

Designing the Enphase AI Assistant Experience

From Rigid Systems to LLM-Powered Conversations

Conversational UX

AI Powered Assistant

Gen AI

0-1 Product

Product Design for Enphase Support

Background

In mid-2024, Enphase set out to leverage Artificial Intelligence to enhance its customer support experience. The goal was to streamline support operations, reduce manual agent workload, and improve the speed and efficiency of handling customer queries.

Goals

Enhance Customer Satisfaction

Improve customer satisfaction by providing timely, accurate, and efficient support.

Reduce Support Costs

Minimize the volume of support tickets and call volume to the customer support team by automating routine inquiries and troubleshooting.

Increase User Engagement

Encourage users to interact with the platform more frequently by providing valuable insights and personalized recommendations.

TEAM



Design

UX Designer (1)
Head of Design (1)



Engineering

AI/ML engineers (2)
UI Developer React(1) +
Respective teams for each product for integration



PLM

Respective Product Managers for each product : ENHO, ITK, ENLM, Website, Support and Service Manager



CS

Execs (2)
Representatives (2)



Timeline

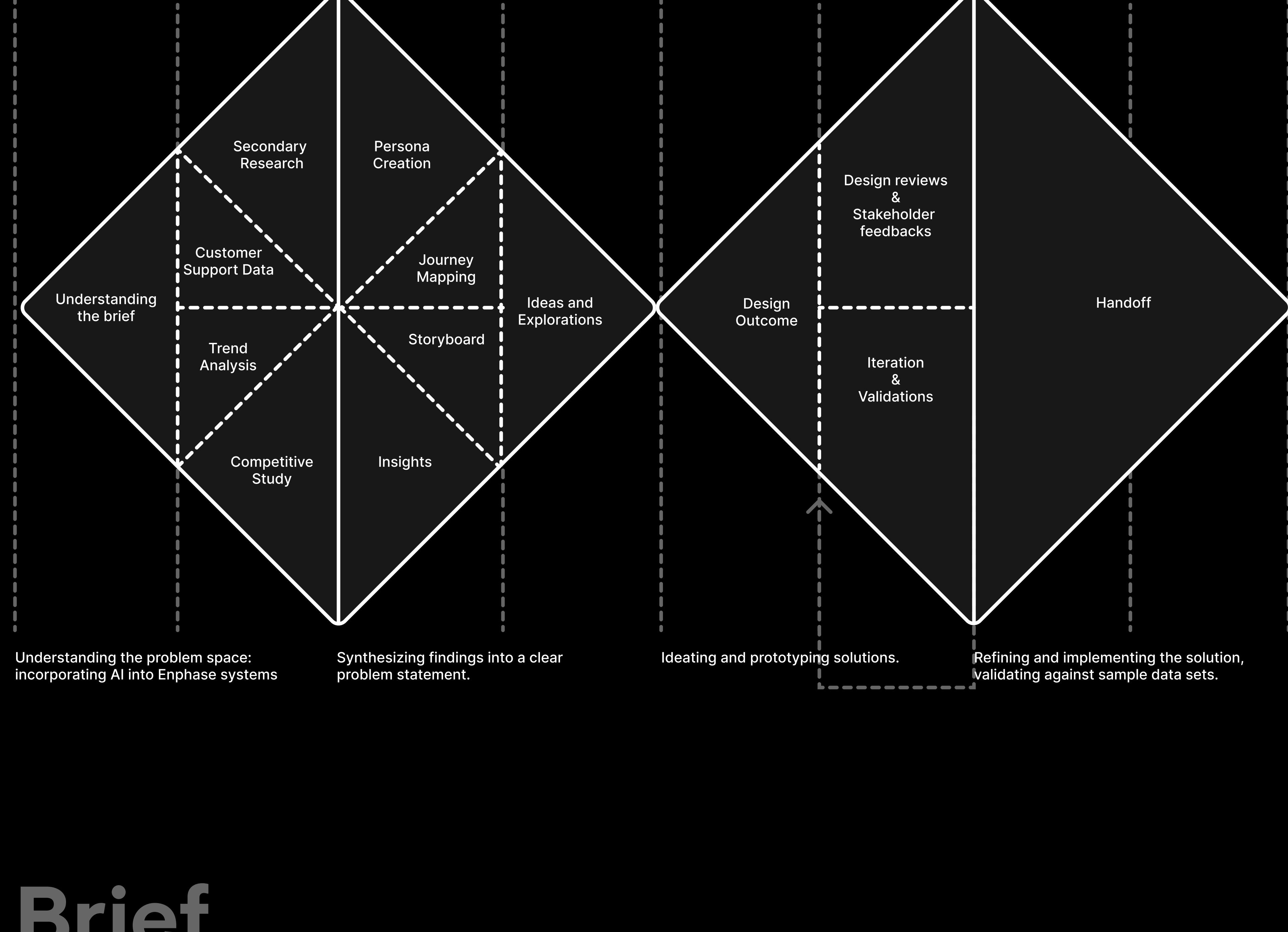
6 months

My Role

As the UX owner of this project, I was responsible for the end to end experience of the AI assistant.

- 👉 Collaborating with developers and AI engineers to understand technical limitations in the existing Salesforce UI, LLM capabilities, and define the project scope.
- 📝 Mapping intent journeys and designing smart, modular conversation flows aligned with real customer needs.
- 🧠 Analyzing customer support data to identify key pain points and recurring issues faced by different user groups.
- 🛠️ Designing the navigation structure and interactions for a more intuitive, flexible chat experience.
- 👉 Conducting prompt QA and visual design reviews to shape consistent and helpful LLM-generated responses.
- 🛠️ Prototyping and validating flows through cross-team testing, including internal reviews and QA-led feedback loops.
- 💬 Introducing the Chat + Case History feature, grounded in support logs and user behavior, to bring memory and continuity into the support experience.

Design Process



Slow response times
Customer frustration
and getting timely su

Secondary Research

Conducted competitive analysis, studied assistants from similar industry (e.g., home automation, renewable energy) to identify best practices and potential features.

Evaluated existing Enphase digital platforms to identify integration opportunities.

- Self-Help
- Device Discovery

50% of the calls are inquiries to check the site status when a certain device is not working / reporting, or reduced energy production.

Device discovery issues

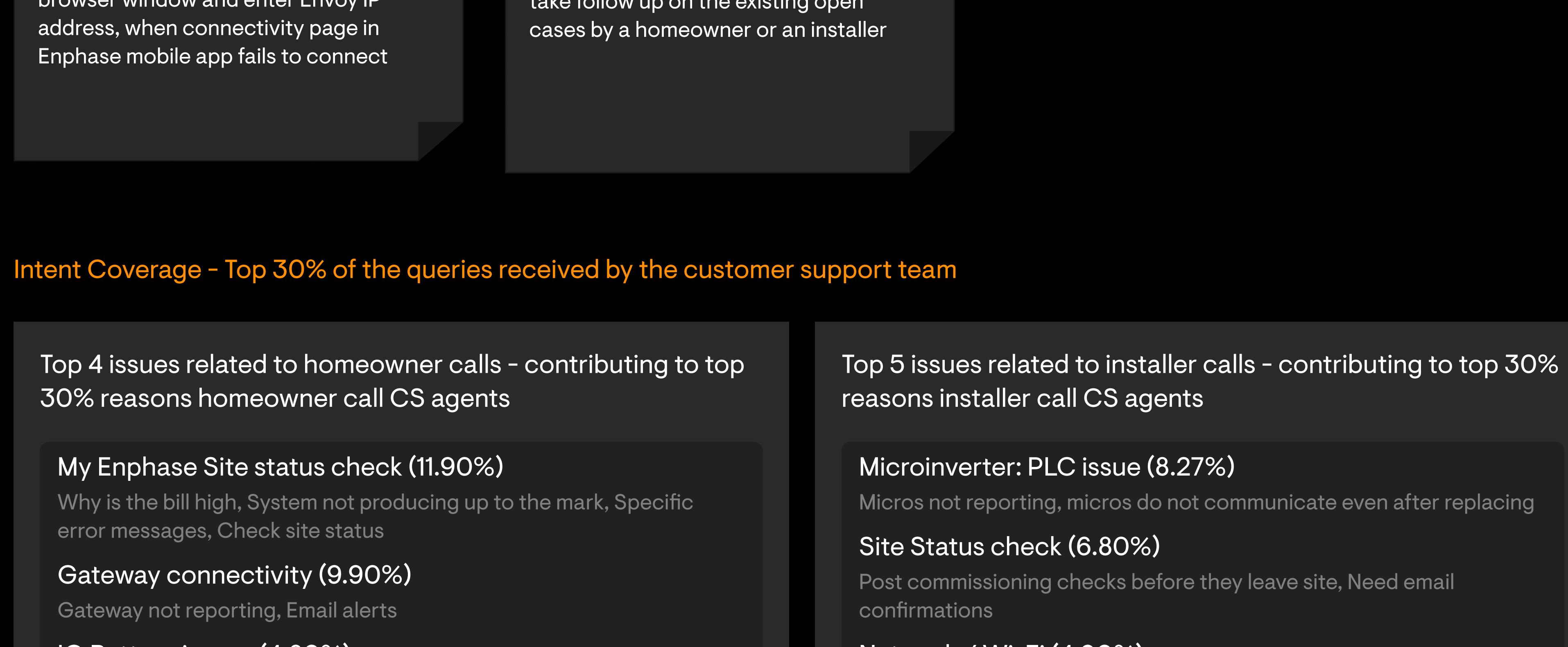
Self-help / Site status check
(Installers)

Self-help / RMA status check (Installers)

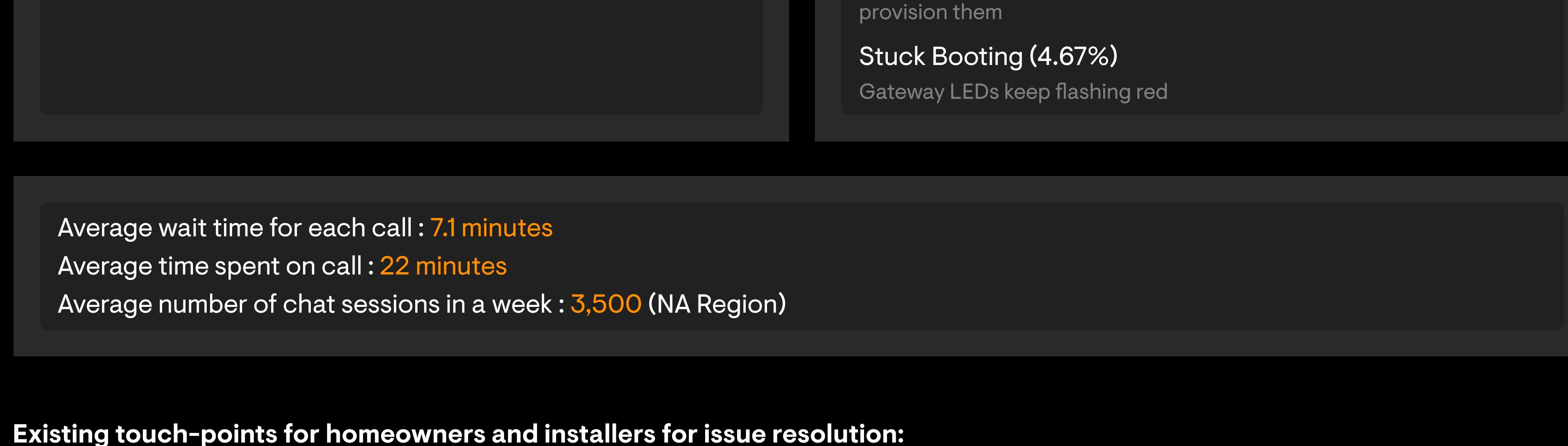
(Installers)
30% of the calls are inquiries to check
the installation of a device.

- Network / Envoy IP issues**

Open case (Repeat calls)

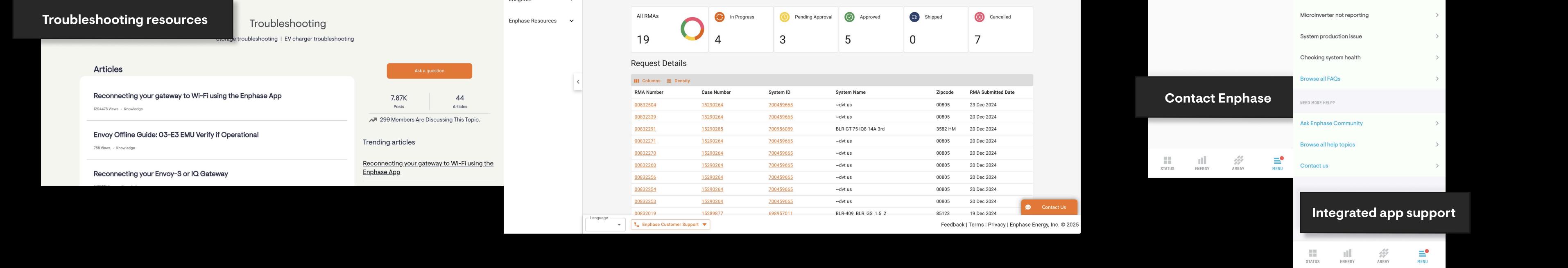


System access issues (3.30%) Envoy R
Login / Add maintainer company / Access control Replacing



- Communication channels for support (e.g., phone, email, chat).

- The image is a horizontal collage of three screenshots from the Enphase website. The top-left screenshot shows a dark header with 'Enphase' and a navigation bar with links for 'Homeowners', 'Business owners', 'Installers', 'Support', and a shopping cart icon. Below this is a secondary navigation bar with icons for 'Home', 'Homeowner Support', 'Installer Support', 'Community', 'Warranty and labor', 'Find an installer', 'Contact support', and 'Log In'. The bottom-left screenshot features a large, bold, dark blue button with the text 'How can we help?'. The bottom-right screenshot shows a 'Service manager (CS cases)' interface with a dark header and a 'Contact us' form. The form includes sections for 'CONTACT ENPHASE' (with 'Enphase Support' and 'Support Center' options) and 'CONTACT MAINTAINER'. There is also a 'Dashboard' button at the bottom.



