



CARI

Your Personal Multimedia Assistant

The Problem

Semi-automatic car driving can raise serious safety issues.
How to keep the driver focused all the time while driving?



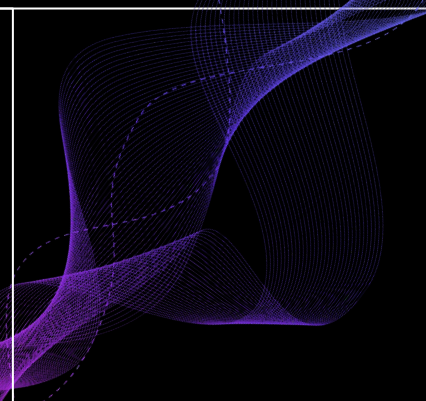
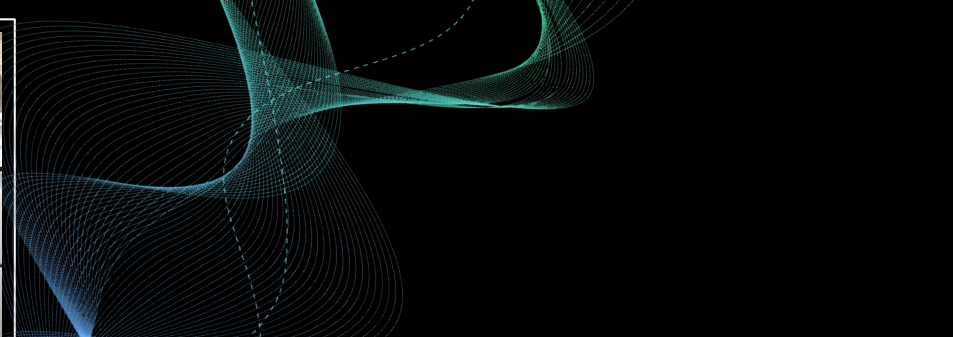


Project Goals

- To find means to **help the driver perform better, drive safer**, and **keep the driver aware of what is happening around** by utilizing multimodal feedback (e.g. haptic, tactile, visual or auditory).
- After gathering user input via an initial interview and analyzing the data in the form of an Interaction Model, we decided to narrow our focus and design an **entertainment system that reduces the 'eyes off-road time' and increases driver attention**.
- Controlling the entertainment system was stated as the #1 distraction by our interviewee.
 - It is a significant danger to have attention directed to something else while driving. Using in-car entertainment systems involves safety-critical interactions and we think the topic deserves further research.

Methods

- We used *in situ* observations (n=2) and interviews (n=5) as methods to collect qualitative data to inform our design.
- Collected data was analysed with an Affinity Diagram, and a persona was created to support our design
- We set experience goals to guide the design decisions.
- Design implications were then discussed with the client and then iterated.
- Demo was made and tested in a lab setting with user evaluations.



Project Idea

- To address the problem, we decided to design an entertainment system which is both safe and pleasant to use.
- Of particular interest to us was the **use of modalities** to achieve safer, more pleasant and more intuitive interaction while driving.



Contextual Inquiry Findings

The findings suggested that:

1. Users mostly listen to music as entertainment while they drive.
2. Users prefer voice command to control the music system.
3. Gestures can be another mode of interaction.
4. Displaying output on the windscreen as a projection was mentioned by many.
5. Connectivity with intra will give a wider range of choice.
6. Haptic feedback system deemed unpleasant for entertainment purposes.
7. For safety purposes, haptic feedback can still be implemented.



Experience Goals

Security — Control

Autonomy — Independence

Pleasure — Stimulation

Functionality — Usefulness

“Experience or User Experience is not about technology, industrial design, or interfaces. It is about creating a meaningful experience through a device.”

