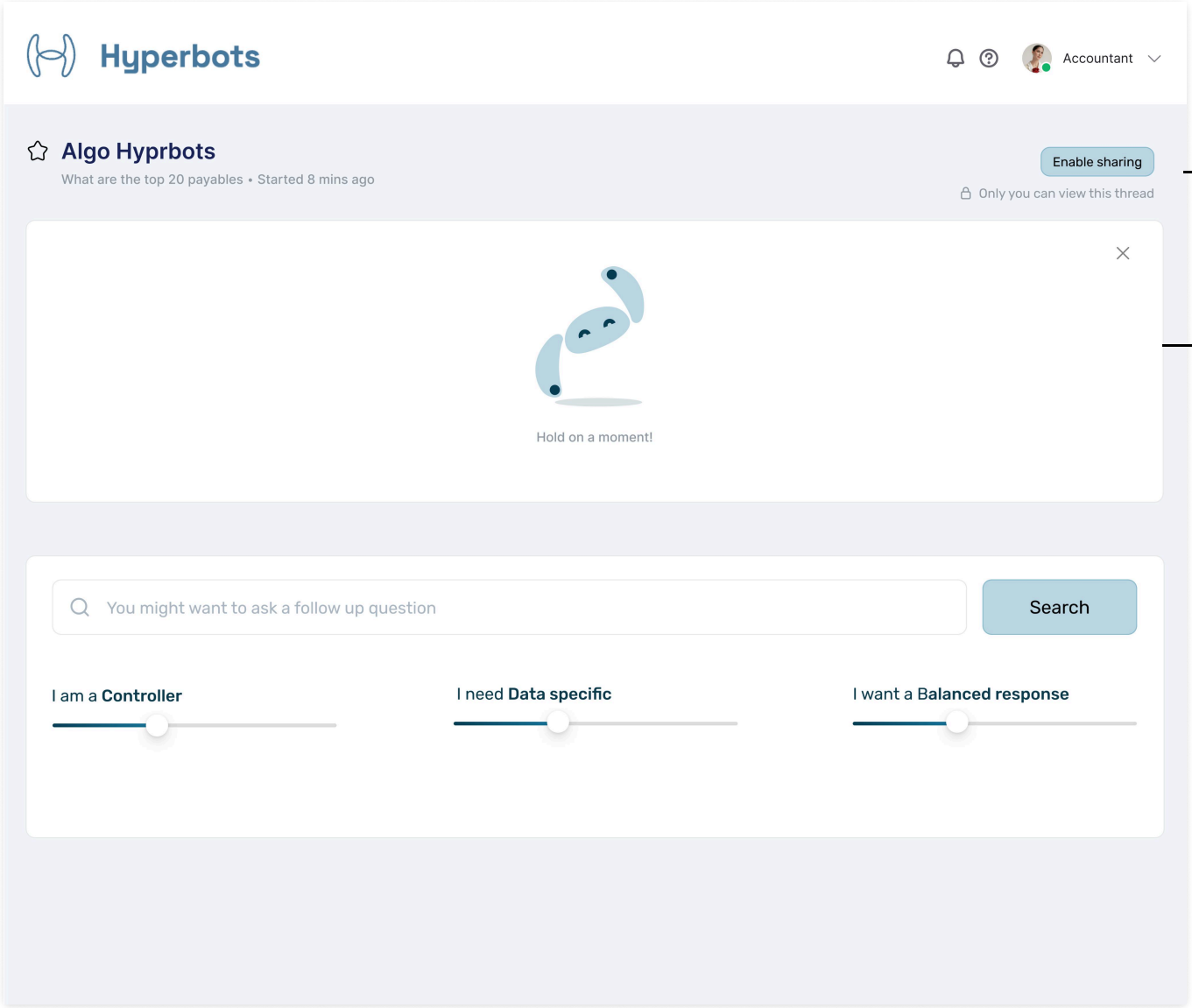
quick way to visit Recent conversation

Search



showing the last 8 searches

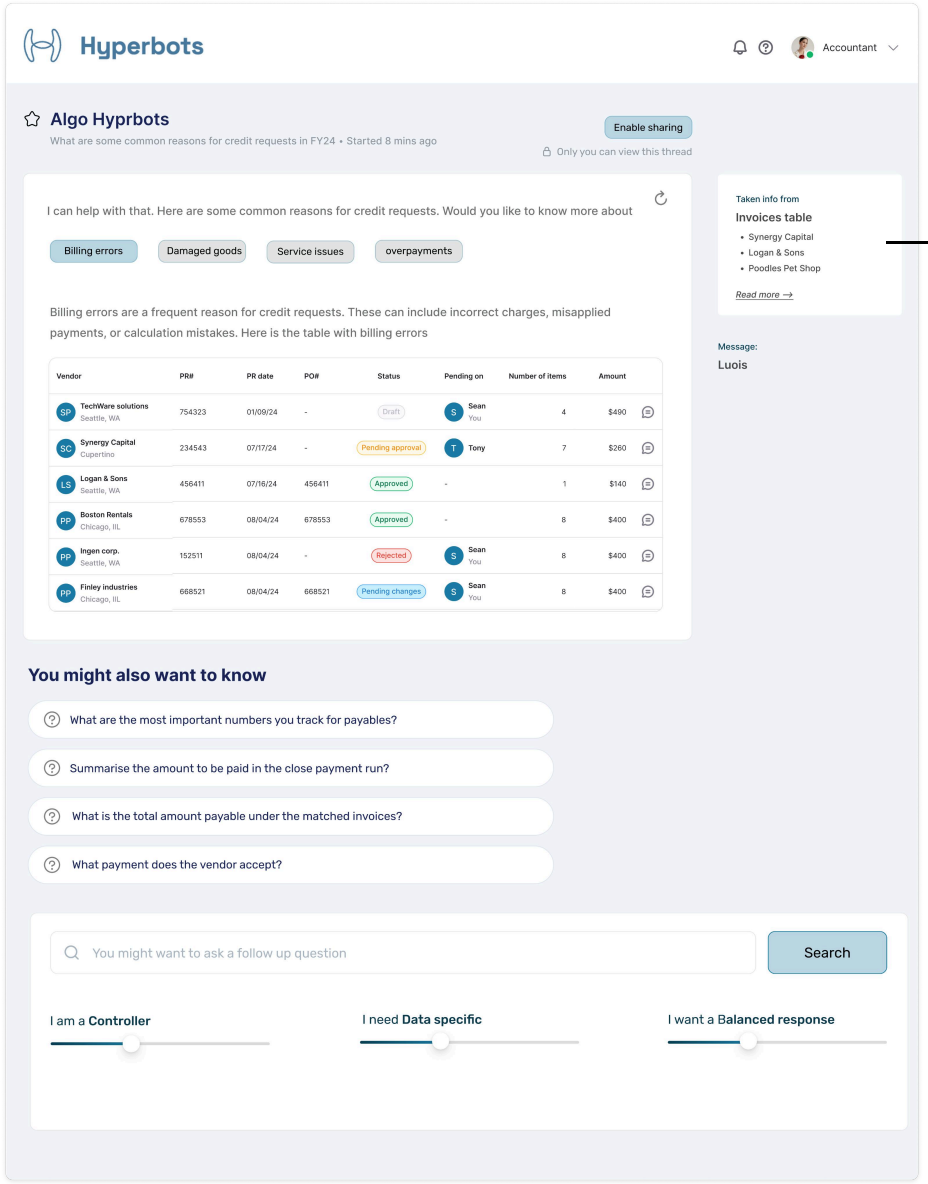
Loading screen



having a sharing feature which they could share with their collegues

small animation of bot appears while it loads the answer

Answer state



Providing a reference to the user from where the info is taken so that later they could refer