Industry adoption of AI

- Conversational UX should **feel natural, not transactional** – users prefer bots that feel human but not overly "fake-human, Clear visual distinction between bot and human agents, Quick replies and smart suggestions
 - Contextual memory to personalize interactions
 - Studies show that mascots or illustrated characters in digital interfaces: Make the experience feel more personal and trustworthy, Lower user anxiety during stressful tasks like troubleshooting system errors and help improve brand recall and emotional connection

3. Primary Research

Discussion with Homeowners, Installers and CS Agents regarding their approach for when they face errors, gathering insights based on it. Key discussions that carried out were in the lines of :

- When you see a system alert, what's your first instinct?
- How do you feel about getting guided steps versus immediately talking to support?
- If a virtual assistant could solve your problem faster, would you use it? Why or why not?

"I get scared when I see an error, especially when I don't know what it means."

Opportunity: Reduce fear by simplifying alerts and offering assistance.

HOMEOWNER

"If there's a quick fix, I'm okay doing it myself — but I don't want to guess."

Opportunity: Offer structured, step-by-step guided help with safety nets.

HOMEOWNER

"When I'm on-site, I don't have time to read long documents. I need quick answers."

Opportunity: Provide concise, situation-based AI help ("Quick Fix mode").

INSTALLER

"Most customers describe problems vaguely — a bot could guide better questions before they reach me."

Opportunity: AI can pre-triage user problems by gathering structured information.

CS AGENT

"The first 5-10 minutes of every call is just me pulling up information — that could be automatic."

Opportunity: AI should prefetch account + system information before the agent connects.

CS AGENT

"Lot of our calls are actually repeat calls, just to check on their open cases"

Opportunity: Share with them the status and latest comments on their open case. Let the user comment on the same ticket.

CS AGENT

4. Personas

Based on the emotions, pain points and opportunities identified, building out the personas for the Homeowner, Installer and CS Agent.

HOMEOWNER



Alex Jones

Male, 41

Goals

- Reduce energy costs
- Get assistance in troubleshooting as quick as possible.
- Contribute to environmental sustainability
- Monitor energy consumption and production
- Access real-time energy data

Needs

- User-friendly monitoring tools
- Clear and concise information about energy usage
- Easy-to-understand explanations of technical concepts
- Reliable and responsive customer support

Key quotes

- "I want to understand how my solar system is performing."
- "I need easy-to-use tools to monitor my energy consumption."
- "I want to be able to troubleshoot any issues myself."
- "I want to feel confident in my investment in solar energy."

Bio

Tech-savvy homeowner, uses ENHO app

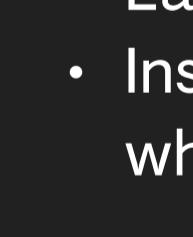
Frustrations

- Complex energy bills
- Concerns about system performance and reliability
- Difficulty understanding technical information
- Limited access to support and troubleshooting

Tech Savviness

- Comfortable with basic technology
- Uses smartphones and tablets for various tasks

INSTALLER



James Rivera

Male, 34

Goals

- Quickly and accurately commission solar systems
- Minimize setup errors and rework
- Resolve on-site issues without escalation

Needs

- Easy-to-follow commissioning and validation steps
- Instant troubleshooting and help in case of errors while on site, because each site trip costs extra.

Key quotes

- "When something fails, I need quick, step-by-step help — not a 20-page manual."
- "I just want the commissioning and validation to happen smoothly — without wasting time calling support."

Bio

Installer with moderate tech comfort, uses ITK app

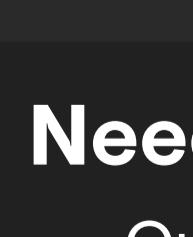
Frustrations

- Software updates or system errors delaying installations
- Lack of real-time guidance when setup fails
- Having to call support for issues while commissioning

Tech Savviness

- Comfortable with basic technology
- Often multitasking between apps and physical system setup

CUSTOMER SUPPORT AGENT



George Philip

Male, 42

Goals

- Provide quick and accurate resolutions to customers
- Reduce call handling time while maintaining quality
- Improve first-call resolution rate
- Minimize escalations to Tier 2 support
- Learn new solar tech updates efficiently

Needs

- Quick access to accurate information
- Context-aware assistance – consider customer history & past issues
- Simplified explanations in an easy-to-understand manner for the homeowner

Key quotes

- "I don't have time to dig through documents while a customer is waiting."
- "Explaining solar tech to homeowners is tough. I wish I had a way to simplify things."

Bio

Tech savvy CS Team Representative

Frustrations

- High call volumes lead to burnout
- Struggles to find relevant troubleshooting steps quickly
- Difficulty in explaining complex solar concepts to customers
- Needs to switch between multiple systems, slowing down response time

Tech Savviness

- Comfortable using ticketing systems, CRM, and chat support tools

5. Customer Journey Map

Mapping the experience Homeowners and Installers face at each stage of the support cycle.

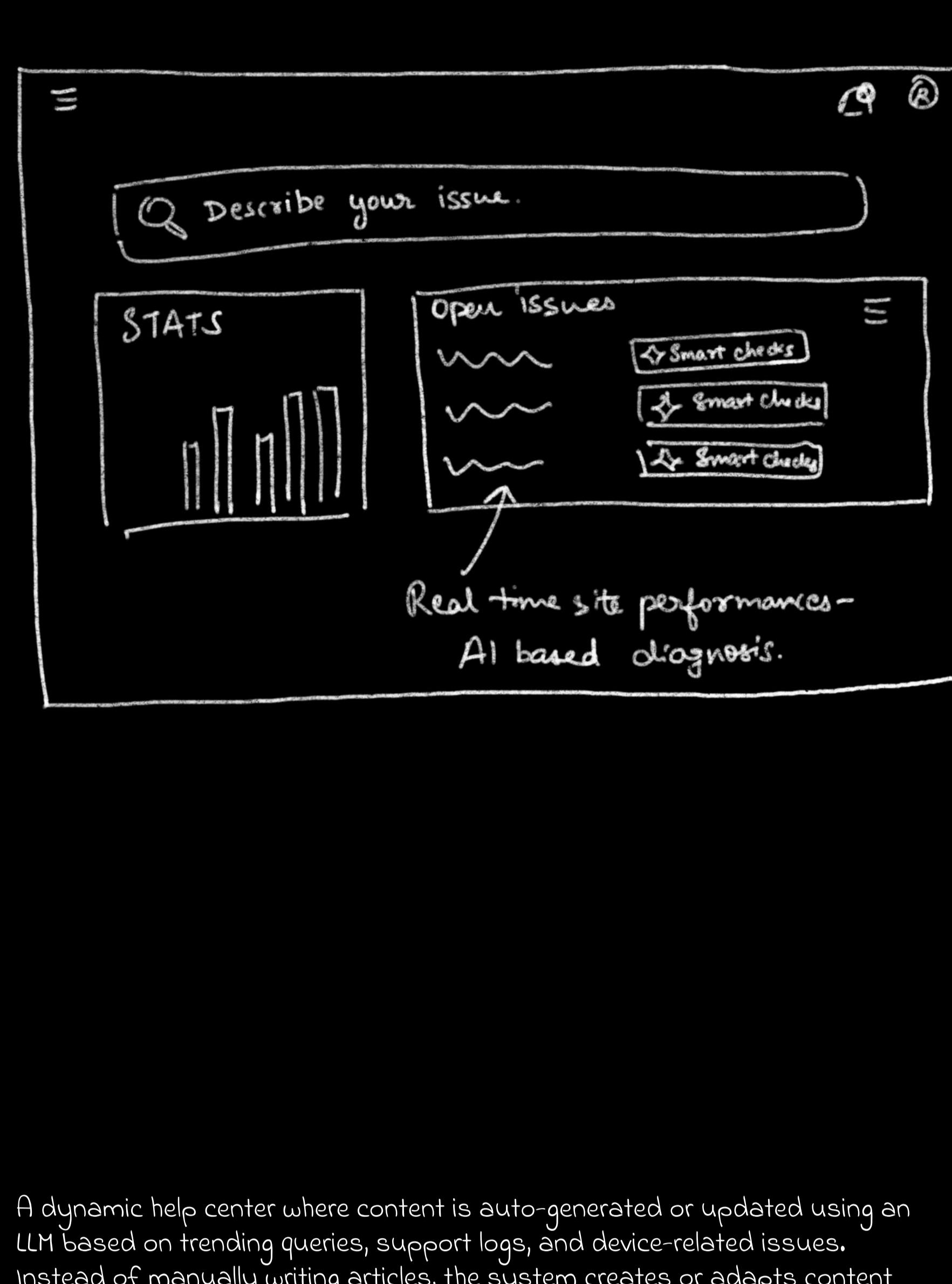
HOMEOWNER JOURNEY				
Stage	Action	Emotion	Pain Points	Opportunities
Notice an Issue	User checks app and sees micros not reporting error	🤔 Confused, anxious	Unable to understand the cause of issue	AI-powered friendly alerts, explain in simple language
Seeks Help	Navigates to 'Support' or 'Help' sections inside the app.	😢 Slight frustration	Hard to find quick answers; uncertainty about next steps	"Ask En-Bot" button — instant access to troubleshooting
Tries to Self-Resolve	Reads FAQs or tries restarting the system herself.	👉 Hopeful, cautious	Instructions are often too technical	Step-by-step guided troubleshooting, In-app redirections
Contacts Support	Starts a manual chat/call with support.	🤣 Worried	Wait times, repeating issue history to agent	AI pre-fills system info + auto-shares error details
Interacts with Support	Discusses the issue with a human agent.	😊 Hopeful if fast 😢 Upset if slow	Delays in getting solutions, waiting time due to transferring call to the right support agent	Friendly AI nudges: "We're reviewing your system" or "Here's what we're checking next"
Resolution	Issue is resolved or ticket is created.	😌 Relieved if resolved 😢 Nervous if pending	Lack of visibility into ticket status or updates, need to call again to ask for update	Proactive ticket tracking updates
Post-Resolution	Reflects on the support experience.	😌 Calm 😢 Disappointed	If process was complex, may lose trust	Thank-you nudges from En-Bot + feedback collection for AI improvement

INSTALLER JOURNEY				
Stage	Action	Emotion	Pain Points	Opportunities
System issue detected	User notices site issues Enlighten or ITK	🤔 Worry, confusion	No clear cause, technical terms confusing	Proactive smart alerts, simplified messaging
Seeks Help	User tries to find support via app, agent chat, or support web	😢 Frustration	Support channels feel overwhelming or slow	Easy-to-find help (upfront support), "Start Chat" CTA
Connects to Support	User contacts Enphase support manually (chat/phone)	👉 Hopeful but anxious	Wait times, repetitive questions	Early self-service options
Support Interaction	Troubleshooting begins (manual agent support)	😌 Relieved if help is quick 😢 Frustrated if slow	Lack of system context shared with agent	Automated context sharing, case history surfacing
Issue Resolution	Problem solved or ticket raised	😊 Satisfaction 😢 Disappointment	Delayed resolutions impact brand perception	Smart handoff between AI and human agents
Post-Support Follow-up	User receives case updates	👉 Calm, satisfied	Resolution notes could sometimes be too technical	Friendly summaries, proactive case status updates

6. Ideas and Explorations

Based on the primary and secondary research, ideated couple of solutions to integrate AI within Enphase systems and to leverage the power of AI and reduce manual support load, we explored multiple solution ideas ranging from smart diagnostics tools to proactive support nudges, and even an AI-generated help center. Each concept was evaluated based on feasibility, implementation effort, scalability, and potential impact on support volume and user experience.

Smart Diagnostics Tool



A CS or installer-facing tool that allows you to describe a problem in natural language (or select symptoms), and then uses AI to automatically run backend diagnostics, cross-check device data (like energy production, connectivity, device status, etc) installer sees list of issues in their fleet with AI based resolution recommendations.

