Project / Solution

Multimodal AI Cognitive Co-pilot

Target Audience

Individuals in Online Social & Professional Settings

Scale of Impact (Global)

~75 Million People Worldwide

Project Status

Pilot Program Active

Your Role

UX Designer

Multimodal AI-Assistant for ASD Support

Due to confidentiality agreements and client privacy considerations, the name of the client has been withheld in this case study.

Context & Goal

Individuals with Autism Spectrum Disorder (ASD) often encounter significant barriers in online social and professional settings. These difficulties stem from challenges in processing real-time information, managing sensory overload, and, crucially, interpreting non-verbal cues (tone, metaphor, and idiom) in fast-paced virtual environments. This disconnect often leads to heightened anxiety, communication breakdown, and contributes significantly to high unemployment rates and reduced social participation among autistic adults.

The fundamental challenge for organizations is not just compliance, but enabling true inclusion where autistic individuals can engage confidently and contribute their unique strengths without excessive cognitive load.

The project's goal was to move beyond traditional accessibility measures (such as screen readers or simple captioning) to develop an AI-driven, real-time solution that functions as a cognitive co-pilot. This assistant processes complex multimodal input and provides instantaneous, filtered interpretation, thus enhancing participation, reducing sensory burden, and boosting confidence during critical digital interactions.

Phase 1: Understanding the Friction Points

Our design process was all about understanding where users face challenges. We conducted usability sessions and interviews with people on the autism spectrum and their caregivers, and also reviewed relevant academic research. From this, we created personas highlighting difficulties with communication, cognitive load, and task management, which helped us identify opportunities to improve digital interactions.

Core pain points Identified:

1. **Social Communication:** Users had difficulty interpreting idioms, metaphors, and emotional tone during live conversations.
2. **Cognitive Overload:** Cluttered UIs and traditional search interfaces caused stress and fatigue.
3. **Executive Function:** Challenges in tracking action items and managing follow-up tasks from meetings.

8
ASD users interviewed

2
Caregivers participated

**11**
Academic papers reviewed

Phase 2: The Critical Design Pivot

Our design process involved three key iterations. The most significant moment was a complete shift in platform based on direct user feedback.
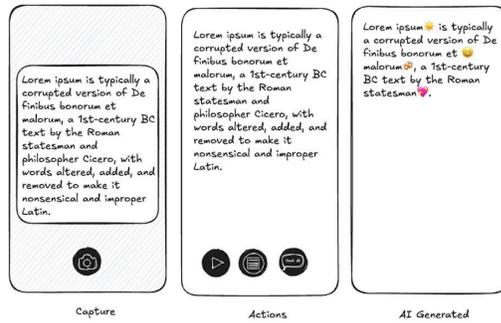
Iteration 1: The Mobile App (Initial Concept)