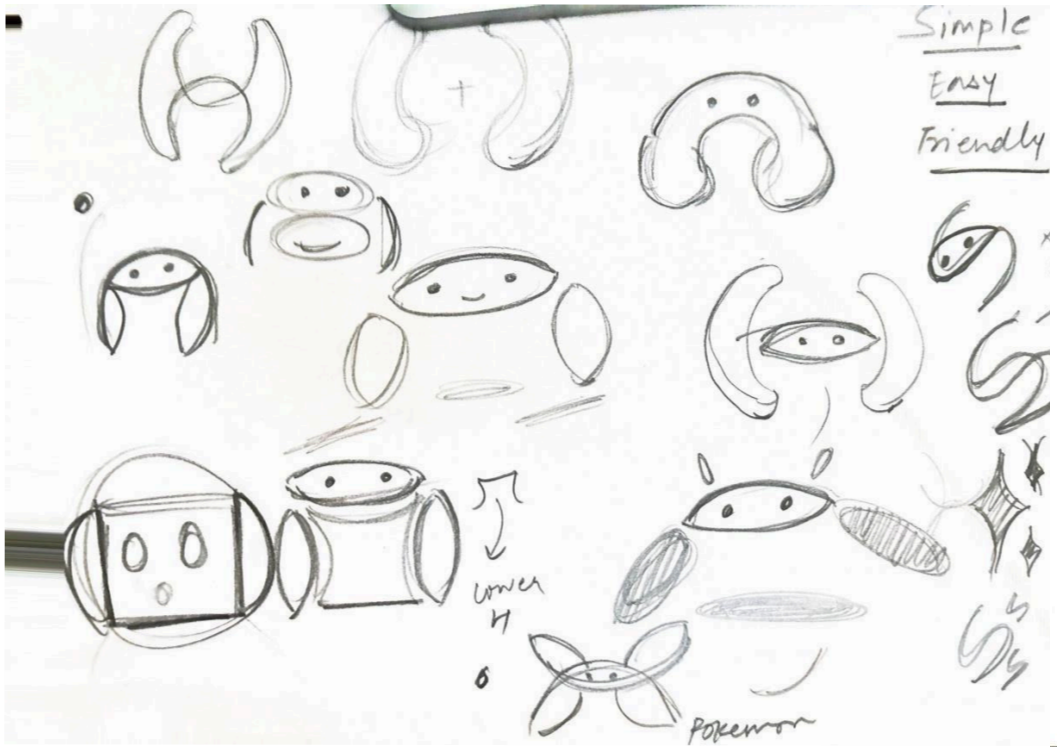
Visual Identity of the BOT- ALGO

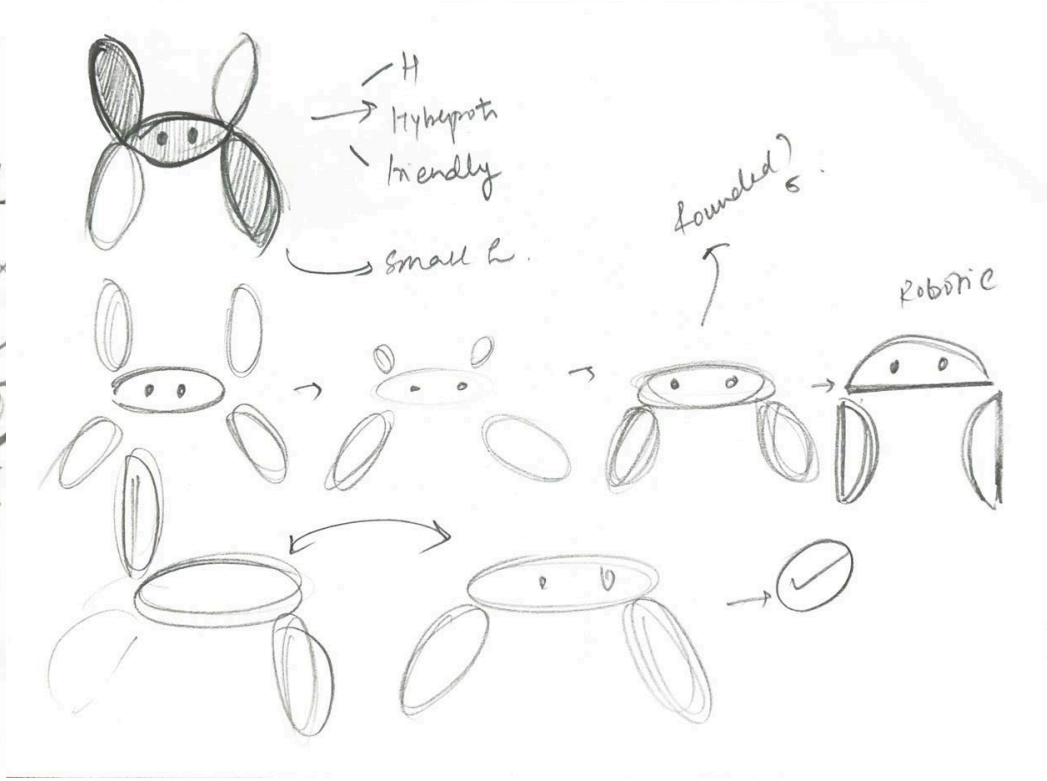


ALGO

Bot For The Human

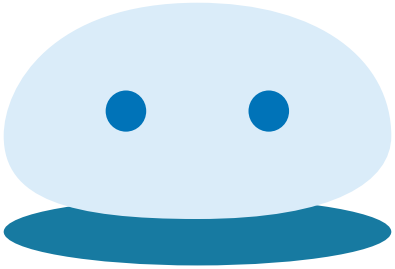
Rough sketches





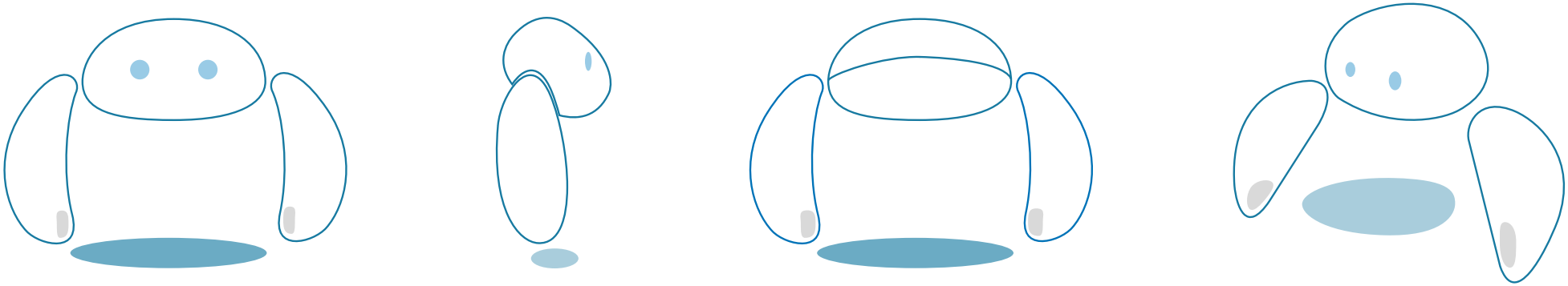
The idea was to have something friendly, approachable and connection with the logo for the mascot

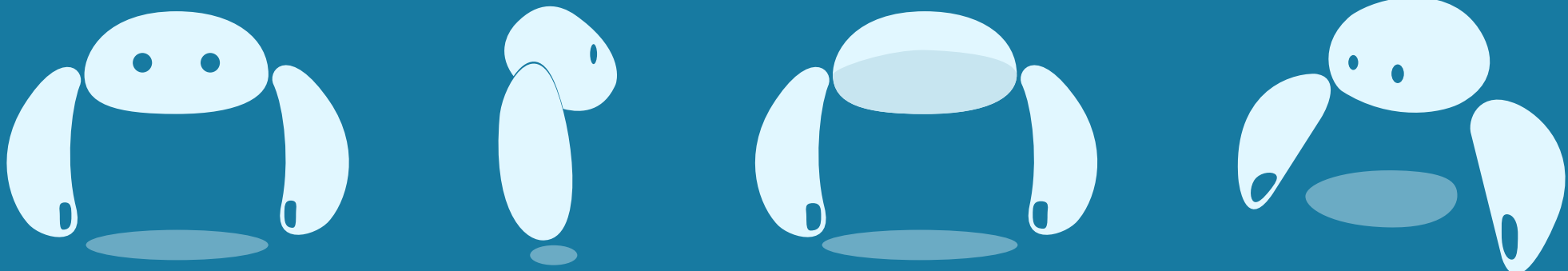
ALGO



Name	ALGO
Occupation	helping accountants & CFO's
Race	Robot
Height	4 cm
Weight	0 lbs (floats in the air)