Pros:

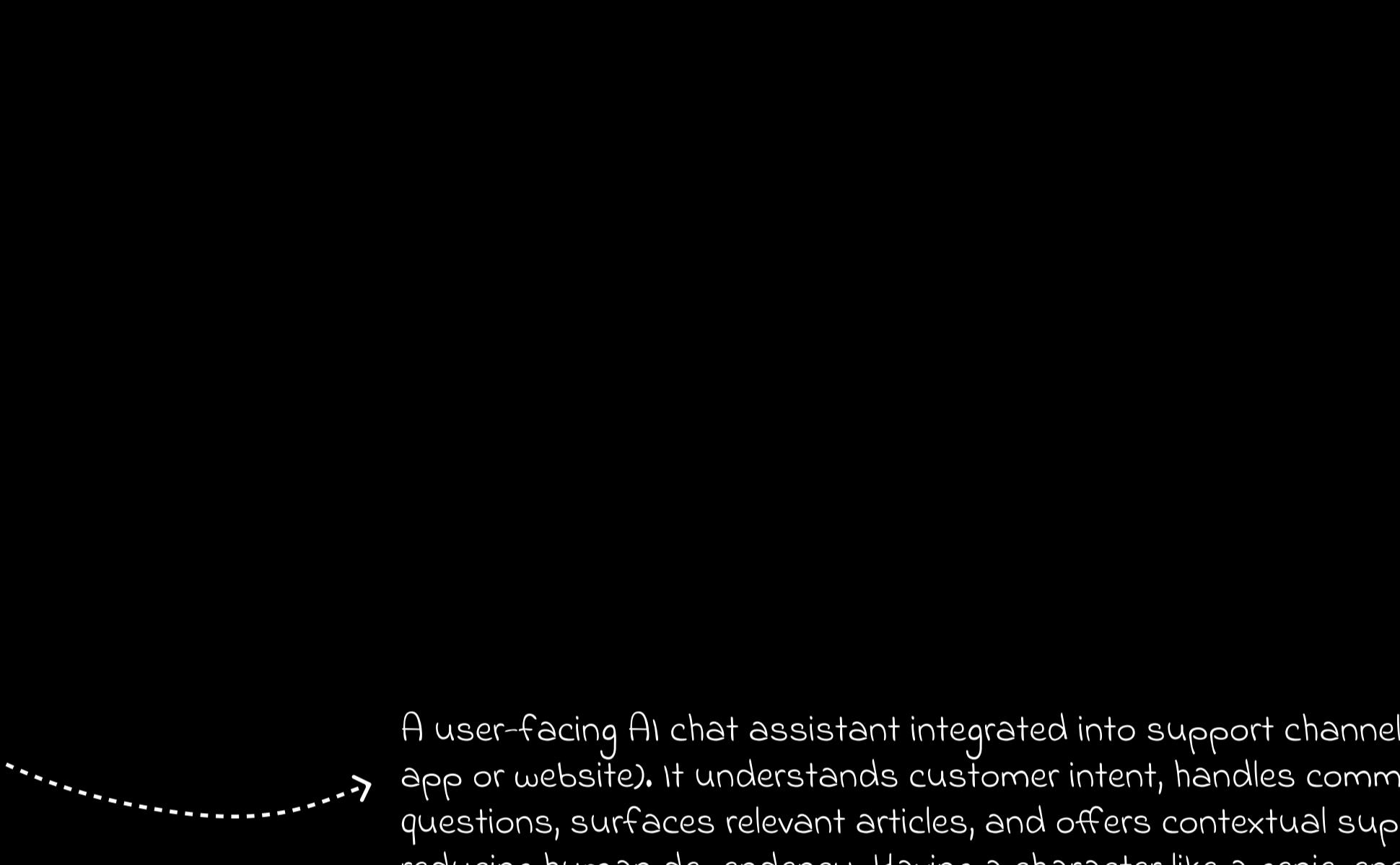
- Provides fast support with minimal manual intervention
- Works well for repeatable issues like offline status, underproduction, battery not charging, etc.

Cons:

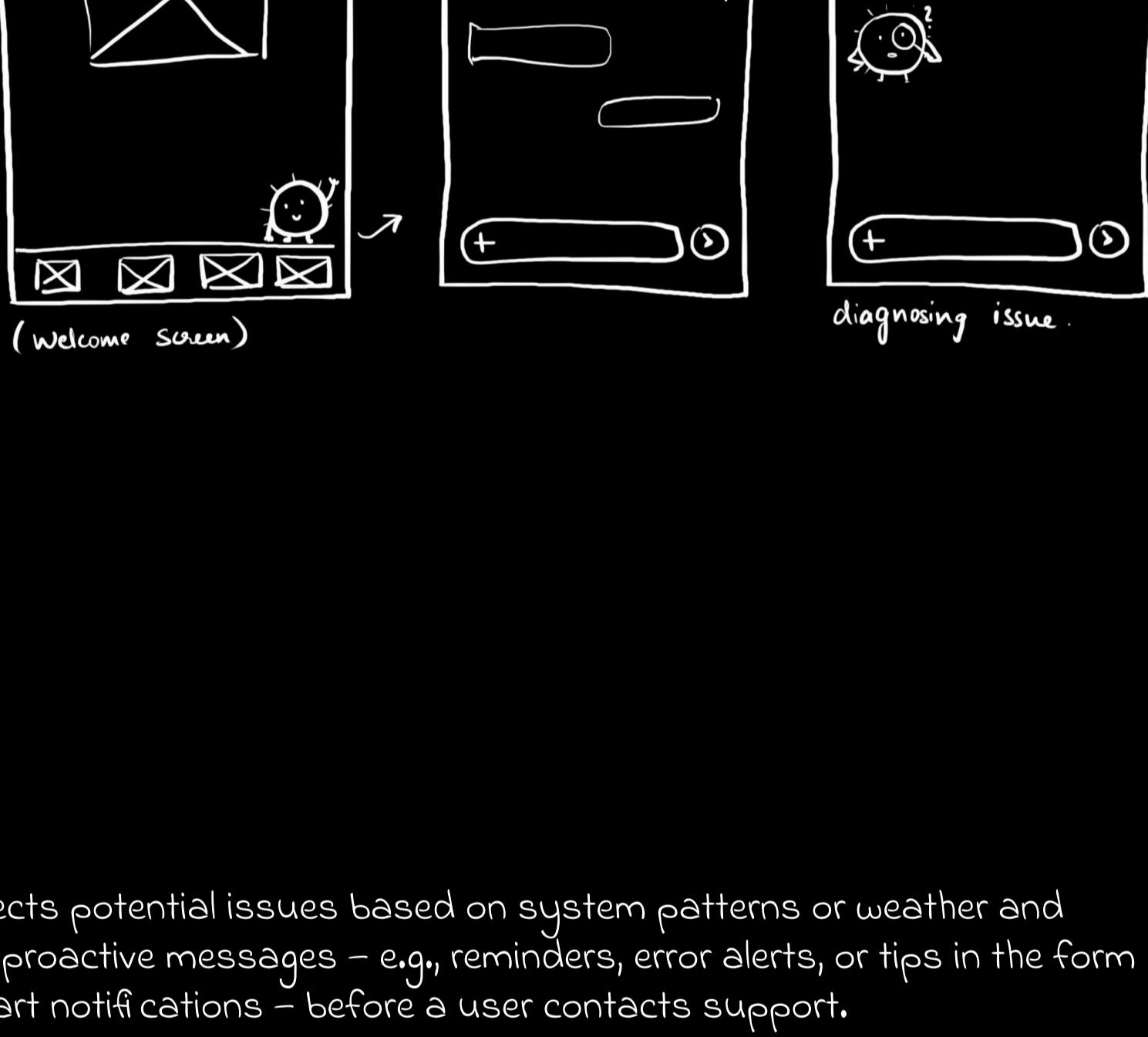
- Requires tight backend integration with system/device data (API access)
- Needs well-maintained data mapping
- The overall idea is to reduce customer support calls, installer facing tool will aid

A dynamic help center where content is auto-generated or updated using AI based on trending queries, support logs, and device-related issues. Instead of manually writing articles, the system creates or adapts content on the fly, ensuring it's always relevant.

AI-Generated Help Center



Conversational AI Assistant / Energy buddy



A user-facing AI chat assistant integrated into support channels (like the app or website). It understands customer intent, handles common questions, surfaces relevant articles, and offers contextual support – reducing human dependency. Having a character like a genie, energy pal, or bot buddy can make assistant feel more warm, memorable, and trustworthy.

Pros:

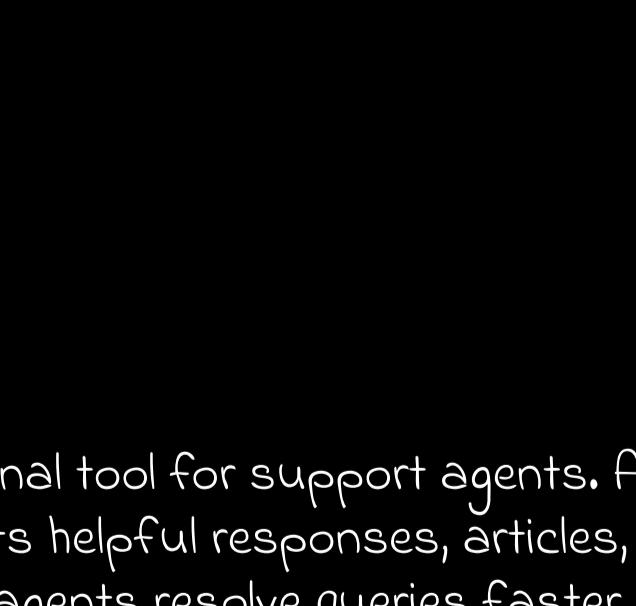
- Makes the assistant feel less robotic and more approachable
- Builds emotional trust

Cons:

- Enphase as a brand has a very sophisticated design style, as it is used by a large user group, mostly elder age group. Playful elements are not highly encouraged.

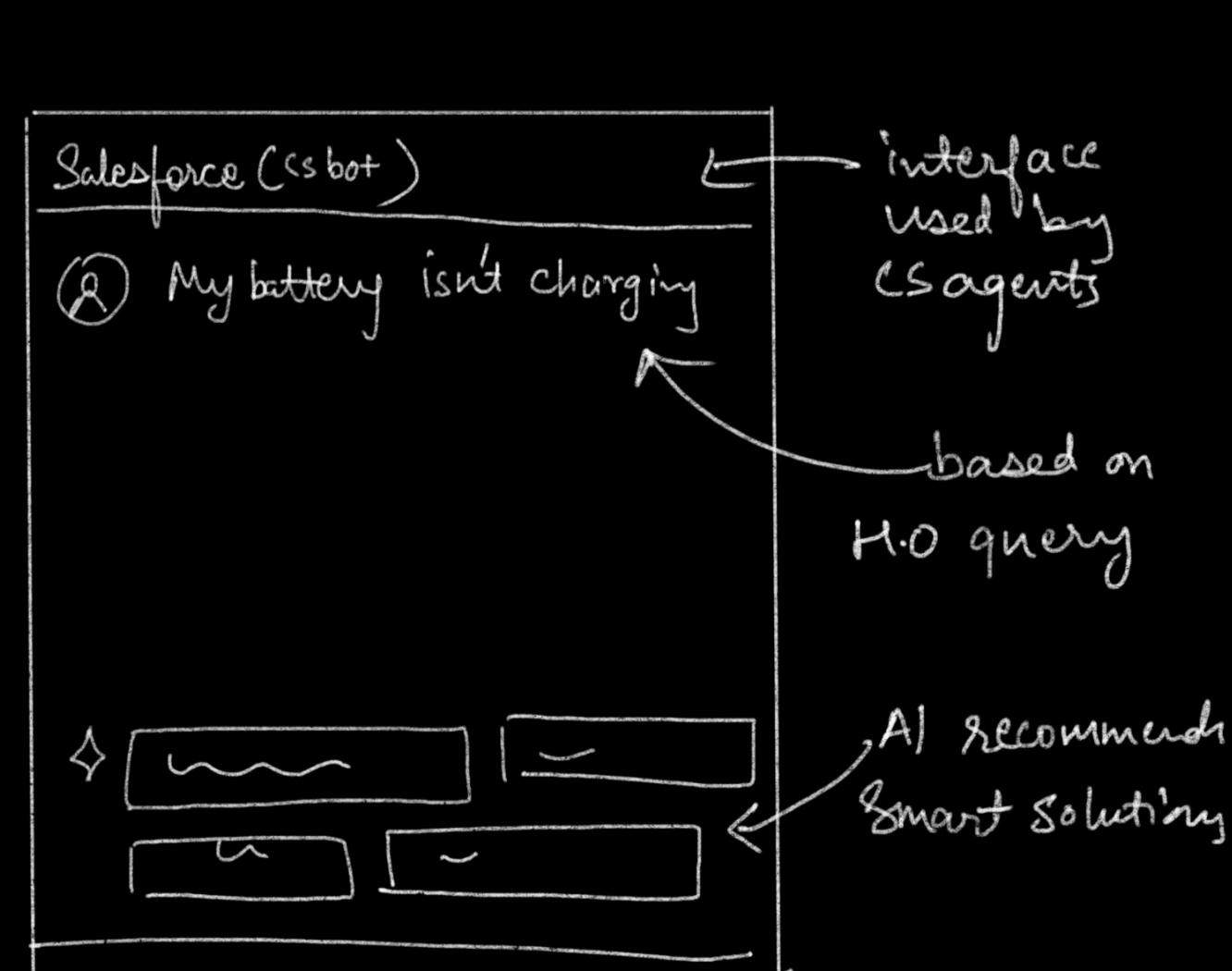
AI detects potential issues based on system patterns or weather and sends proactive messages – e.g., reminders, error alerts, or tips in the form of smart notifications – before a user contacts support.

Proactive Support Nudges



- Pros:**
- Prevents support calls by acting early
 - Builds user trust through transparency
 - Low interaction effort for users

- Cons:**
- Depends on strong anomaly detection + device data monitoring



Pros:

- Boosts agent productivity
- Ensures consistent tone and accuracy

Cons:

- No direct impact on user-facing experience
- Adds complexity to the agent tool UI
- Doesn't solve the problem of customer calls

Agent Co-Pilot Assistant

An internal tool for support agents. As reps chat with customers, the AI suggests helpful responses, articles, or diagnostics actions in real time – helping agents resolve queries faster with less searching.

7. Key Stakeholders

When designing an AI assistant, it's crucial to identify and engage with key stakeholders. These stakeholders can be internal or external to the organization and will have varying levels of interest and influence in the project.