Our initial approach involved exploring a stand-alone mobile application (Iteration 1). This app featured tools like "Capture Mode" to interpret physical surroundings and "Search Mode" for simplified web results.
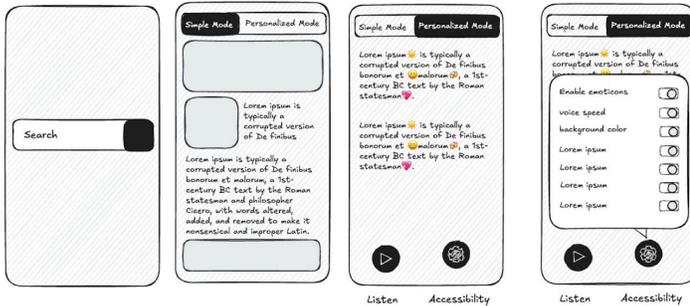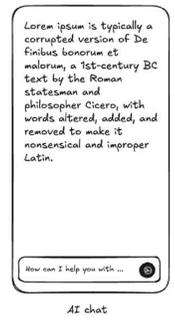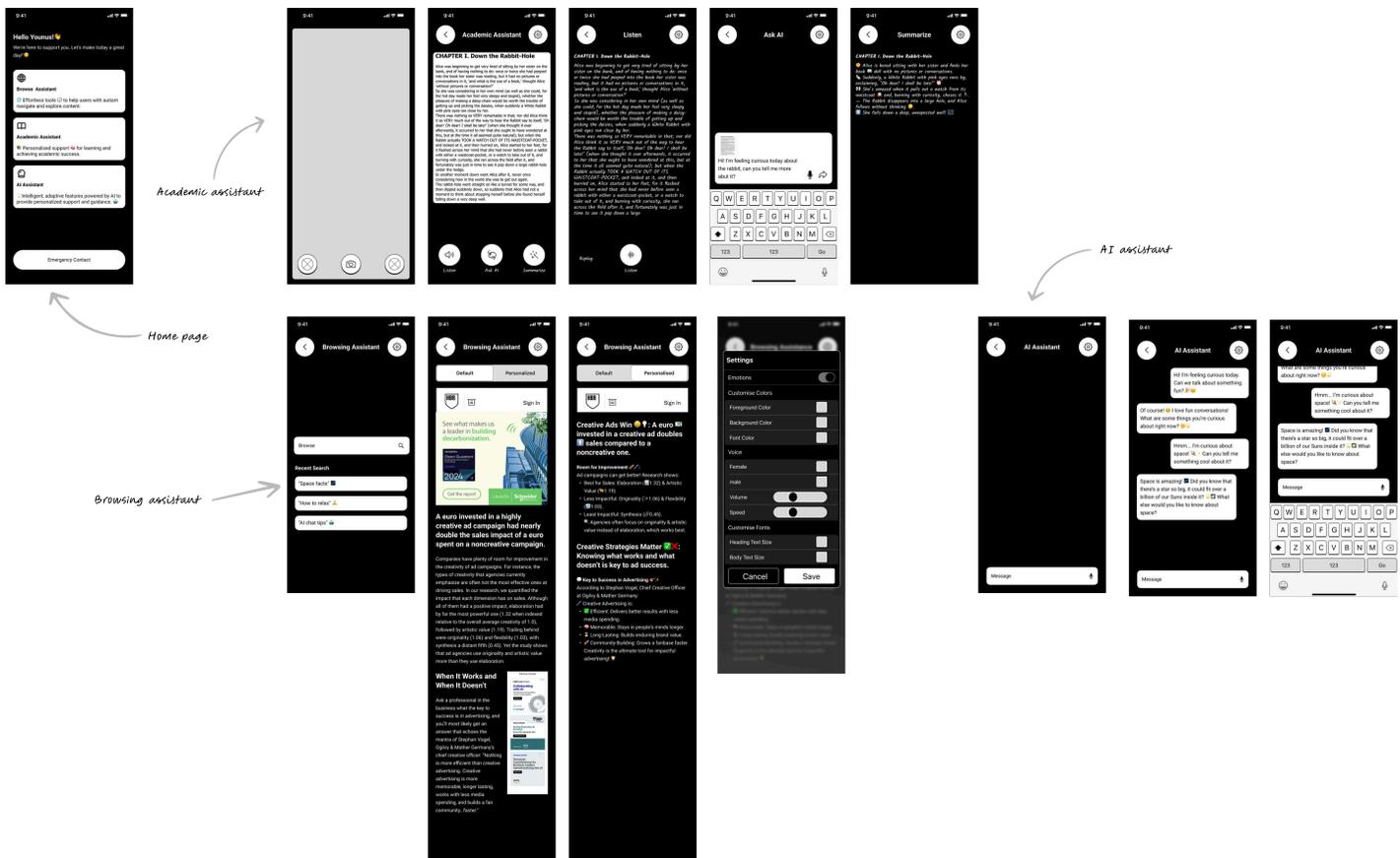
Search mode   Capture mode   AI assistant

This shows the original concept before the critical pivot. Note the segmented 'Simple Mode' and 'Personalized Mode' search tabs.

Low-fidelity mockups were used for usability testing to show all three proposed flows that were initially added to the app.

Crucial usability Insight: Users felt the mobile app was too busy and its functions were redundant with native phone features. They clearly stated they needed a solution that would seamlessly integrate into their existing daily work, specifically live virtual meetings.
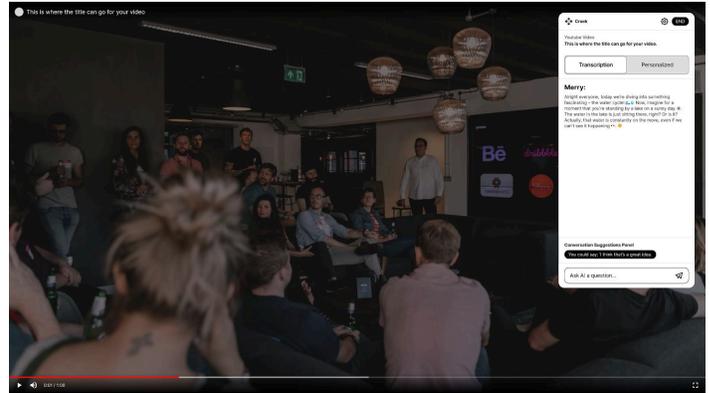
Iteration 2: The Browser Plugin (Refinement and Focus)

We pivoted the design to a browser plugin, placing the support tool directly alongside the user's communication environment.