Perspective Views

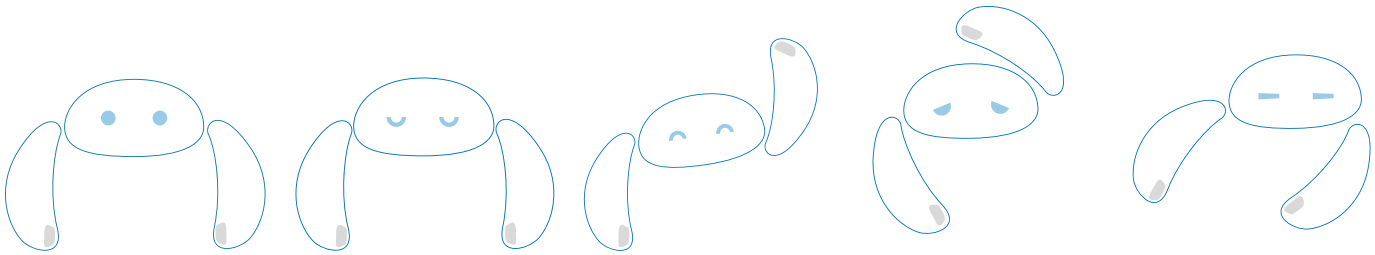




Algo Action Pose



Lined Illustration



Default | Resting | Happy | Sorry | Server not reachable

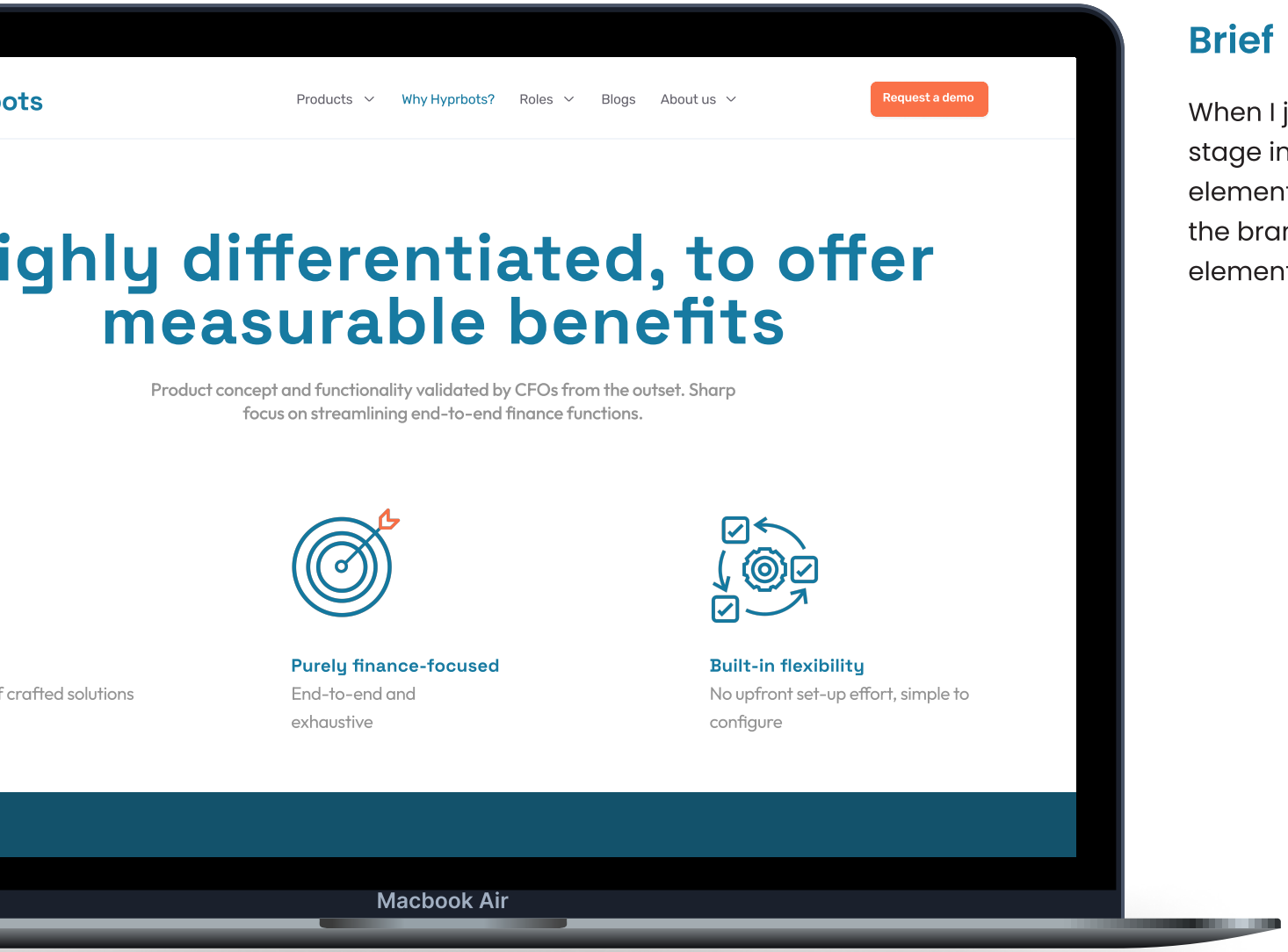
Filled Illustration





Project 2

Branding and Corporate Identity



Brief

When I joined the company, it was at a very early stage in its startup journey. The colors, fonts, and visual elements were not yet decided. My job was to define the brand's philosophies, select colors, create visual elements, and design their website from scratch.

Brand story

The client wanted to portray the brand as:

Brand perception / first-impressions:

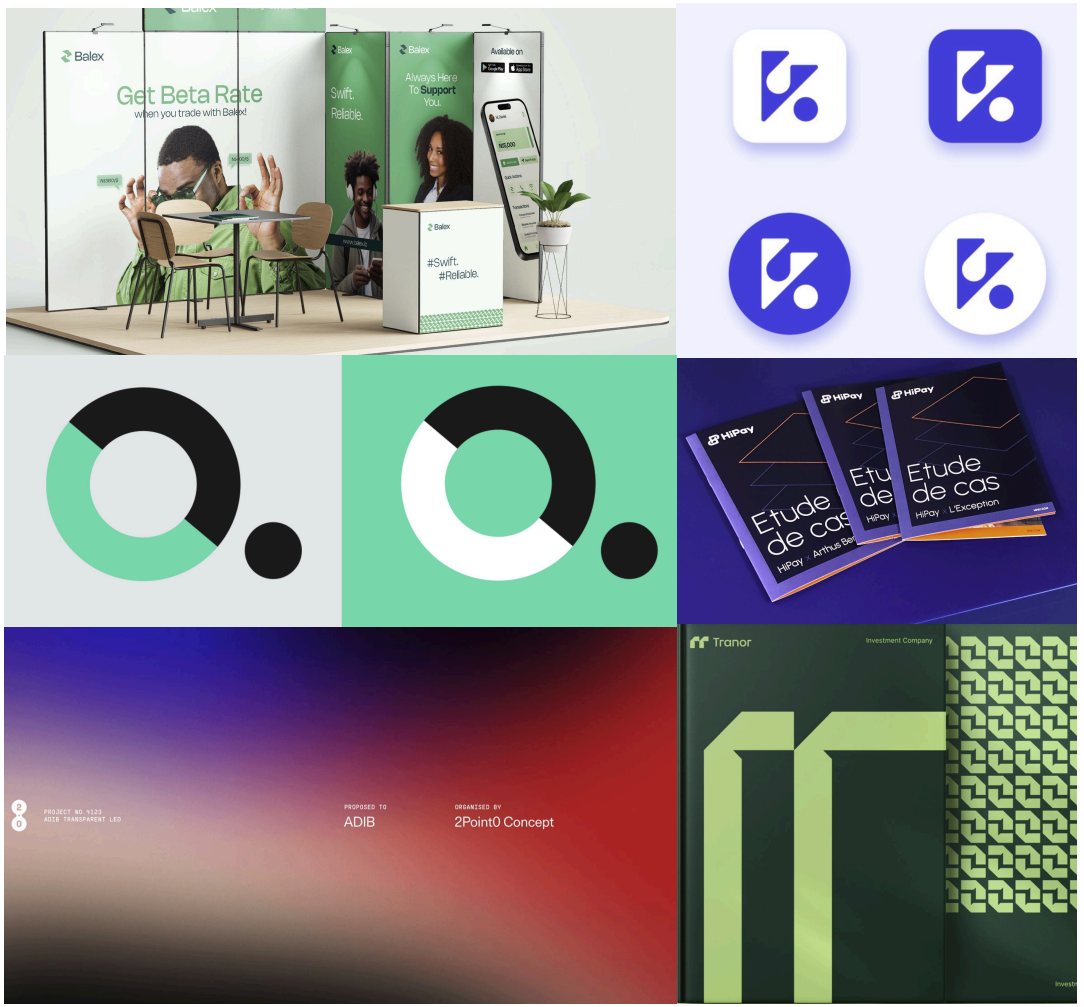
- Uses approachable language.
- Visually the boldest
- Visually different