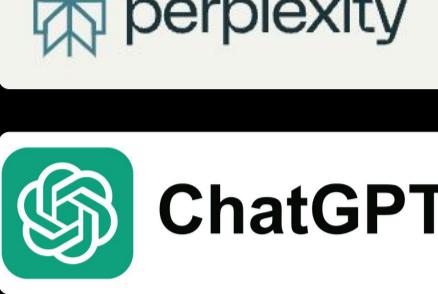
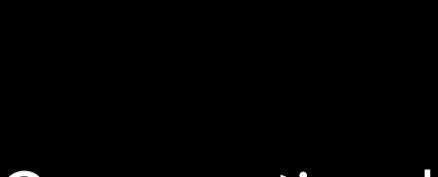


8. Solution Space

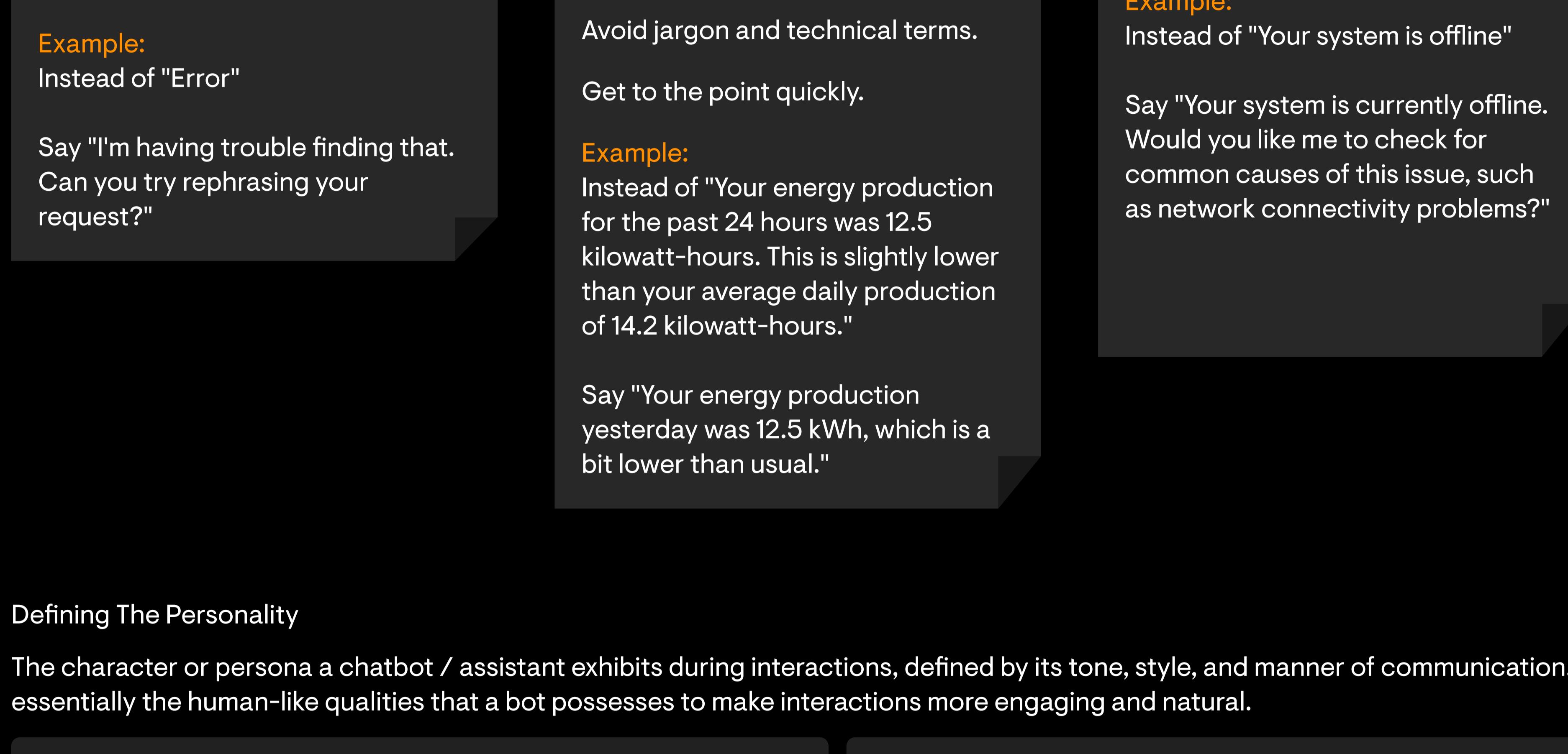
Based on the analysis and the needs,

- We needed a **human-like, intuitive interface** to reduce fear and frustration during system issues.
- Chat allowed us to blend multiple support types — proactive alerts, guided help, and live escalation — in one experience.
- **Conversational interfaces** feel personal and dynamic, building stronger user trust.

Competitive Analysis: Below AI Assistants were studied basis the interaction, touch-points, conversation tone, etc.

 mySigen App	mySigen by Sigenergy: Conversational tone , instruct to manage devices, personalized support.
 Digital Energy	Digital Energy by Streebo : Energy and Utilities AI Assistants Powered by Microsoft Copilot and GPT, preset touch-points, multilingual support, clear chat, transcript and save message features
 perplexity	Perplexity : Conversational, discoverable topics, popular topics, personalization, focus areas, access past chats.
 ChatGPT	ChatGPT : Conversational, discoverable topics, popular topics, personalization, focus areas, access past chats.

Conversation design - approach / guidelines (ref: [Conversation Design, Google](#))

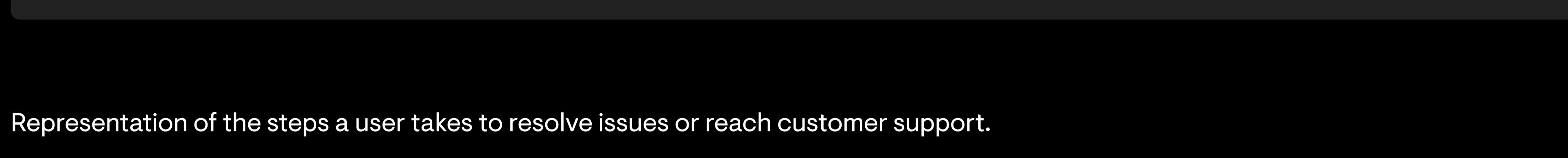
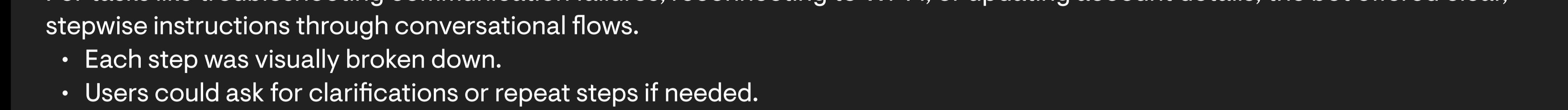
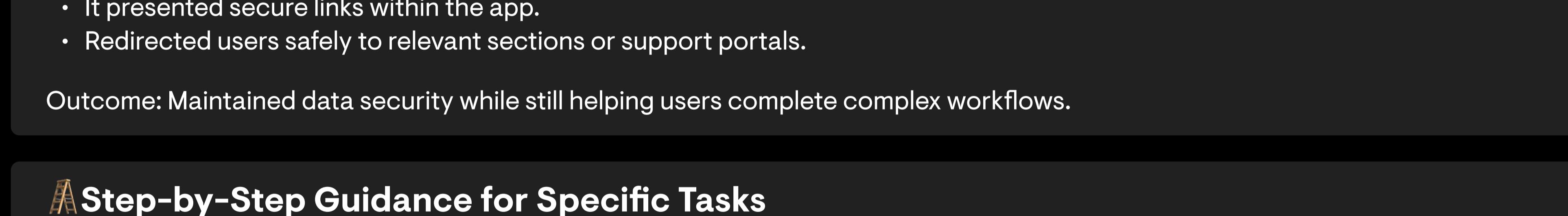
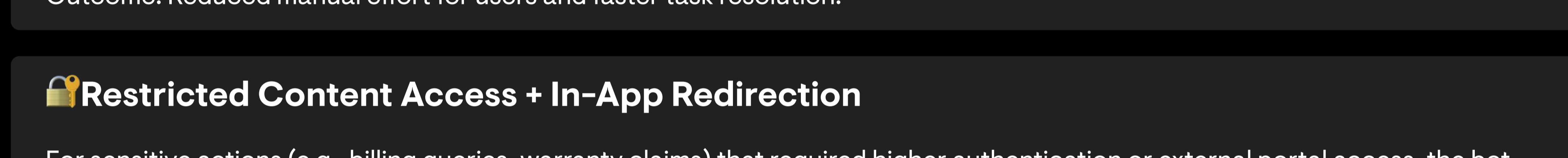


Defining The Personality

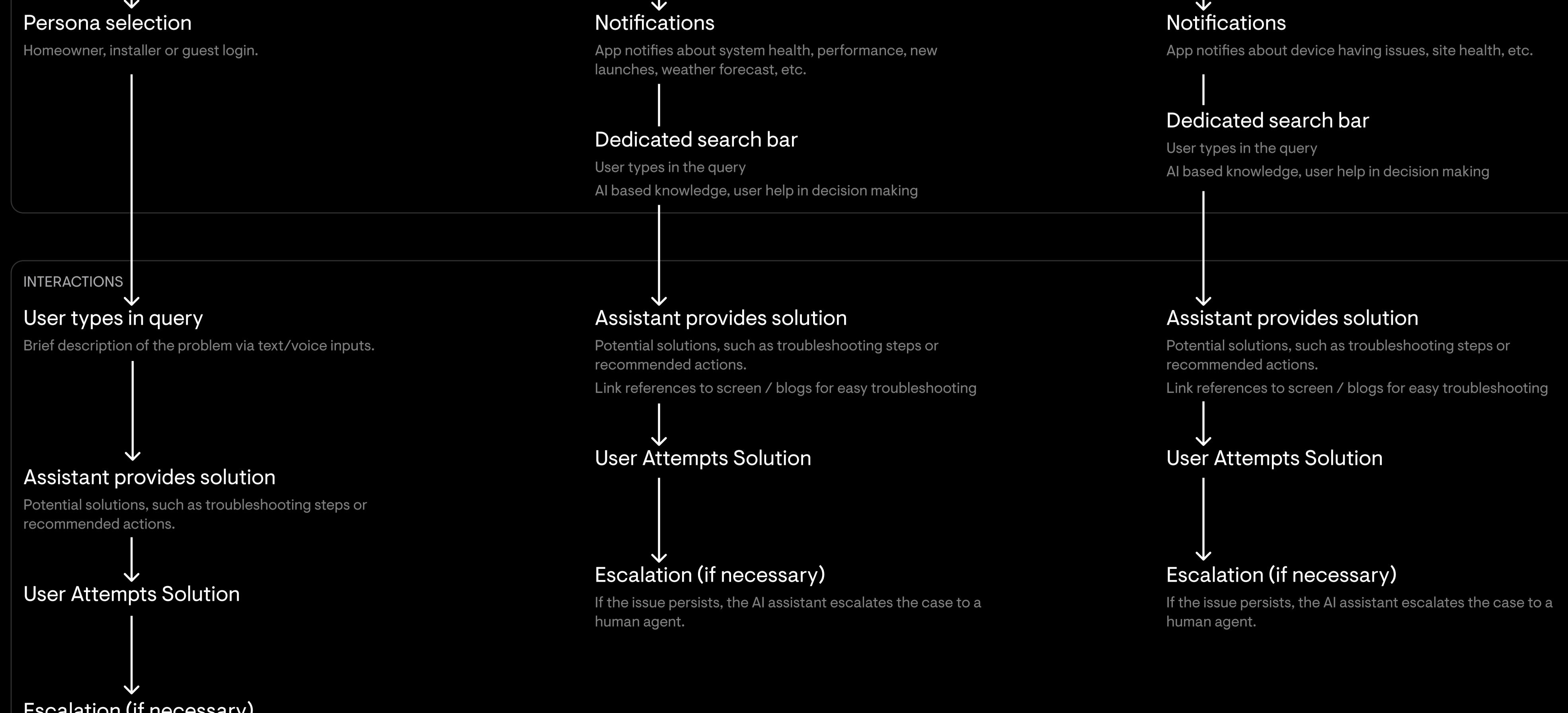
The character or persona a chatbot / assistant exhibits during interactions, defined by its tone, style, and manner of communication. It's essentially the human-like qualities that a bot possesses to make interactions more engaging and natural.



Types of scenarios we catered for while designing the chat interface



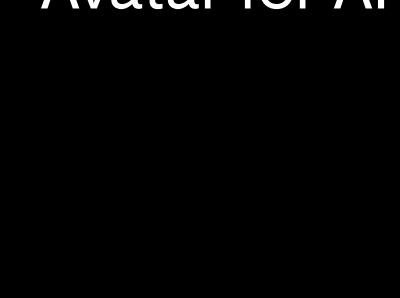
Representation of the steps a user takes to resolve issues or reach customer support.