Real-time transcription of conversations (Zoom call)

Real-time transcription of video content (Youtube video)

Mid-fidelity mockup of the Browser Plugin (Iteration 2) integrated into a virtual meeting or media platform (like YouTube). This visual demonstrates the multimodal approach, illustrating key features like Live Captions, real-time analysis of Social Cues and Idioms, and the Suggestions Panel working simultaneously.

Key Usability Insight (The Pivot Justification): Users wanted seamless integration with Zoom/Teams rather than a separate app. Early plugin versions had confusing, redundant tabs, and there was strong demand for proactive, real-time support like suggested questions and automated tasks.

Conclusion: The usability study confirmed these core Cognitive Co-pilot features were essential to the final design.

- **Real-time Transcription:** Provides a live, readable log of conversations to aid auditory processing.
- **Idiom & Emotion Analysis:** Decodes complex language and identifies speaker sentiment for better understanding.
- **Suggestions Panel:** Proactively offers relevant questions to ask, boosting engagement and confidence.
- **Dashboard & Summary:** Automatically generates summaries and action items to simplify task management.

Iteration 3: The Browser Plugin (Outcome and Impact)

The final Multimodal AI-Assistant Browser Plugin is a non-intrusive, customizable sidebar tool designed for stability and hyper-focus.
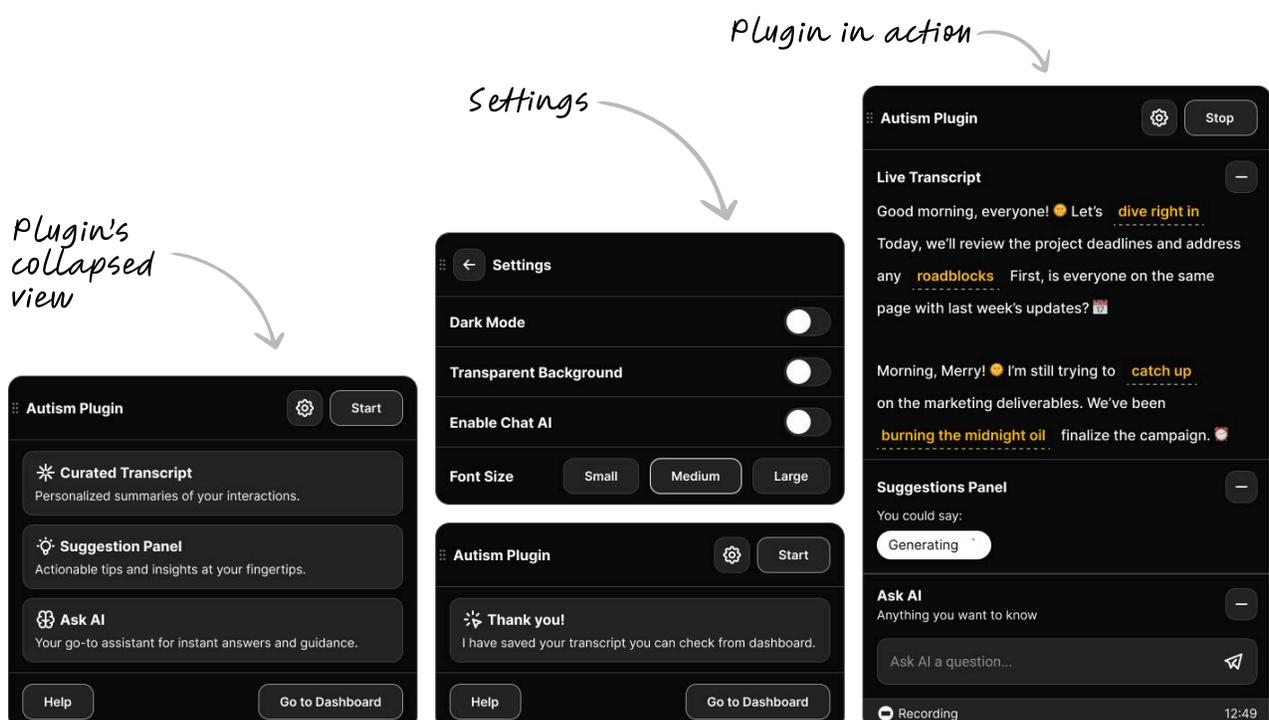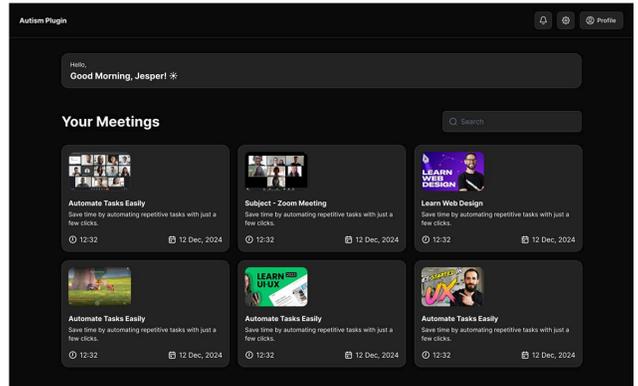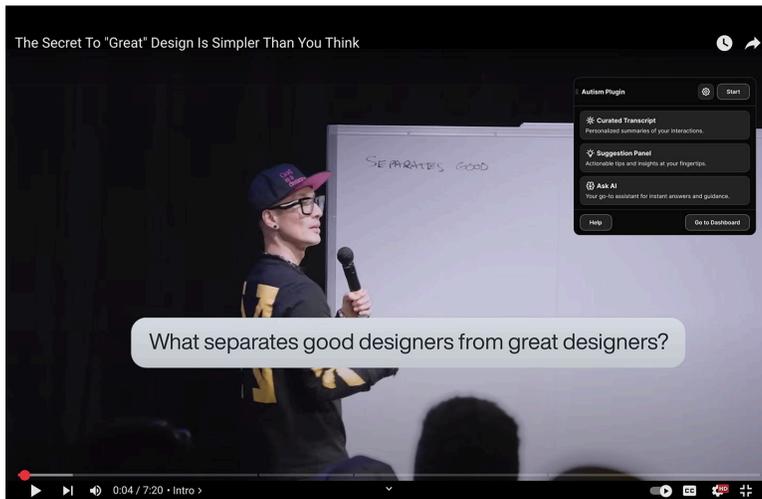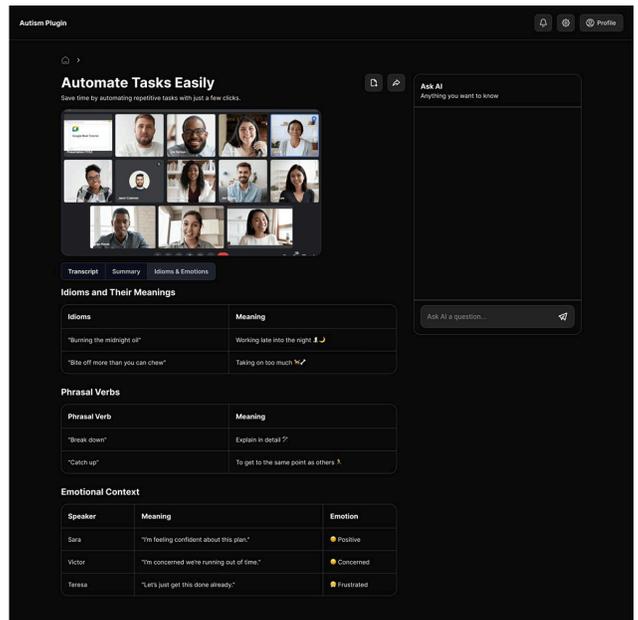
Hi-fidelity mockup of the Browser Plugin (Iteration 3) actions in different use cases, such as during a GoogleMeet call or while watching a video on YouTube. The dashboard displays a summary and other related information.

Impact: The final moderated usability study demonstrated high user satisfaction and validated the design pivot. The plugin successfully transformed potentially overwhelming digital interactions into manageable, supported experiences, fulfilling the core mission of improving digital accessibility and inclusion for individuals with ASD.

View the Prototype

Explore the final interaction flow and visual design here: https://www.figma.com/proto/M9L1nituE4S7YR3xK2TDag/AUTISM-APP--backup-file-?node id=39-2796&t=uM91QZZM7PccDA3z-1&scaling=scale-down&content-scaling=fixed&page-