Brand positioning themes:

- Efficiency, visibility & control
- Discover, Automate, Scale, Engage.
- AI-Driven Autonomous
- Finance Solutions For The Office Of The CFO

Key design takeaway:

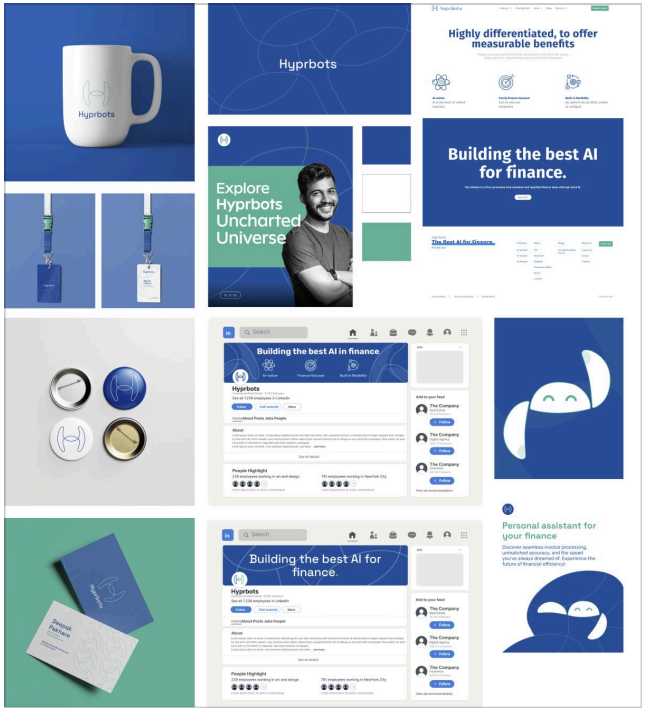
- Business-like -corporate
- Mascot - the bot
- Visual identity breaks the monotony of blue with interesting use of warm accent colours



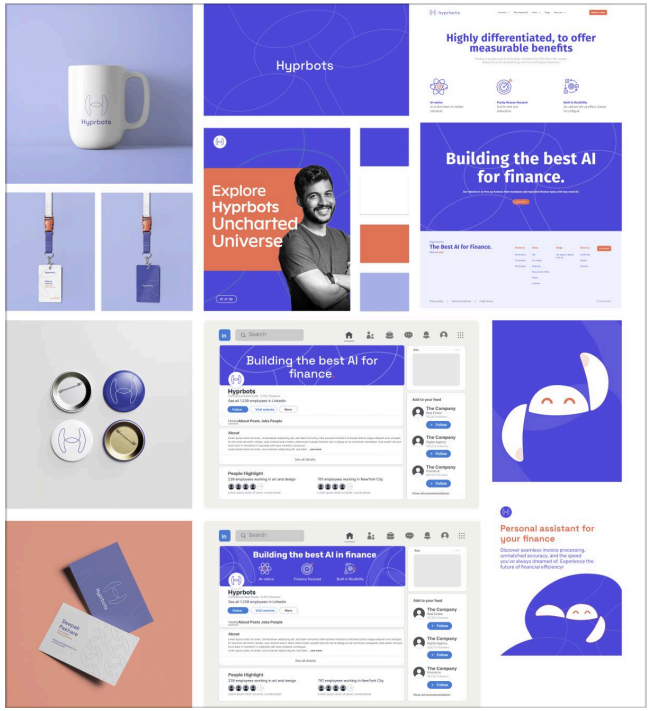
Based on this mood board was created to showcase BOLD, INTRIGUING, ABSTRACT, and HUMAN IN THE LOOP approach

Colors, Elements, Merchandise

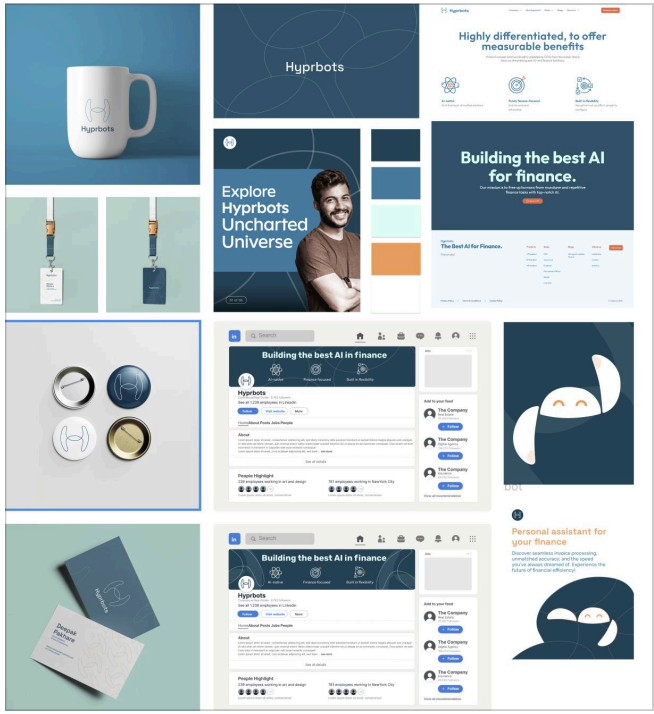
Based on the philosophy I came up with three distinct combinations for the team to choose from. The idea was to have one primary color and one accent color.