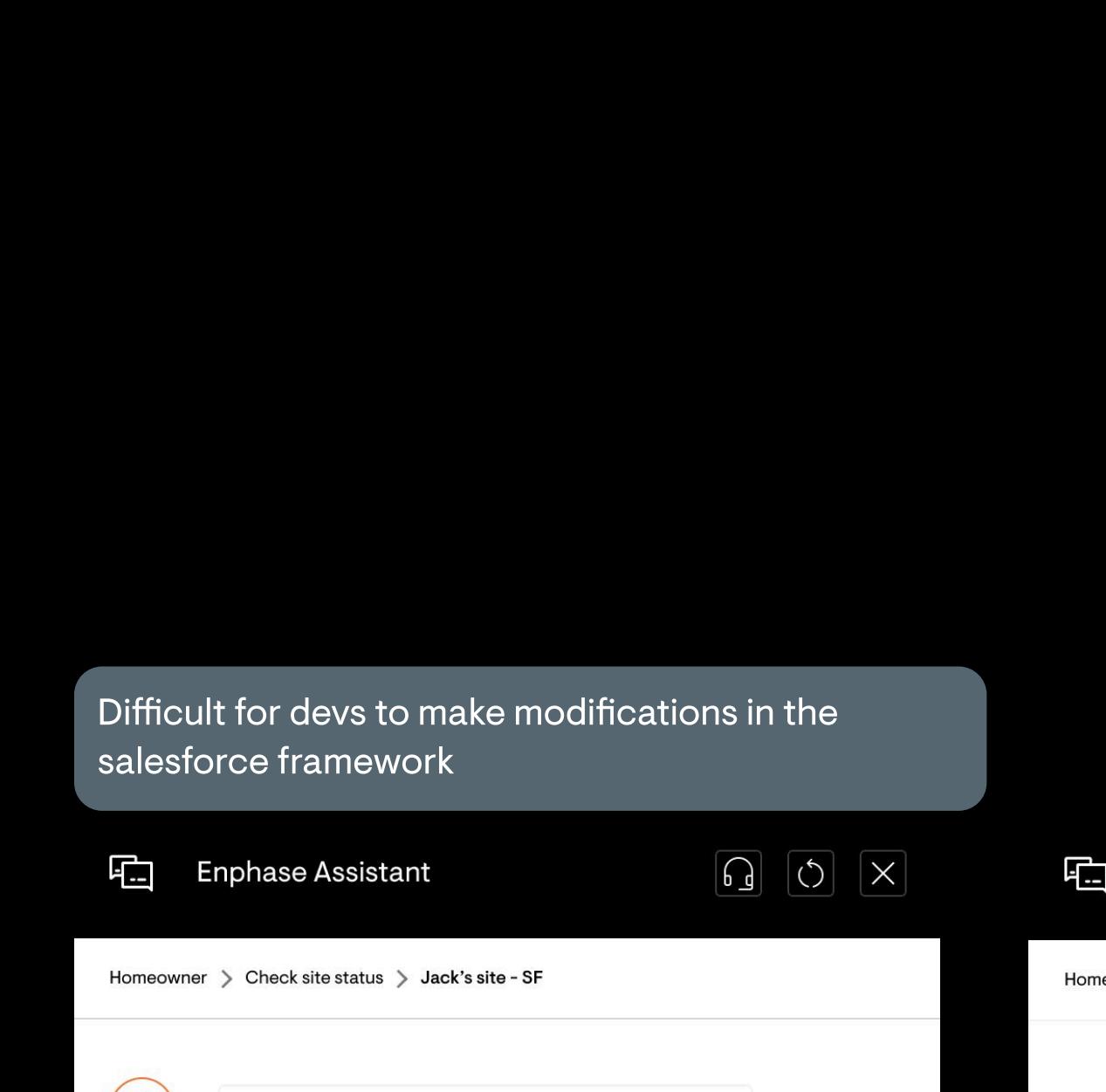
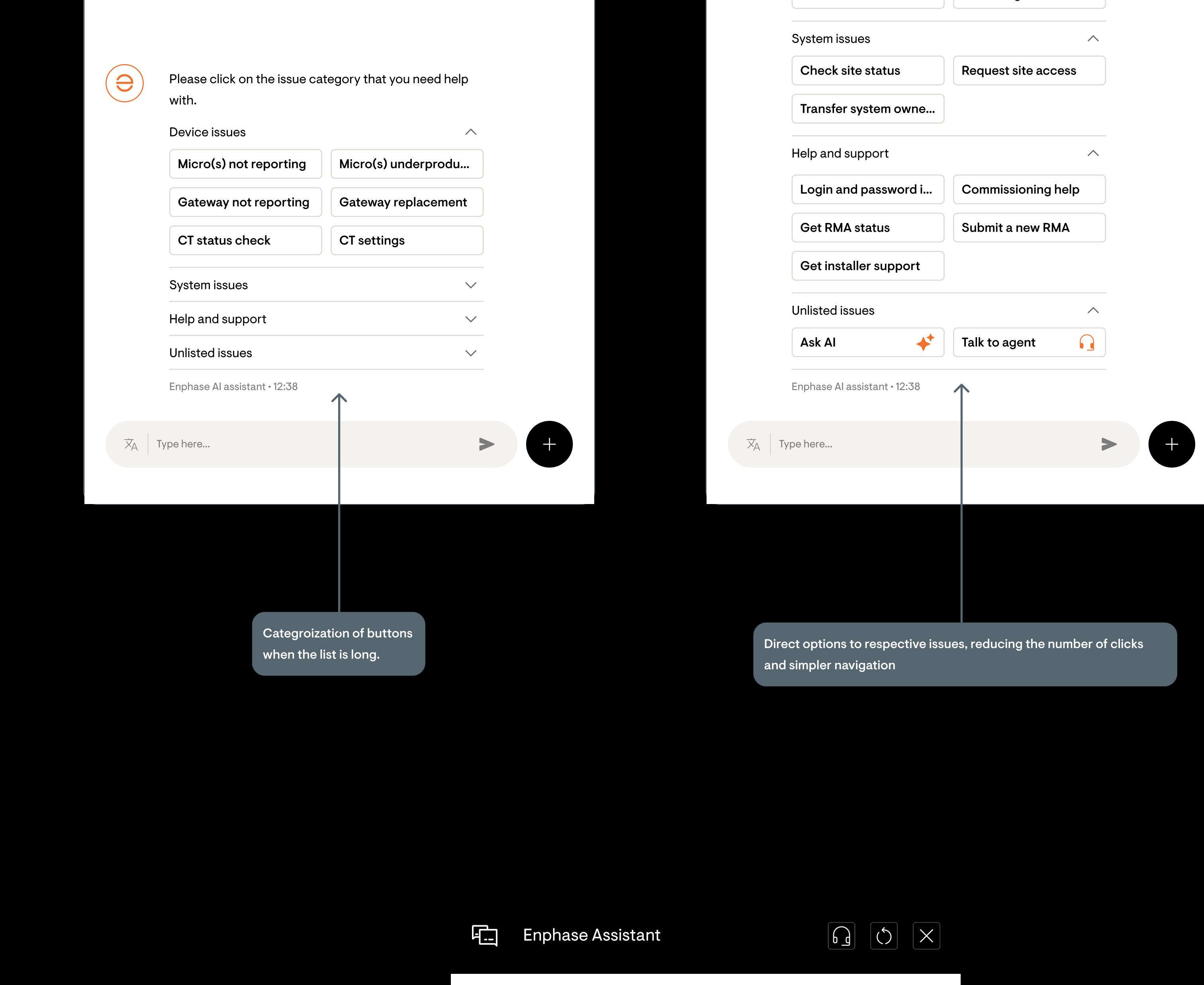
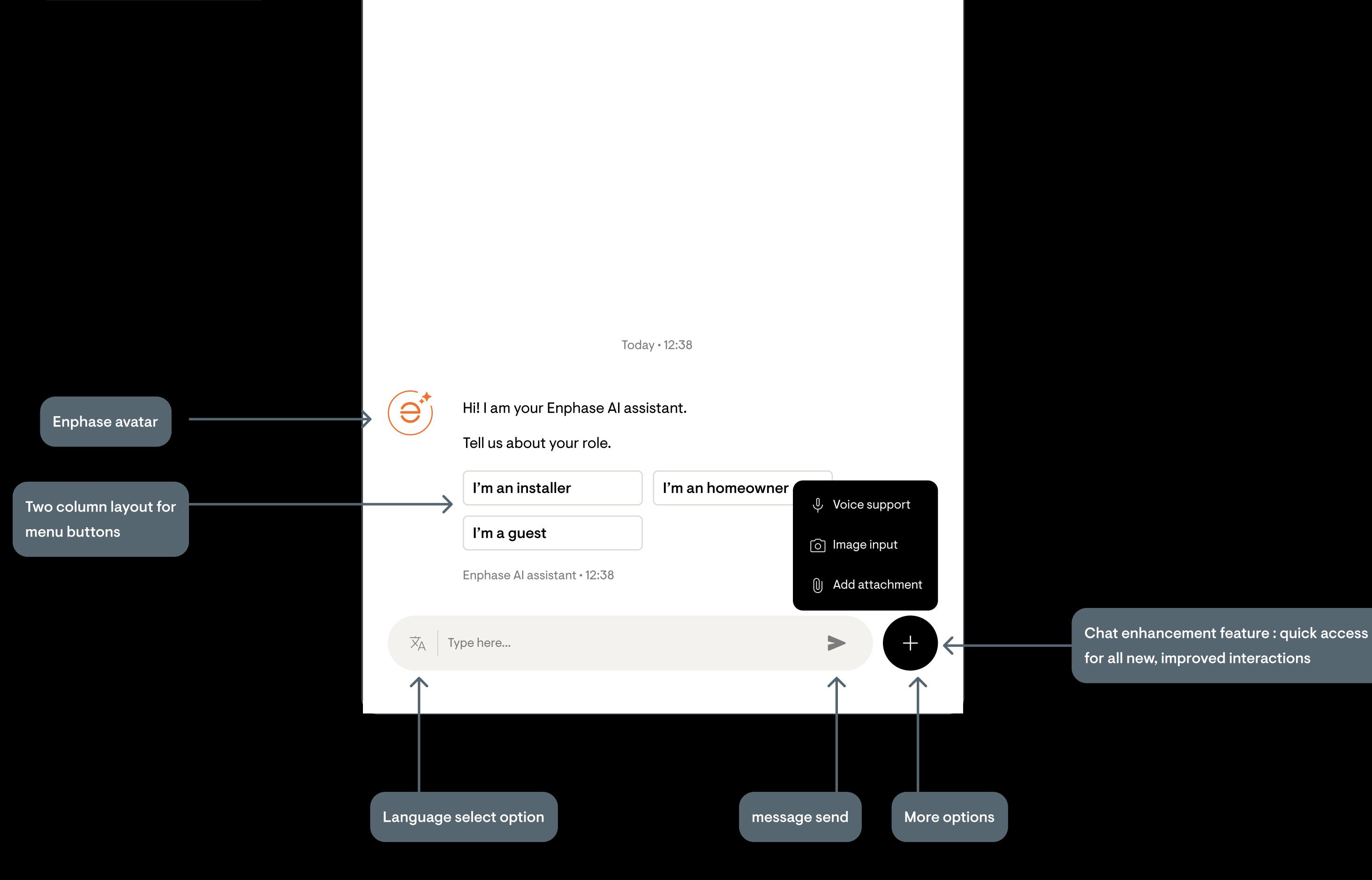
9. Phase 01

Guiding principle: Salesforce based chat interface so that easily implemented by tweaking in the existing chatbot used by CS agents. To be integrated only on the website.

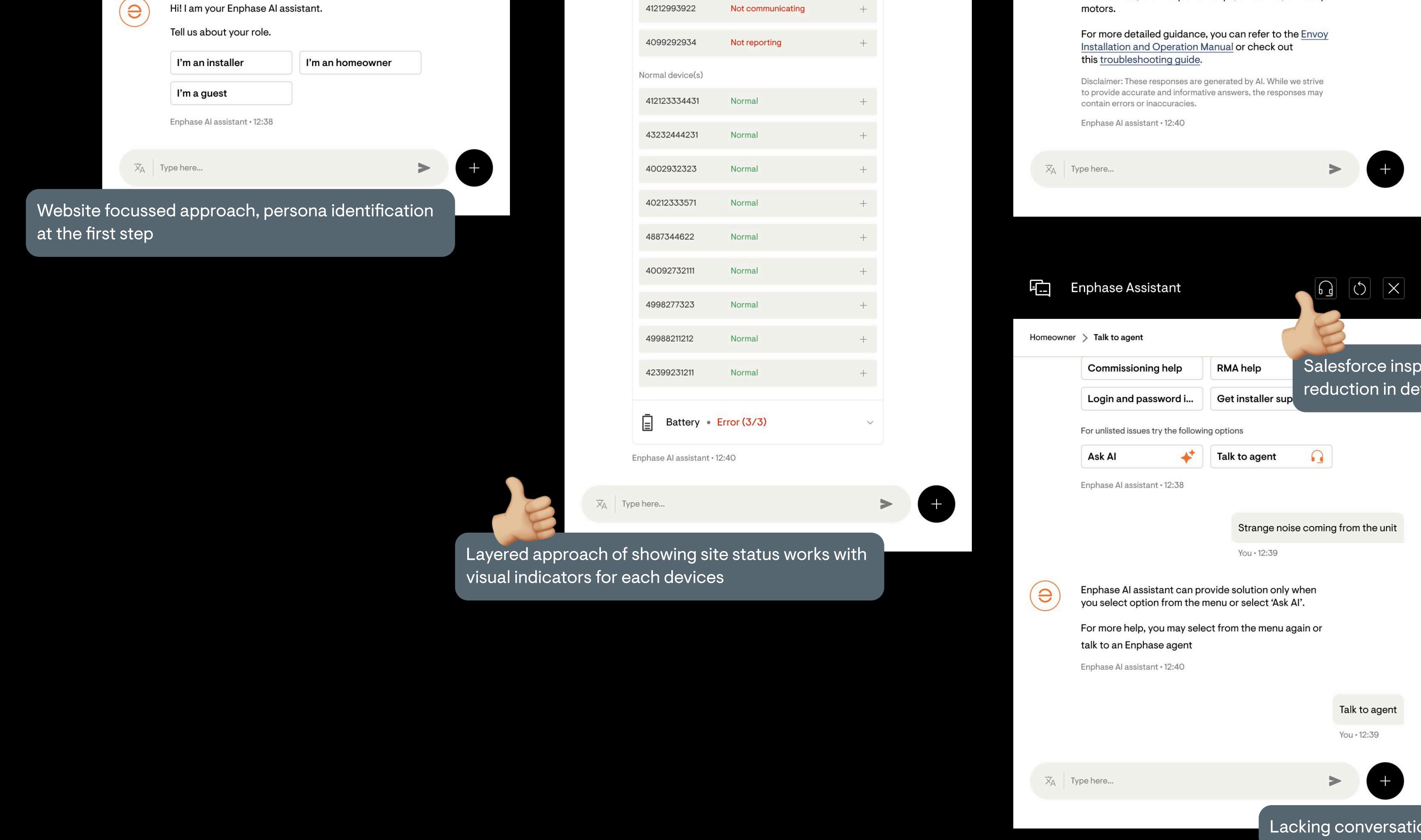
Key features:



