

Project Proposal – Onboarding Wall

1. Introduction

- **Conversational technologies** are rapidly evolving, with significant impacts on both business and society.
- **Large language models** like GPT-4 and LLAMA-3 possess powerful capabilities to understand and generate natural language.
- **Cadentia** is a Helsinki- and Aalto-born start-up focused on developing continuous conversational customer relationship management capabilities—essentially, an AI companion produced by a brand that helps customers find, order, use, and enhance business services.
- Cadentia has developed an interaction approach for customer engagement using the latest large language model technologies. The system is currently in the pilot phase, and APIs are available for integration.
- **Activating customer engagement** through conversation is a significant challenge for many brands. One potential solution is to initiate the first engagement via a public display where the AI companion can be interacted with via mobile or voice in a public space.

2. Project Goals

- The project aims to develop a **public screen** that can be placed in a hotel lobby, venue, or shopping mall. This screen will welcome visitors, invite them to interact, provide assistance on various topics, and ultimately guide them to start a more personalized conversation in a private channel.
- The screen will display an **activation link** that users can scan with their mobile devices to start a private conversation.
- The **business goal** is to showcase how an onboarding screen can effectively attract people to start interacting with the conversational channel.
- Upon completion, the technology will be showcased in a prominent venue. We expect the system to be feasible for field testing under real-world conditions.
- For the test implementation, we will create an AI companion that will interact on the screen. The team should have design inspiration and capabilities to participate in designing this companion, as well as creating prompts and conversational designs. We also have designers and resources available to assist.

3. Technologies

- This public screen installation will use **Cadentia's WebSocket API** for initiating and implementing the conversation. Cadentia will provide the environment, access to these resources, and the necessary consultation and documentation.
- The choice of public screen technologies is flexible, but we recommend using common, open, and free technologies. Cadentia's front-end technologies are primarily developed using **React**, and we have extensive experience with various React-related technologies.

- The screen can accept **text or voice input**. The client can provide access to suitable audio technology. The deployment of voice input is expected but will be part of the iterative design process. Simple voice technologies can also be used.
- The companion may be **animated or based on static images**. The visual implementation details can be defined based on the team's interests and capabilities; this is an optional requirement.
- We offer support in applying and choosing technologies, drawing on our extensive experience in Aalto software project courses and related technologies. All interfaces needed to implement the project are within our control.

4. Requirements for the Students

- We expect the team to have the following skills:
 - Front-end development capabilities suitable for a public screen.
 - Backend integration with WebSocket.
 - A general interest in conversational interaction and new interaction paradigms.
 - Some level of design capabilities for prototyping the screen's appearance and potential animations for the companion.
- **Challenges:**
 - Conversational interaction has a long history, but recent advancements in technology have made it much more accessible and effective. While managing language models can be challenging, the team should focus less on prompt engineering and LLM guardrails, as these are Cadentia's responsibility. However, this project presents a great opportunity to learn how the latest LLM-based interaction techniques work and what challenges they present.
 - An interactive public screen installation with real-time backend integration involves several software layers (backend integration, front-end client, language processing, link generation, potential animation). While none of these elements are particularly difficult at a basic level, challenges often arise when integrating these components to achieve smooth end-to-end functionality.

5. Legal Issues

- **IP Rights:** All IPRs to all results will be transferred to the client.
- **Confidentiality:** The client will share some confidential information with the students.
- **Other Legal Considerations:** Any other legal issues, such as those not covered by the default contract template, will be addressed as needed.

6. Client

- **Cadentia** is a start-up founded in Helsinki and Aalto. The company was established a year ago and secured its first funding round last spring. Currently, we have a team of 15 people, all of whom have some history with Aalto.
- **Dr. Kai Kuikkaniemi** is the primary contact person at Cadentia. He is the Head of Product and has experience in related technologies, having worked as a researcher and enterprise architect. Dr. Kuikkaniemi has been a client for four previous software

project courses, some of which have been highly successful and led to follow-up projects.

- We have a team of technical experts in all relevant fields who can assist in executing the project. These experts have also participated in the software course, so they are familiar with its practices and expectations.
- Cadentia will provide the environments, software, and hardware needed to realize the project.

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