Option 1

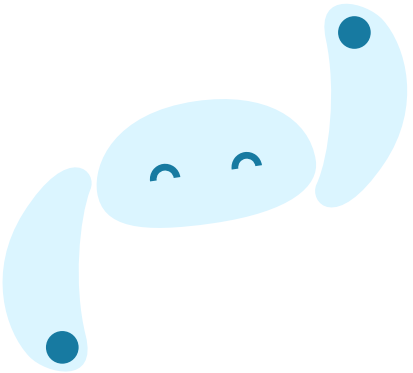


Option 2



Option 3

Hyprbots



Mascot-ALGO



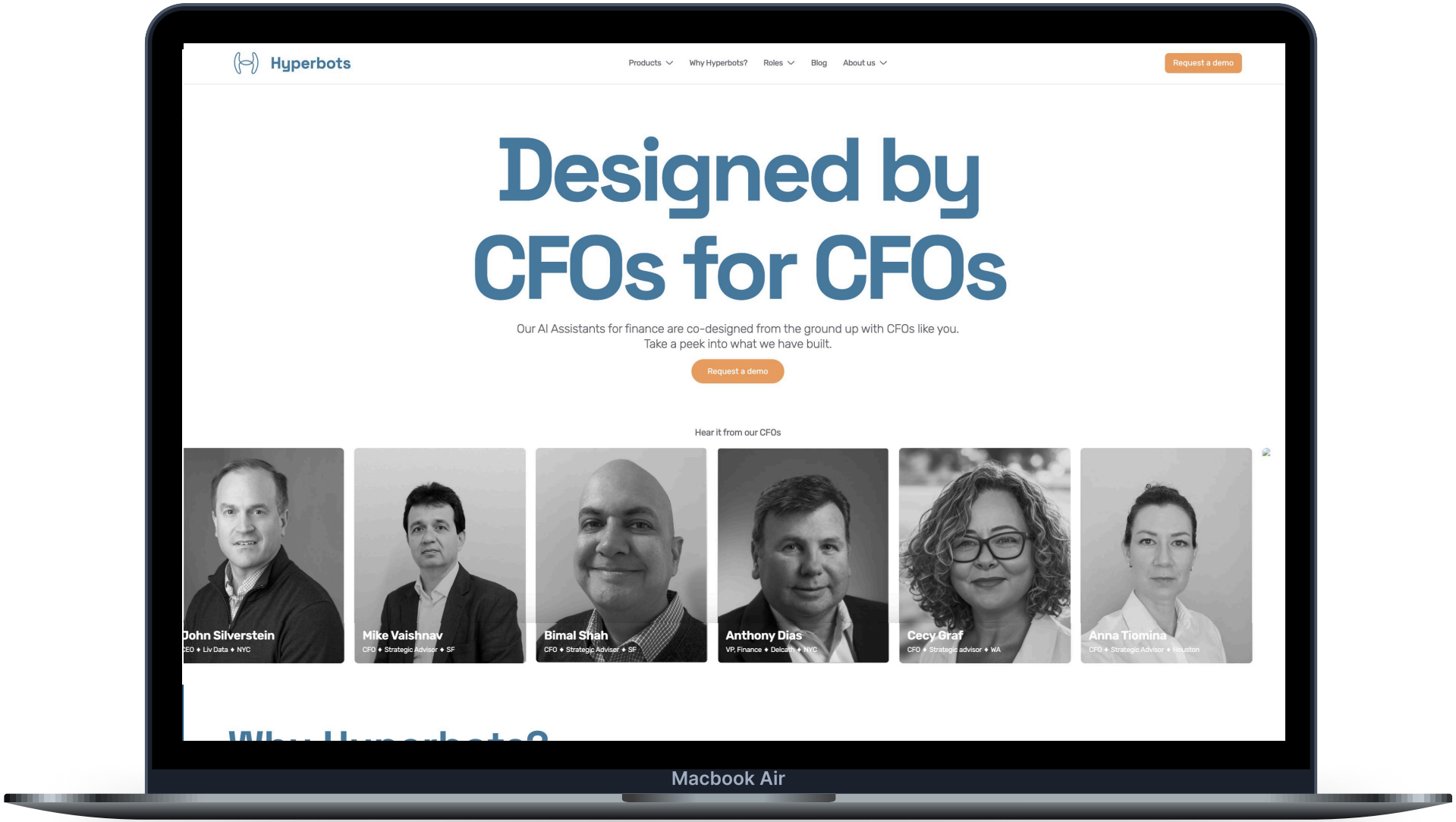
Logo

Accent color