Avatar for AI response, agent response



Feedback

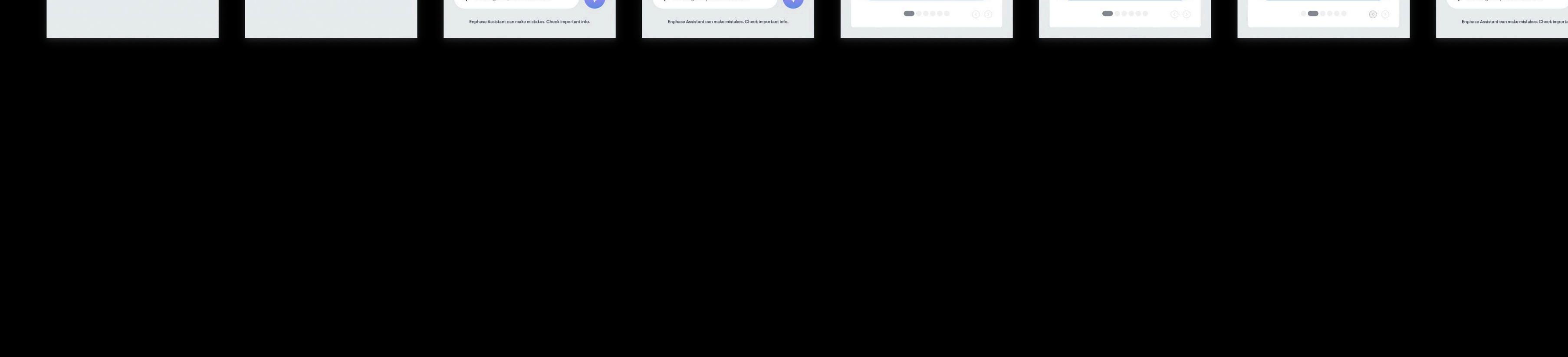
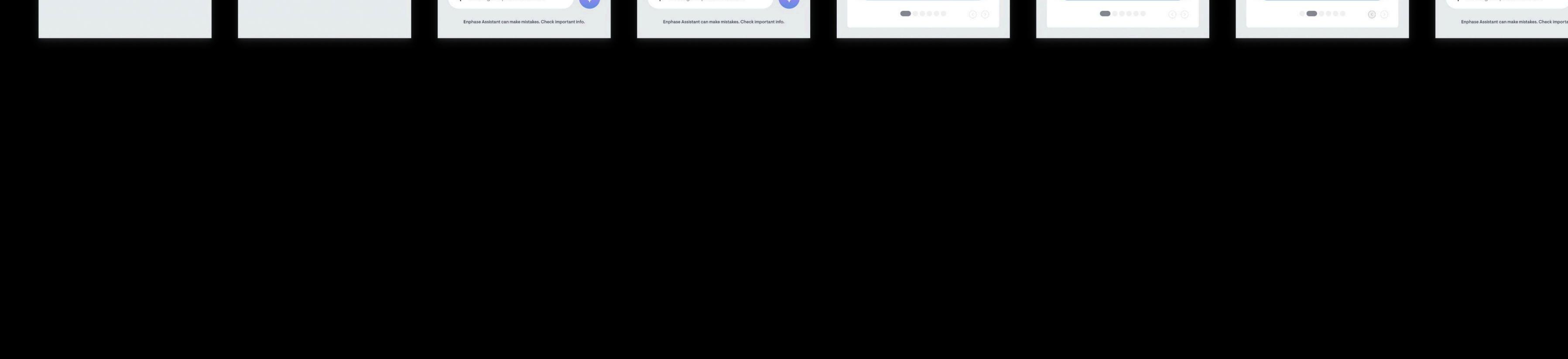
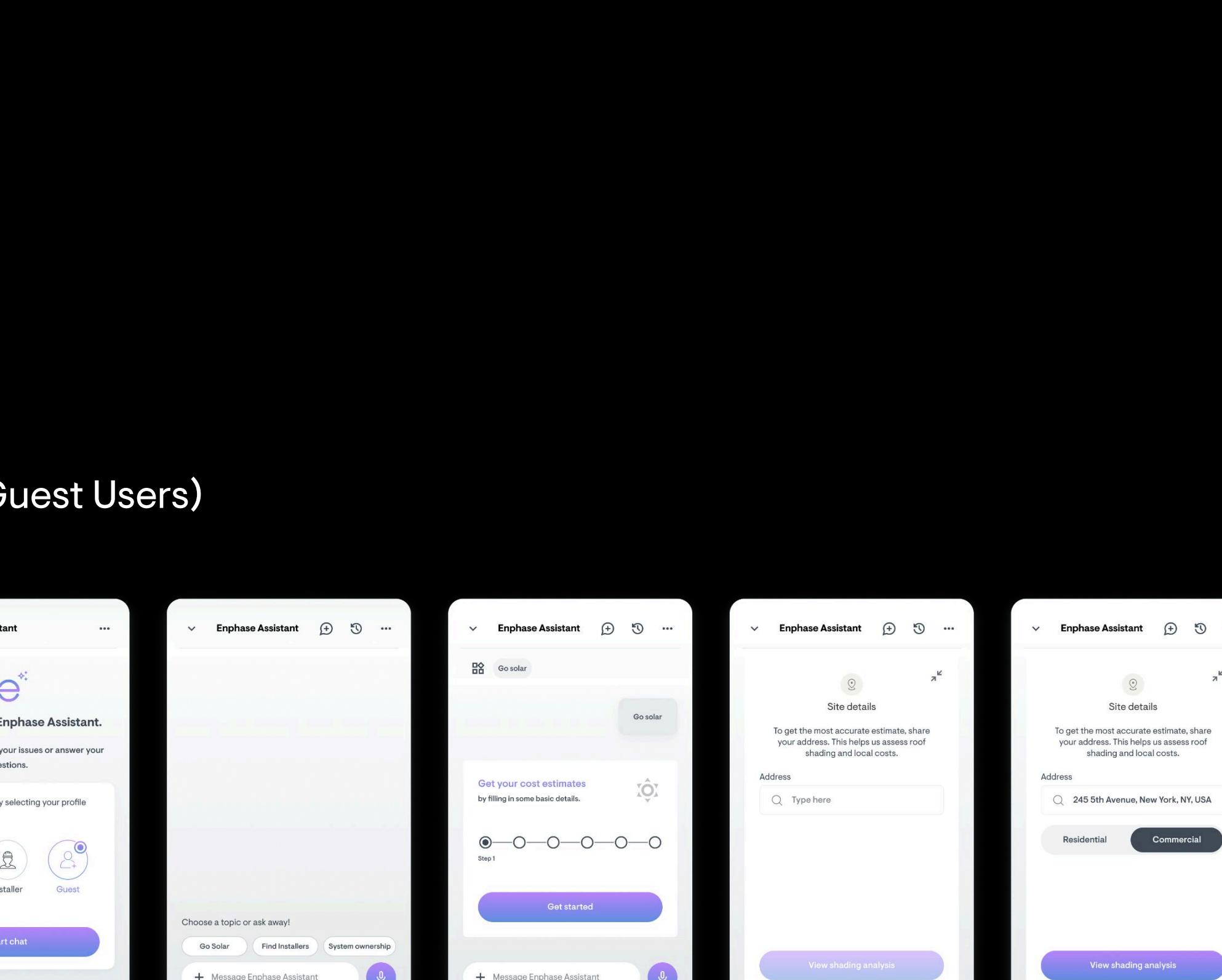
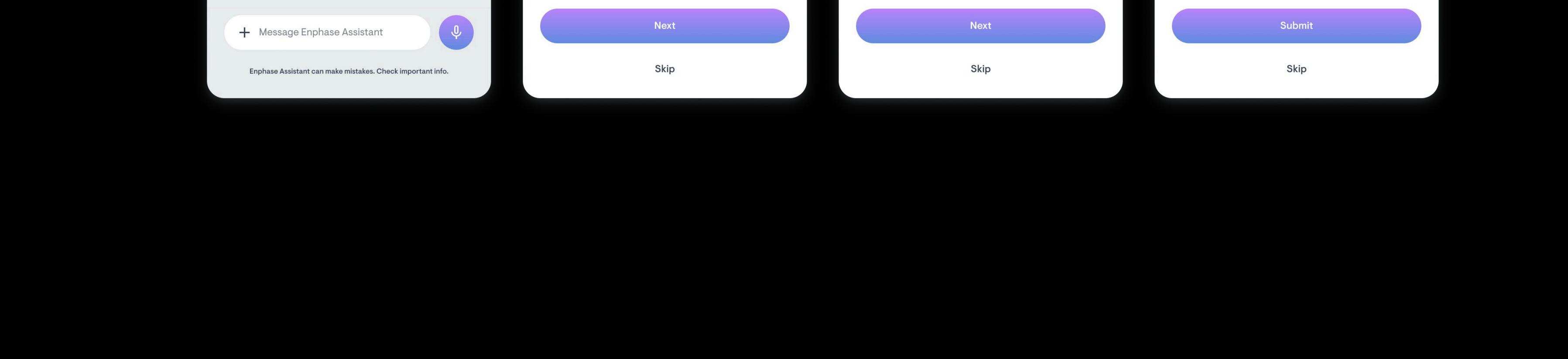
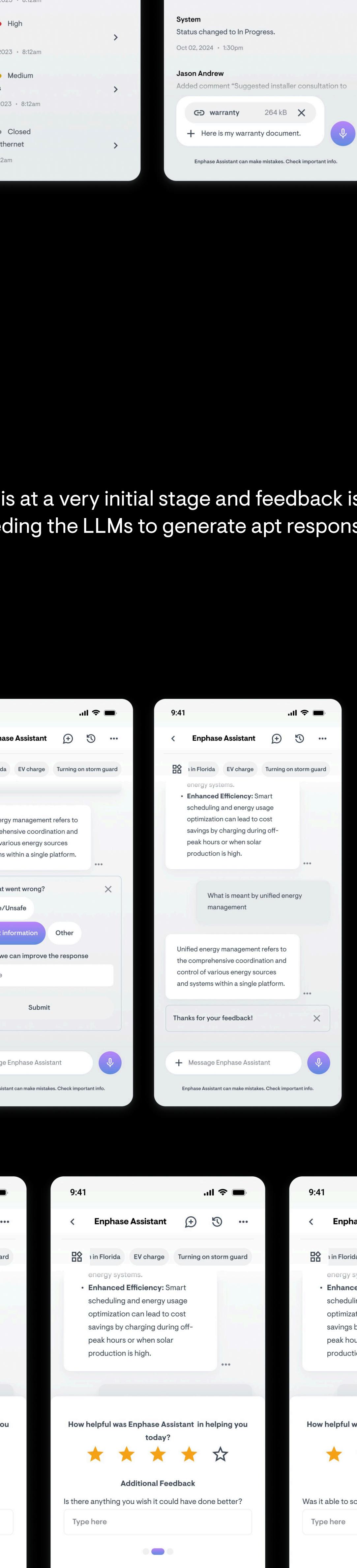
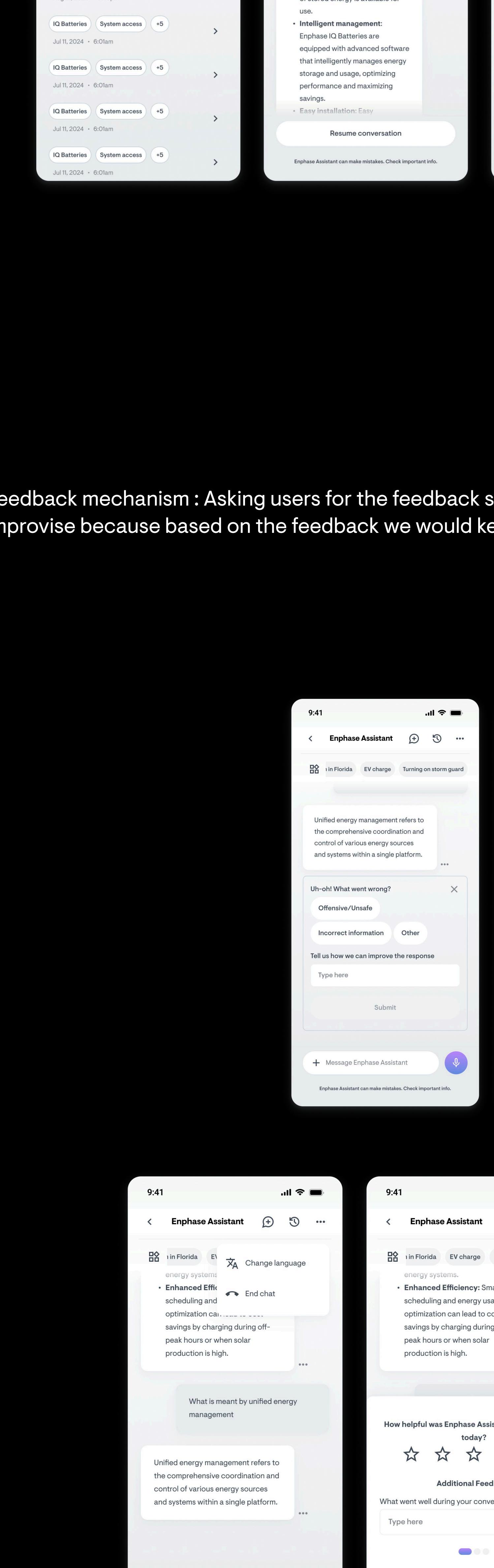
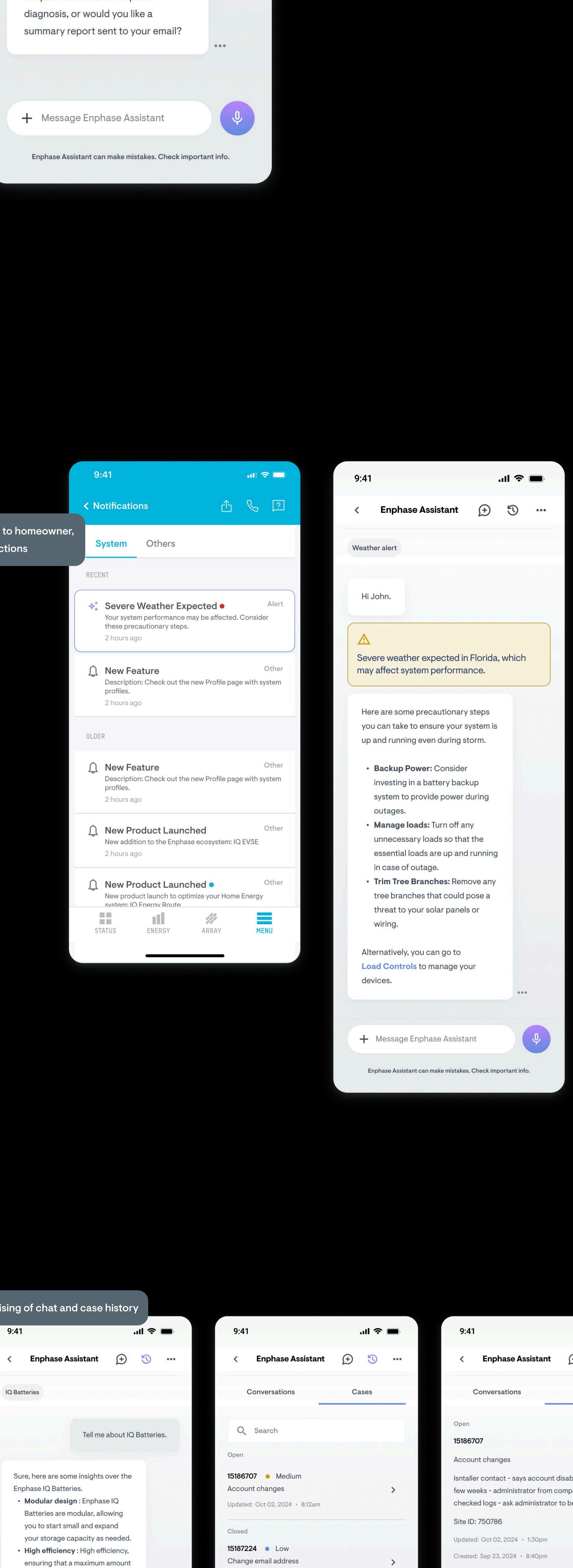
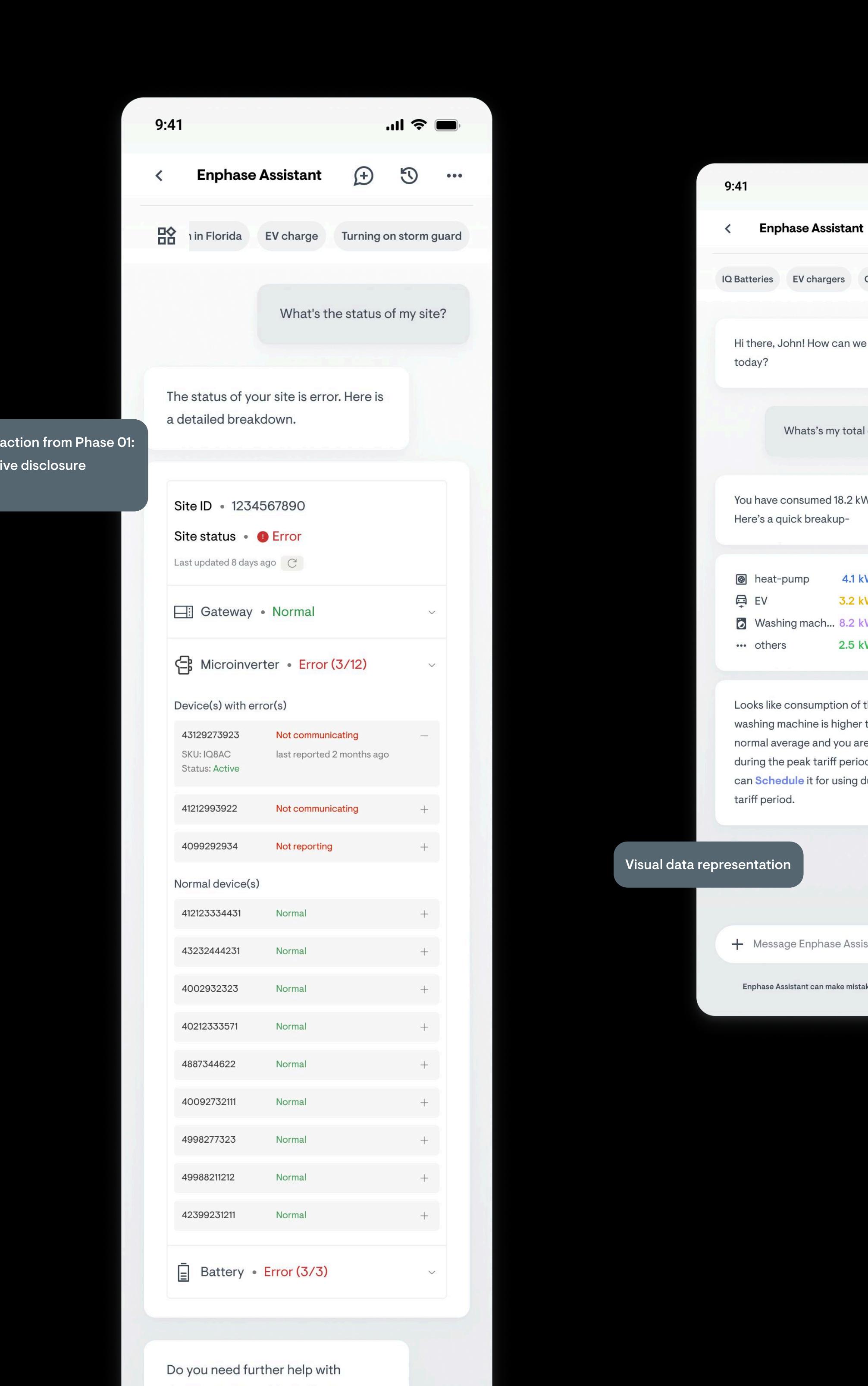
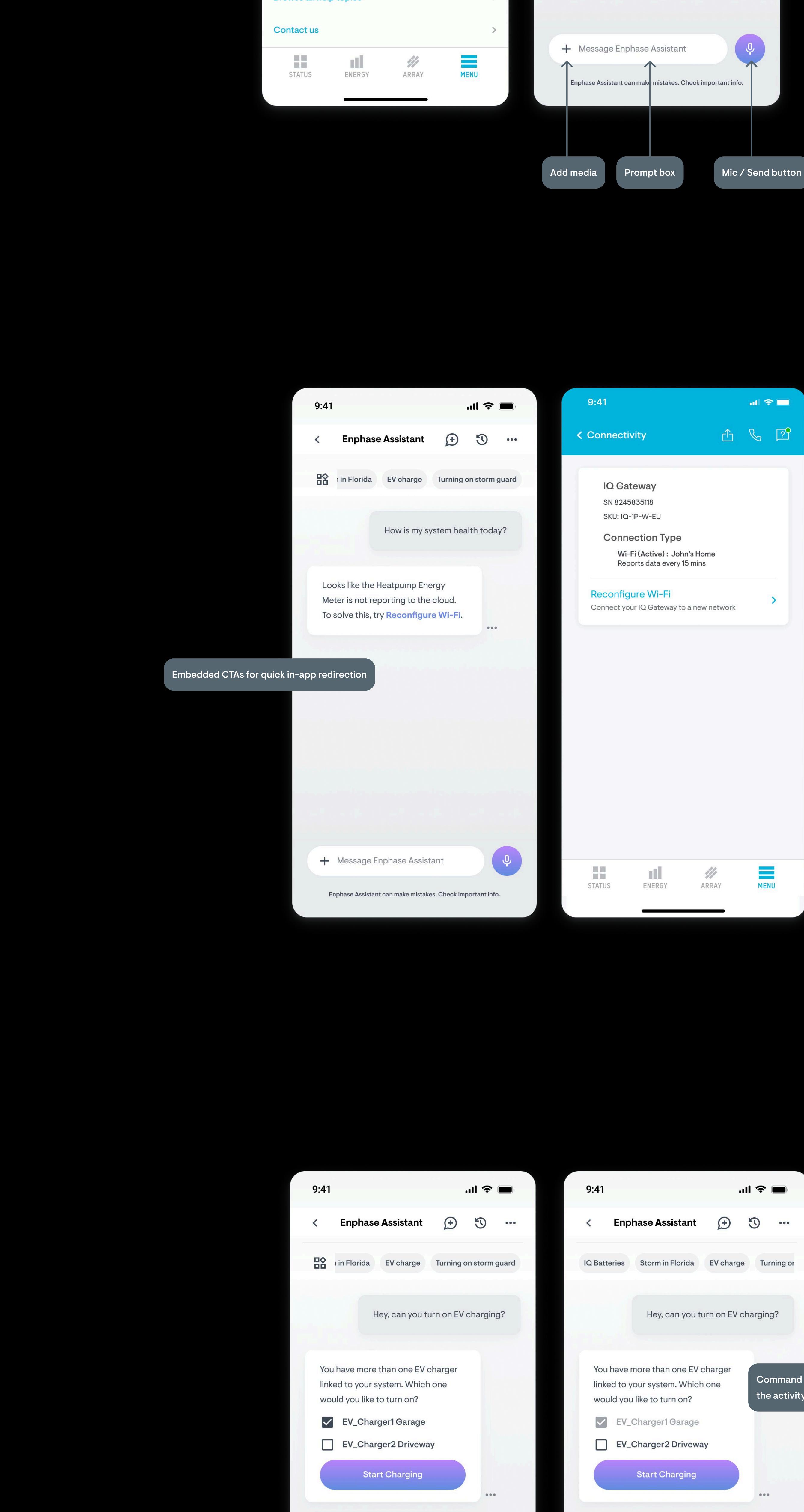