—Hassenzahl, 2013

User Evaluation

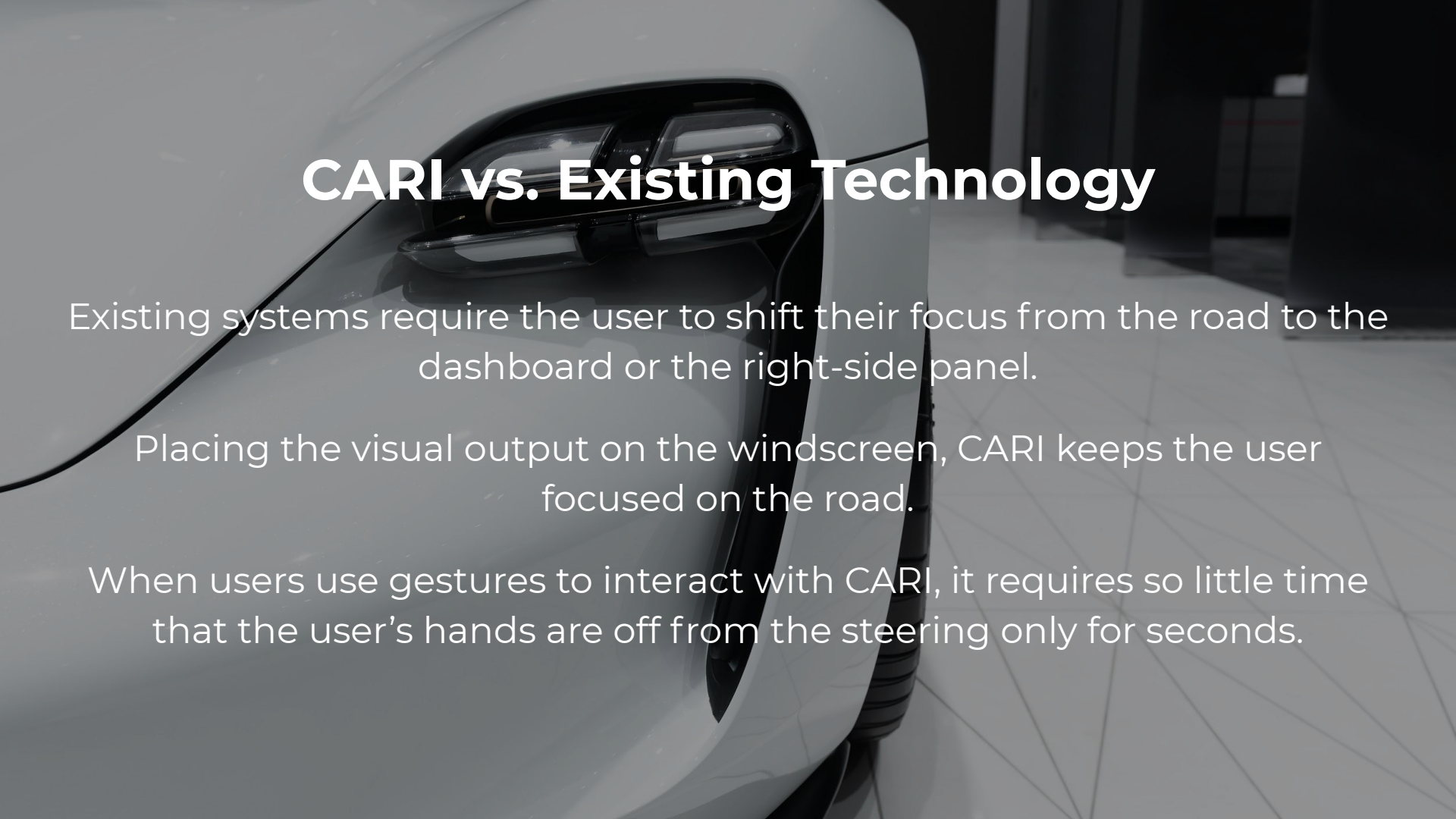


User Evaluation

- Demo was tested in a lab setting with users (n=2) while they were driving a car simulator.
- The system was successful in keeping the user focused on driving.
- Users were more comfortable with the voice command.
- We found that gestures may be distracting while driving, so users should be given the choice to choose their preferred modality for interacting with the system.
 - We also wanted to consider accessibility and different learning styles in our design.

User Evaluation Findings

- At the end of the evaluation, users were briefly interviewed and asked to fill an Attrakdiff survey to evaluate the UX of Cari
 - Findings show that users perceived Cari as **practical** and **manageable**
 - They also found Cari to be **innovative**, **likeable** and **presentable**
- Cari is well on the way to meet the experience goals (security, autonomy, pleasure and functionality)
 - Users felt they would feel more in control if Cari was ready, rather than being a prototype
 - All participants felt comfortable using Cari
 - They think it is a feasible music system for future cars



CARI vs. Existing Technology

Existing systems require the user to shift their focus from the road to the dashboard or the right-side panel.

Placing the visual output on the windscreen, CARI keeps the user focused on the road.

When users use gestures to interact with CARI, it requires so little time that the user's hands are off from the steering only for seconds.

The background features a series of overlapping, wavy lines in shades of purple, blue, and green. These lines are composed of many thin, parallel strokes, creating a sense of motion and depth. A faint grid pattern is visible beneath the waves. The overall effect is a dynamic, futuristic aesthetic.

Forget Siri, CARL is here.



Time for Demo!