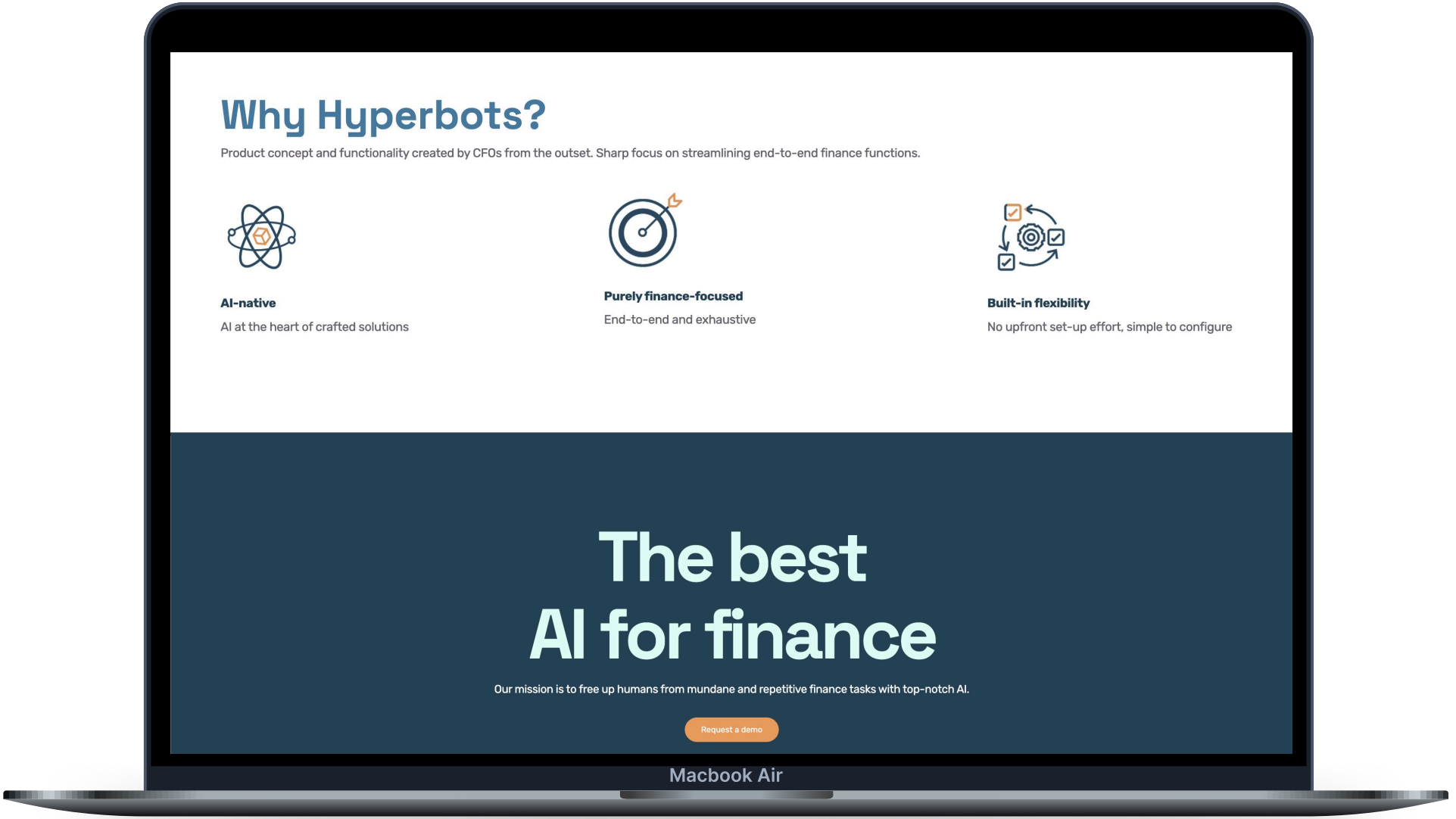
Primary color 1

Secondary color

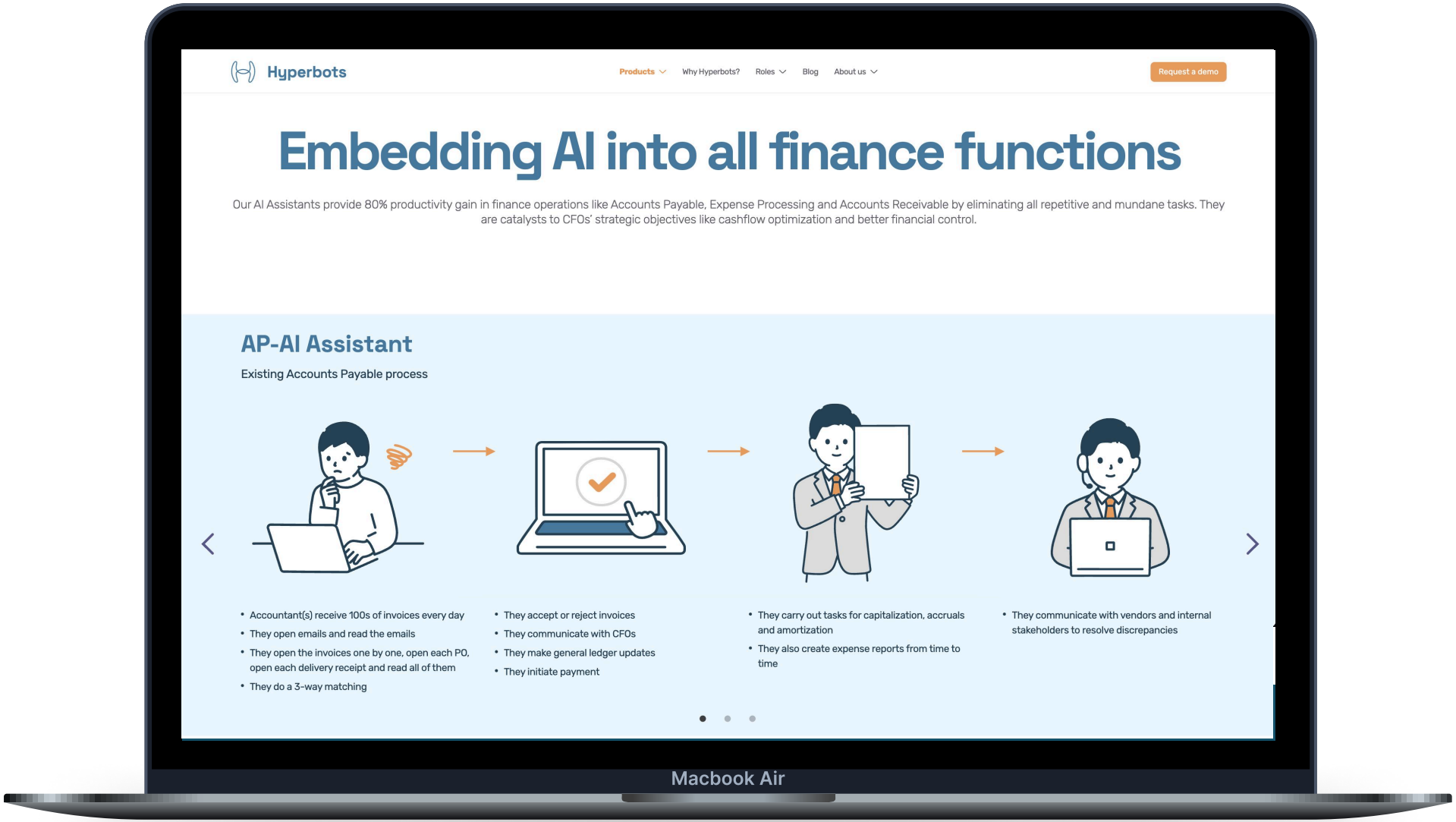
Live Website



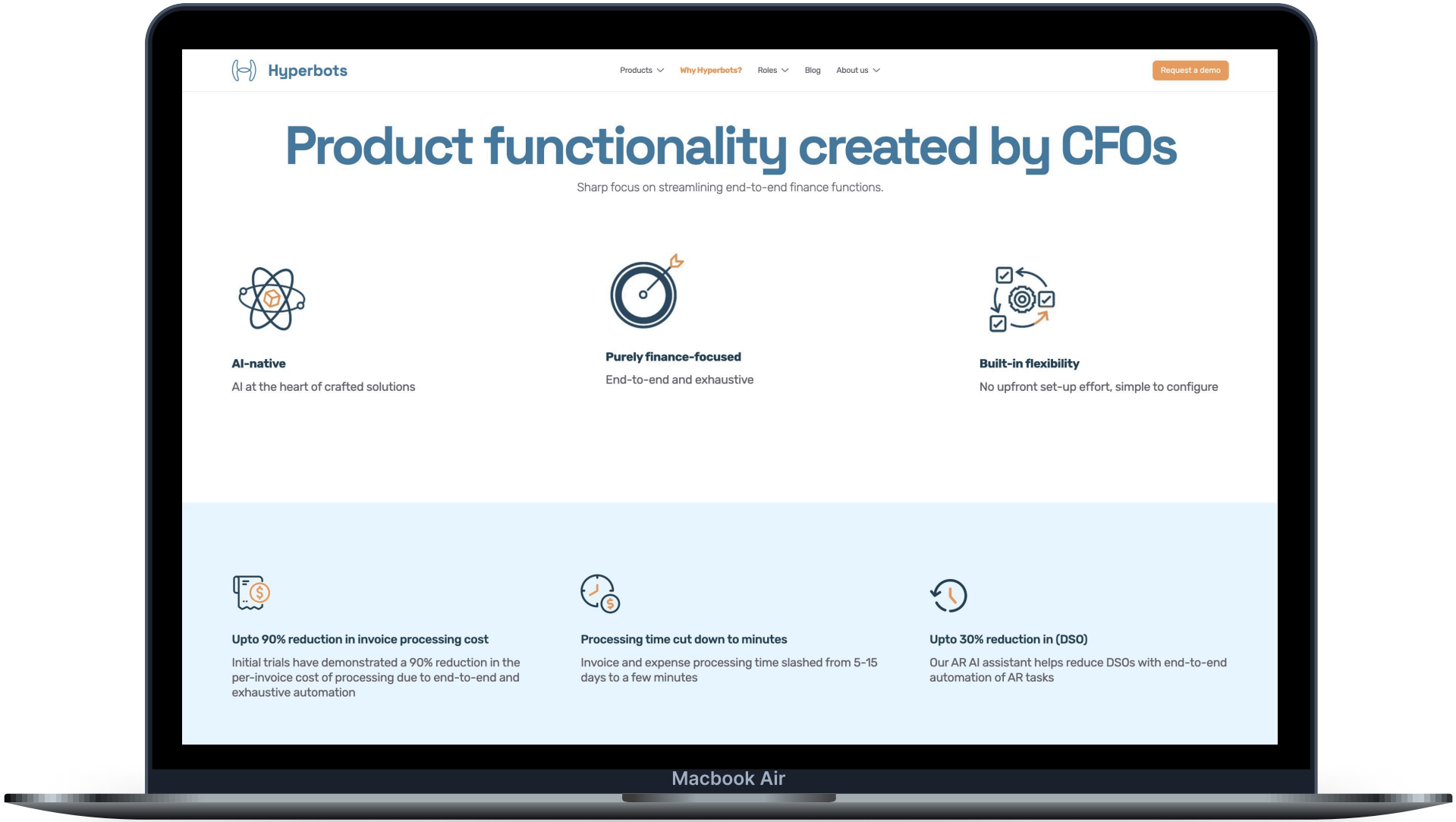
Live website