10. Phase 02

Guiding principle: New UI with well defined interactions, to be integrated and used across all Enphase products (Assistant UI in alignment with upcoming ENLOne UI)

Key features:

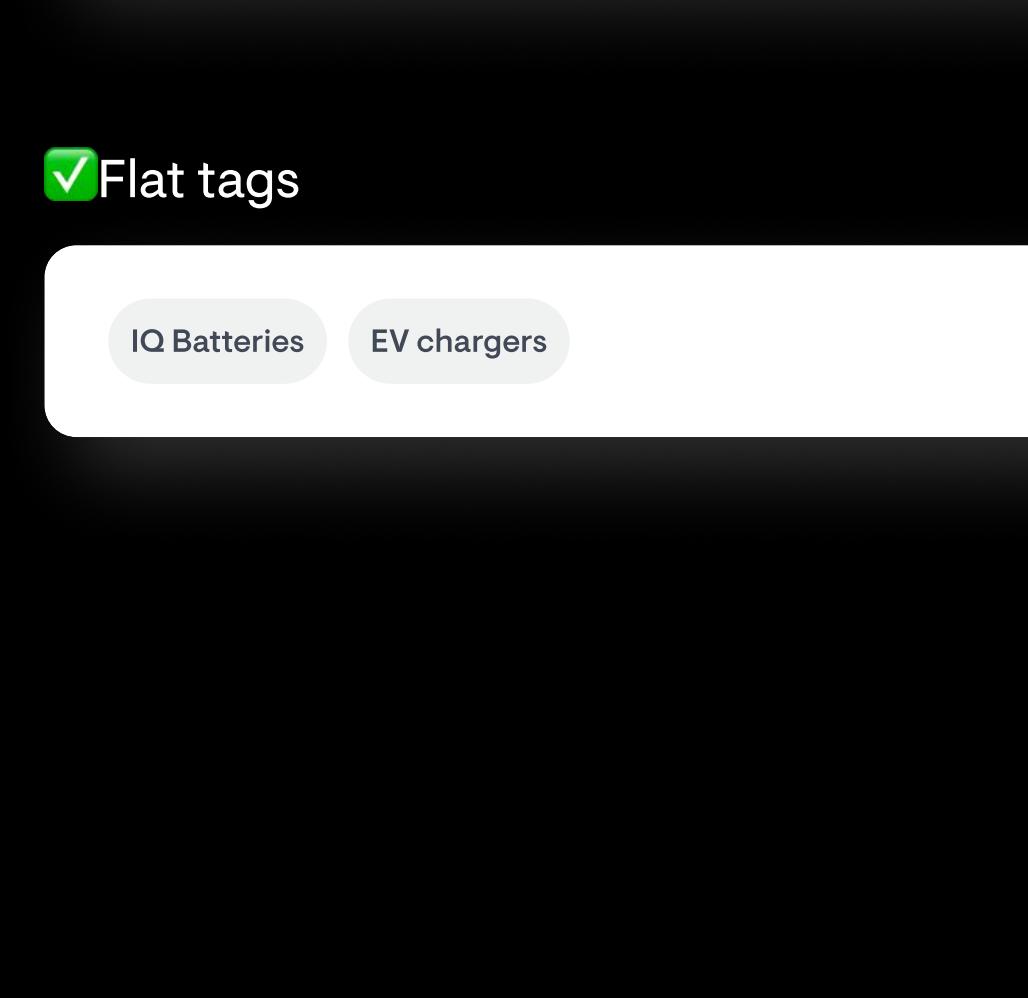
Chat ingress from support section



11. Concept validations

Validating UI design ideas with internal teams.

1. Topic and subtopic generations



Explainer:

We explored two approaches for topic and subtopic navigation:

1. Flat Tags – Just surface-level topic filters.
2. Nested Tags – Show a topic first and generate related subtopics dynamically.

Purpose:

Help users quickly find related conversations without feeling lost, while keeping the UI lightweight.

Feedback:

- Nested Tags made the experience feel more organized.
- Flat tags felt hard to scan when the list got long.
- Although the nested topics were a good experience, but the users were not referring to past chat in context of Enphase products as much as they would for regular AI chat interfaces (Users are not coming here to chat per say, but to resolve issues)
- Not worth development efforts

2. Full image view vs Snapshot view

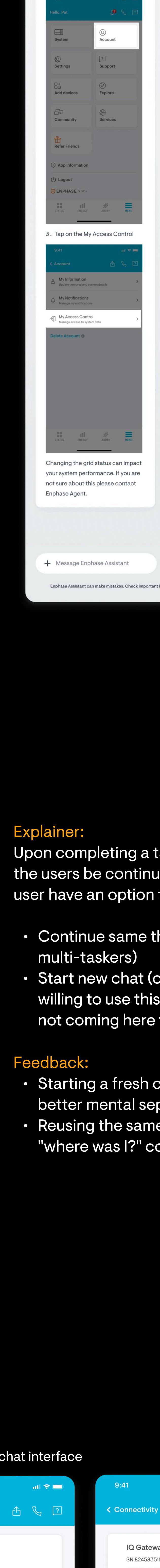
Explainer:

- Full Image View: Show the entire step-by-step visual instruction at once.
- Snapshot View: Show a condensed version with expandable sections to avoid visual overload.