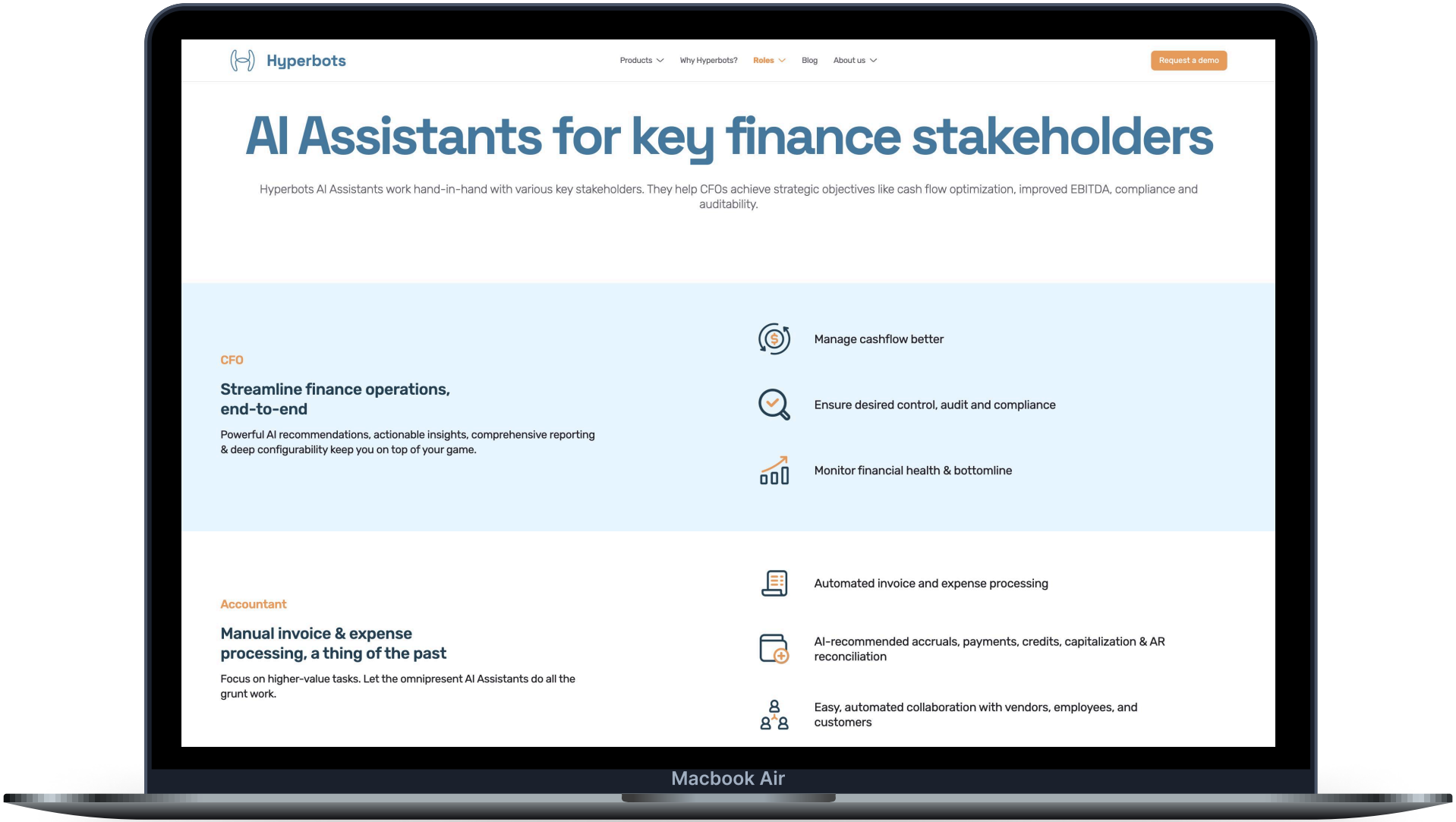
Live Website



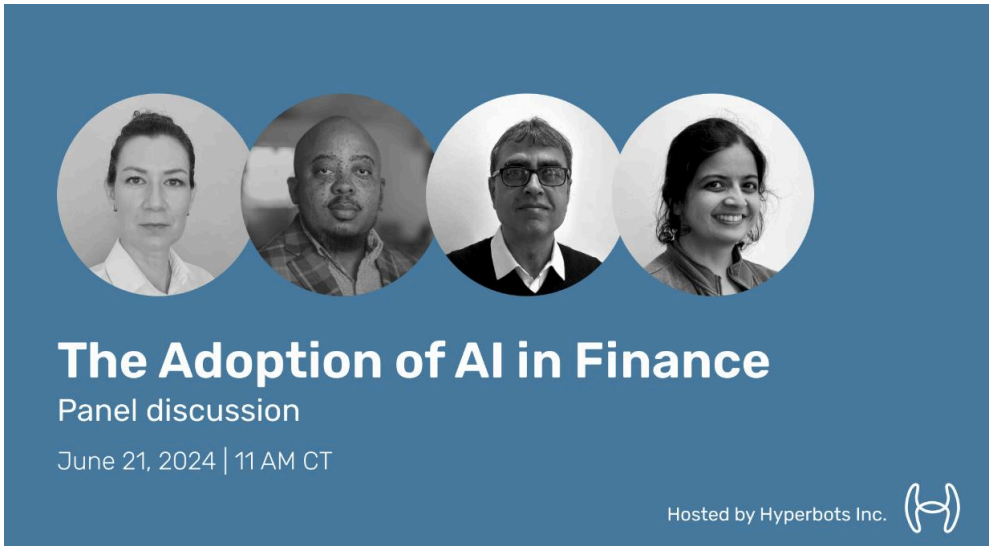
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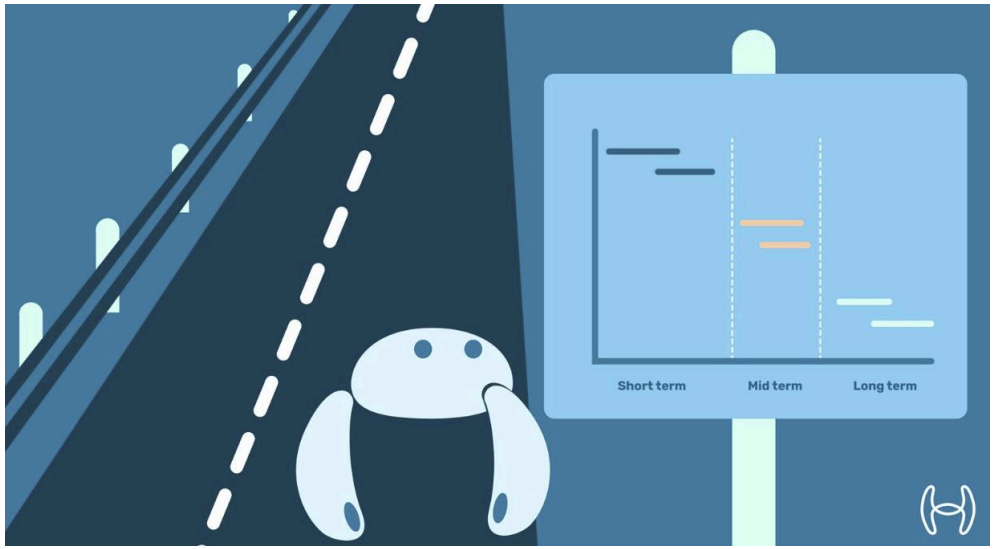