Feedback:

- Full Image View helped with context clarity but overwhelmed mobile users and added a lot of scroll on the page.
- Snapshot View made it easier to skim and encouraged faster action.

Full image view

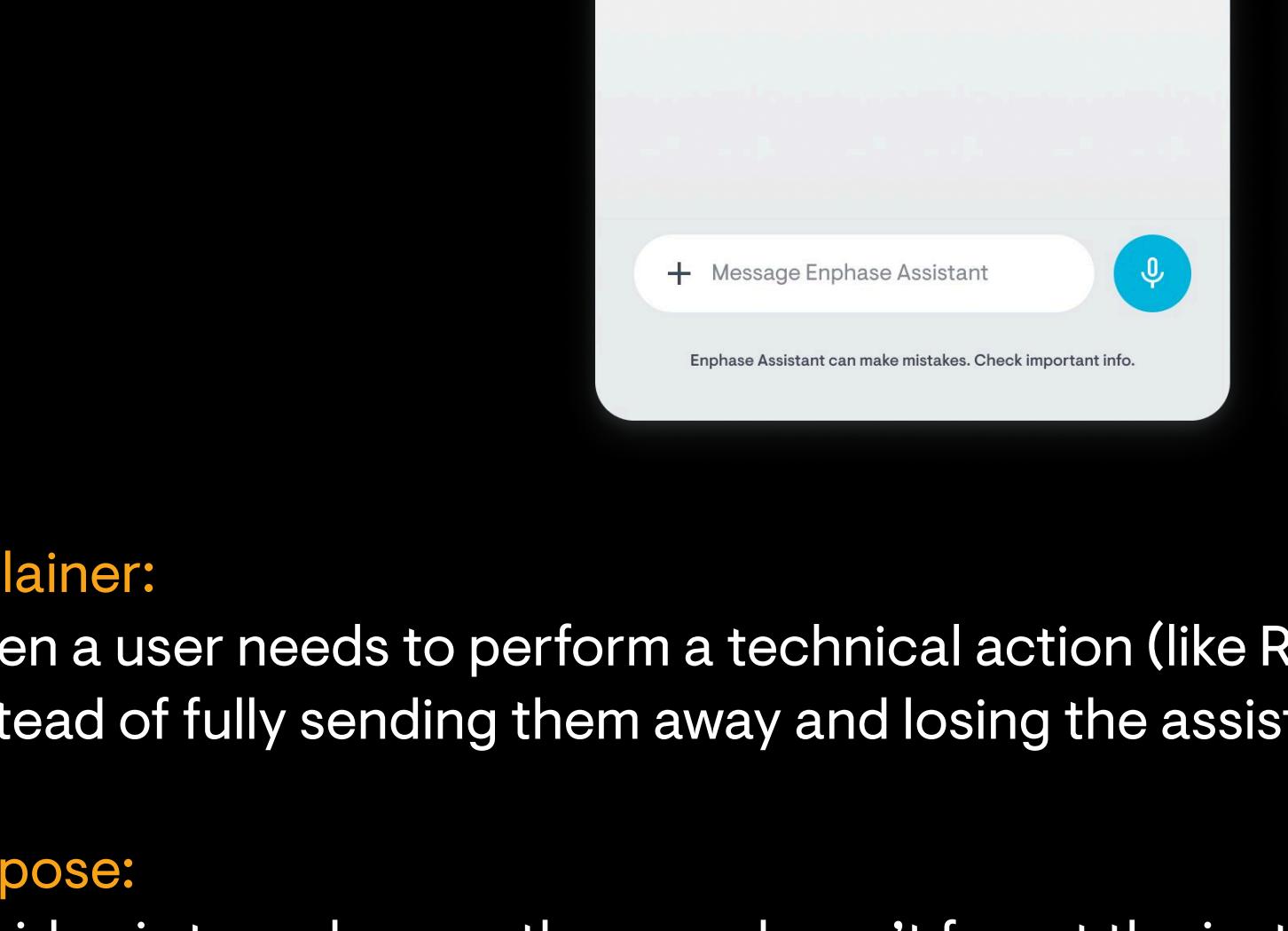


Snapshot view



3. Need for new chat button

New chat screen



Explainer:

Upon completing a task (like turning on EV charging), should the users be continuing the conversation in the same thread or user have an option to start a new chat?

- Continue same thread (minimalistic, but could confuse multi-taskers)
- Start new chat (clear separation but would the user be willing to use this feature in context of Enphase? Users are not coming here to chat per say, but to resolve issues)

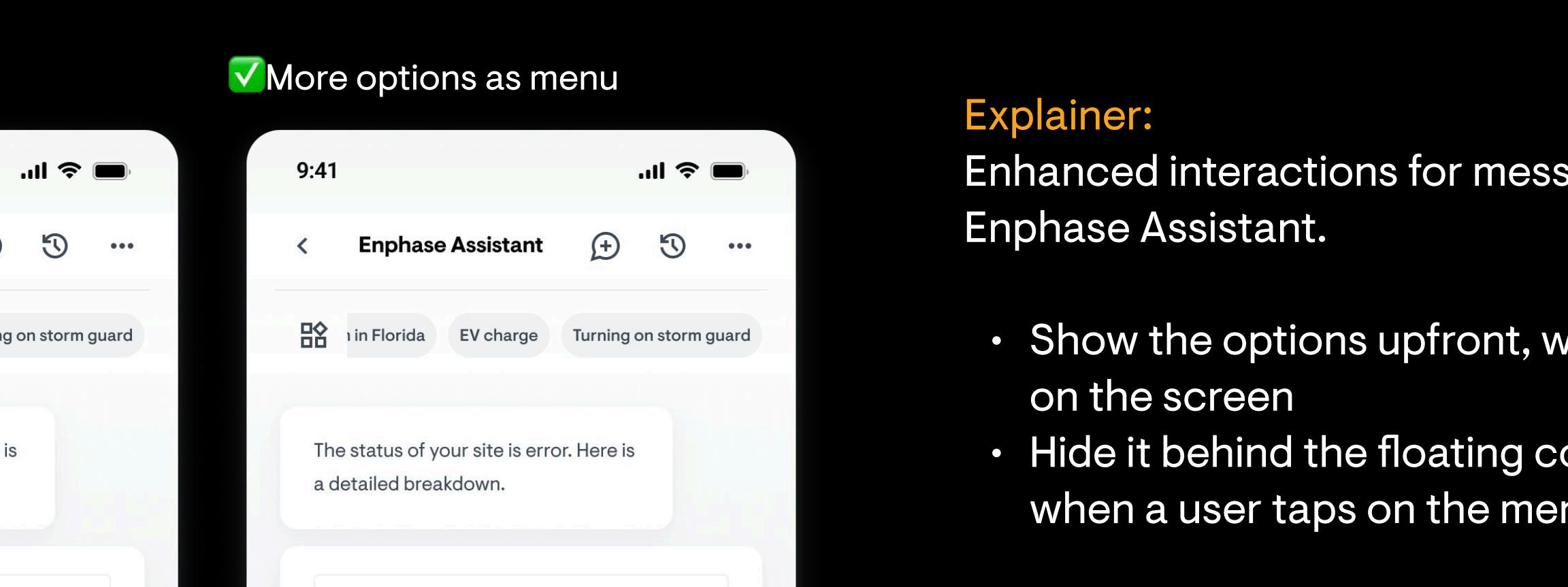
Feedback:

- Starting a fresh chat after completing a task can imply a better mental separation.

- Reusing the same chat without a proper divider led to "where was I?" confusion.

4. Follow along instructions (half n half view)

Half view of the chat interface



Explainer:

When a user needs to perform a technical action (like Reconfigure WiFi), they are redirected to the Enlighten App. Instead of fully sending them away and losing the assistant conversation, we explored a half-and-half screen experience:

Purpose:

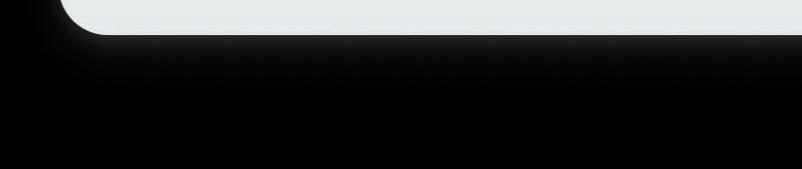
The idea is to make sure the user doesn't forget the instructions while navigating the technical page.

Feedback:

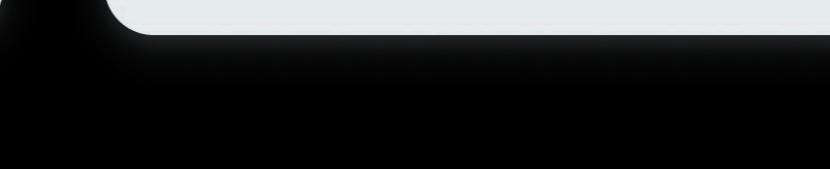
- The usability in the half screen might get hampered, due to restricted area for navigation
- Users may need to scroll both the Enlighten screen and the Assistant drawer independently, resulting in interaction complexity

5. More options on the responses

More options upfront



More options as menu



Explainer:

Enhanced interactions for message-level actions inside the Enphase Assistant.

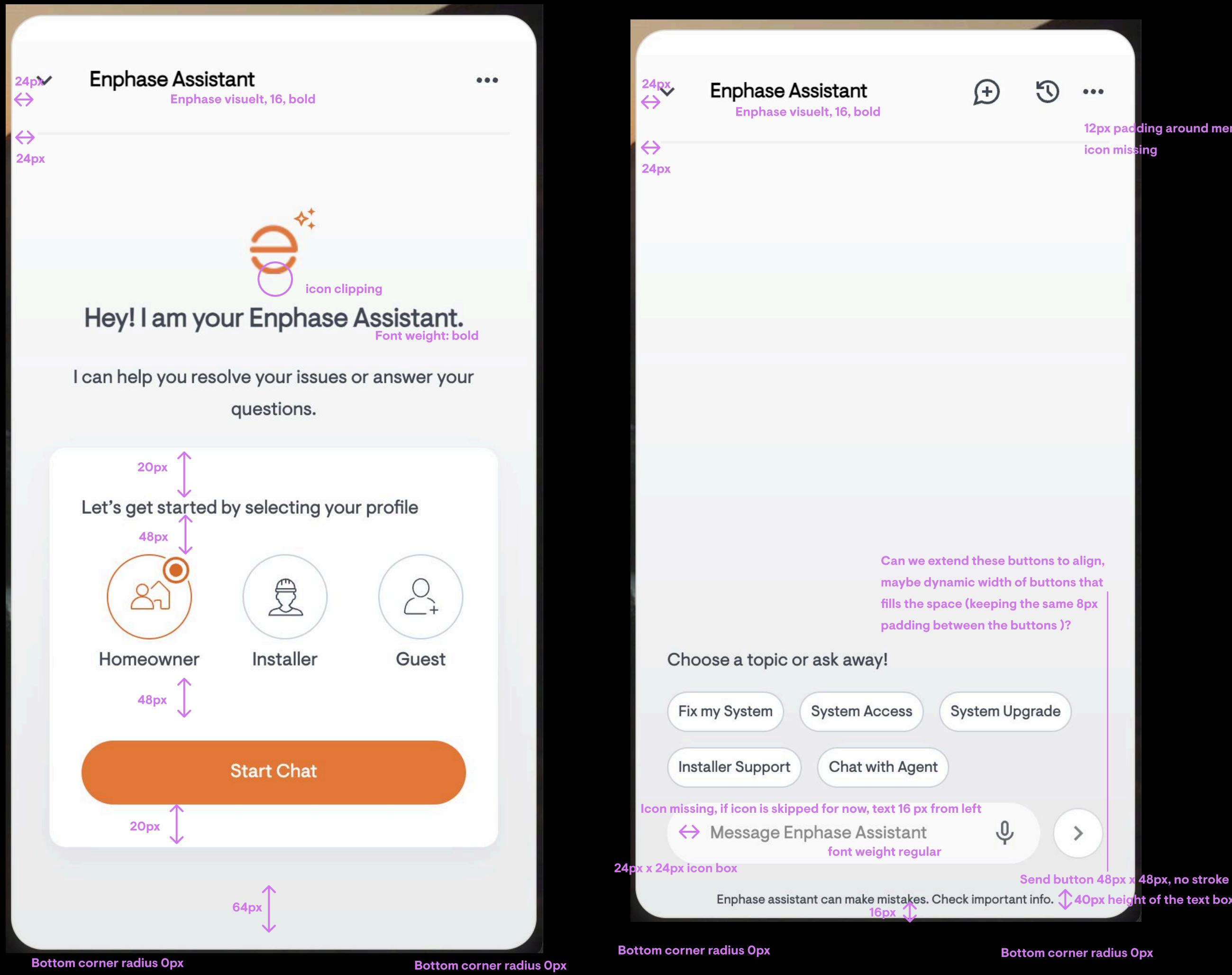
- Show the options upfront, which is occupying lot of space on the screen
- Hide it behind the floating contextual menu that appears when a user taps on the menu icon.

Feedback:

- Hiding interactions behind a menu icon might have discoverability issues and added layer of interaction.
- On smaller phones especially, the clickable area for the icons is too less on the first screen, hence, more options screen is preferred.

12. Design QA

Performing Design QA to align visually with the developed versions.



13. Future Scope

Further integration with Enlighten Admin, Service Manager, Enphase website, ITK app.