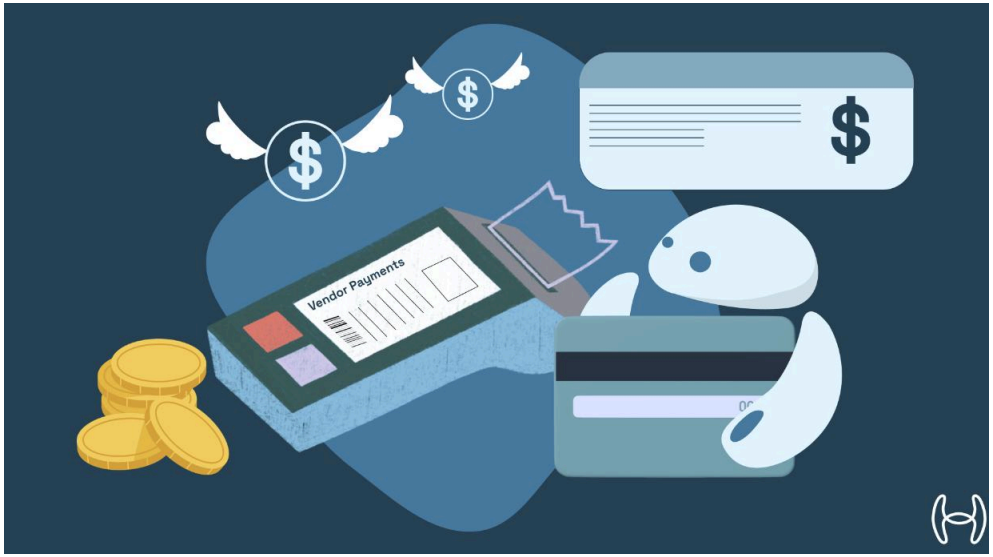
Live Website

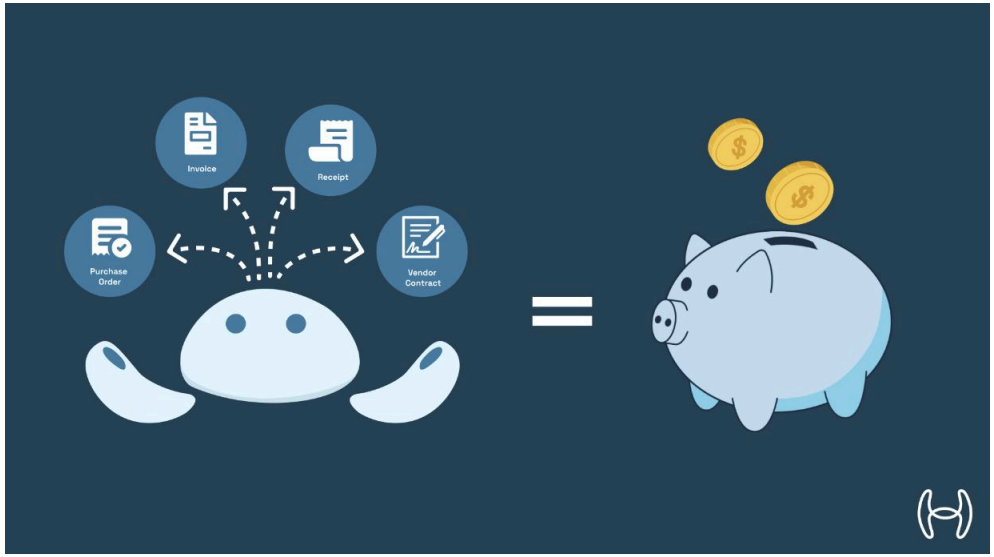


Thumbnail designs

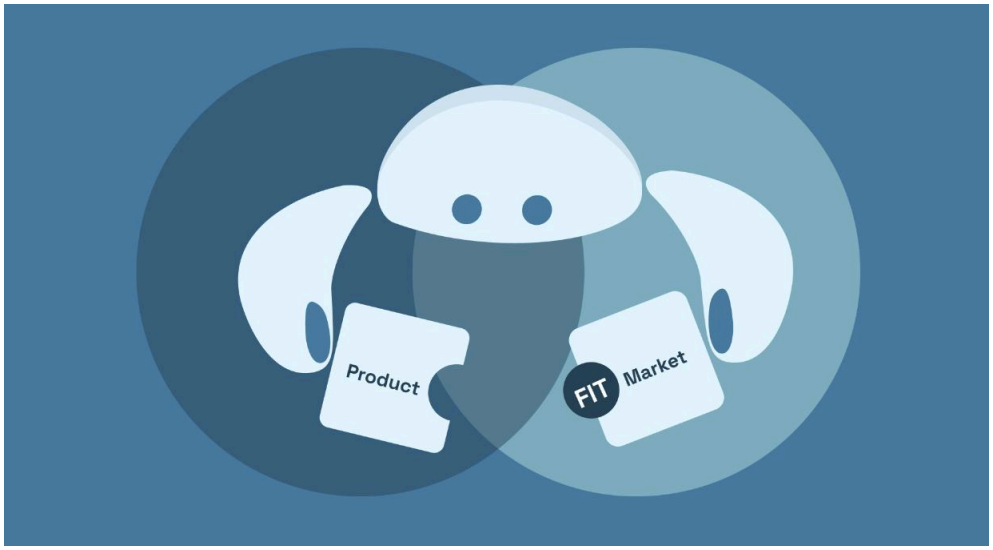


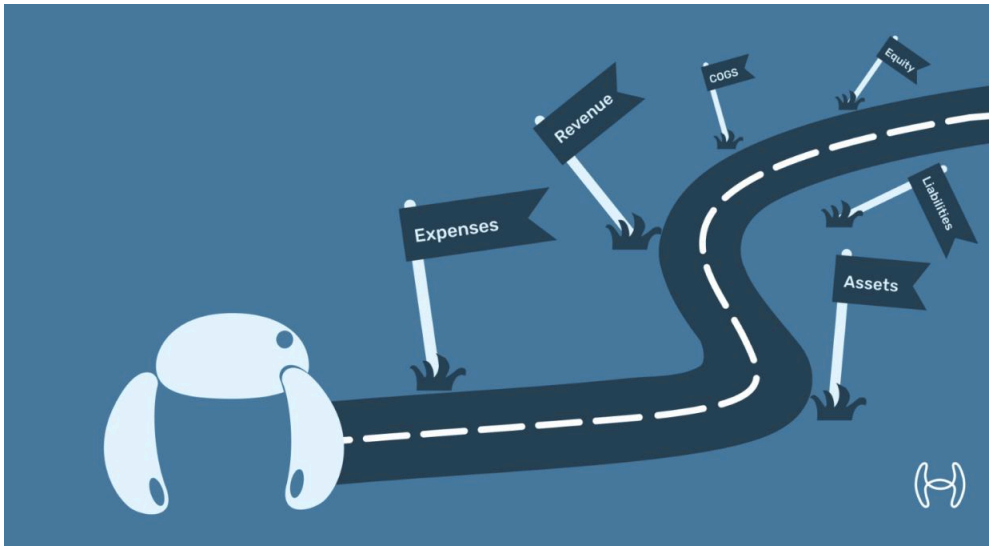


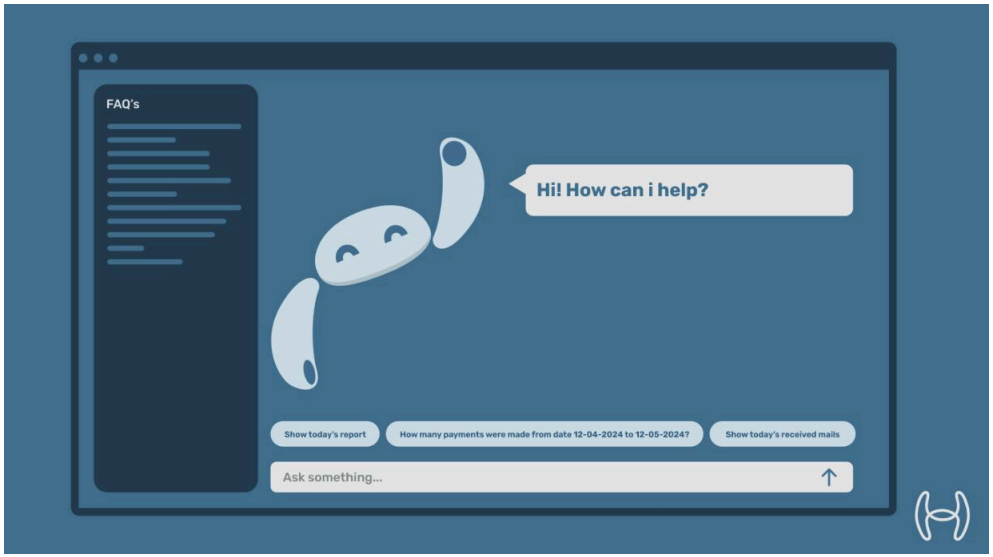


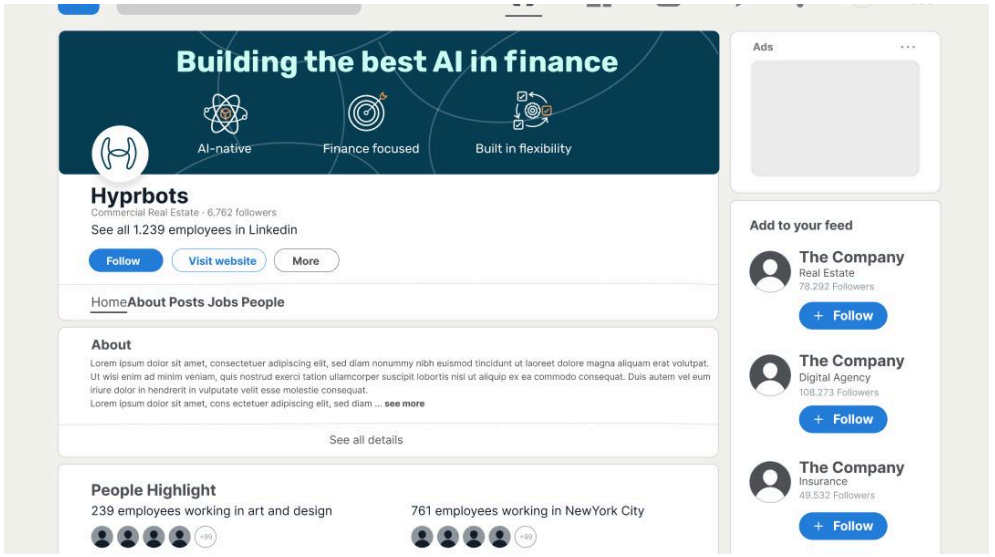


Thumbnail designs









Learnings

During my tenure, I worked on designing the tech startup's product as well as contributing to the brand identity through user research, design system frameworks and UI design for the firm's SaaS product that leverages new-age tech to streamline finance functions. As I reflect on the completion of my internship, here's some learnings I take with me as I wrap my head around the sheer amount of exposure, experience and skill I've gained working for the firm:

Collaboration is key: Working closely with product managers, developers and key stakeholders to deploy product features helped me gain a deeper insight into the key role that UX designers play within a tech ecosystem - bridging gaps, advocating for users, driving the product vision and so much more!

Time is of essence: Working in a fast-paced environment has not only allowed me to explore means of maintaining efficiency through streamlining my workflow, but also finding optimal ways of delivering quality work without compromising on timelines.

Wearing many hats never goes out of fashion: I had the first-hand experience of exploring the multi-faceted role that designers play at early-stage firms; working on brand identity, marketing collaterals and the product UX helped me hone my visual design skills and enhance my UX capabilities.

A collective vision leads the way: At every crucial juncture within the UX design journey, the team's collective vision was instrumental in driving decision-making; and the collaborative, cordial team spirit was just the cherry on top!

Glossary

AP
AP (Accounts Payable) refers to money a company owes to suppliers

EP
EP (Employee Expenses) refers to costs incurred by employees that need reimbursement

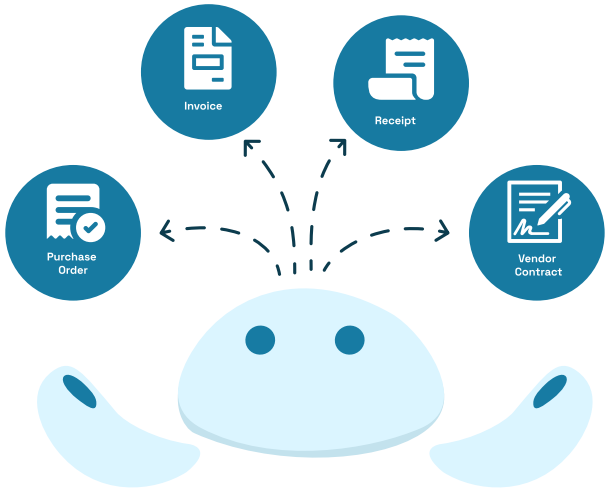
AR
AR (Accounts Receivable) refers to money owed to a company by its customers.

Cxd
Conversational design

CFO
Chief Financial Officer, is the senior executive responsible for managing the financial actions of a company, including financial planning, risk management, record-keeping, and financial reporting.

Invoice
An invoice is a document issued by a seller to a buyer that itemizes the products or services provided and indicates the amount due for payment. It serves as a formal request for payment and typically includes details such as item descriptions, quantities, prices, and terms of sale.

Purchase order
It is a document issued by a buyer to a seller, indicating the types, quantities, and agreed prices for products or services the buyer wishes to purchase. It serves as a legally binding contract once accepted by the seller, outlining the terms and conditions of the transaction.



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THANK YOU!