

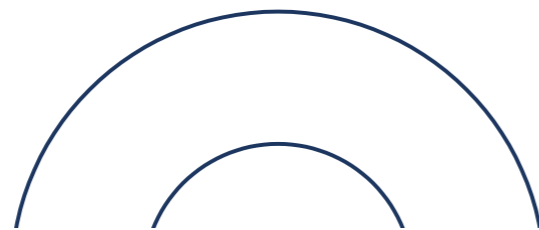
# Designing and Testing a Connected System for Heating Delivered Food for Elderly People

## Introducing the AAL project PREPARIO

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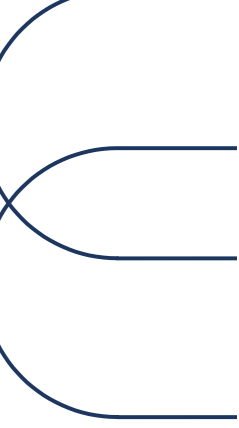
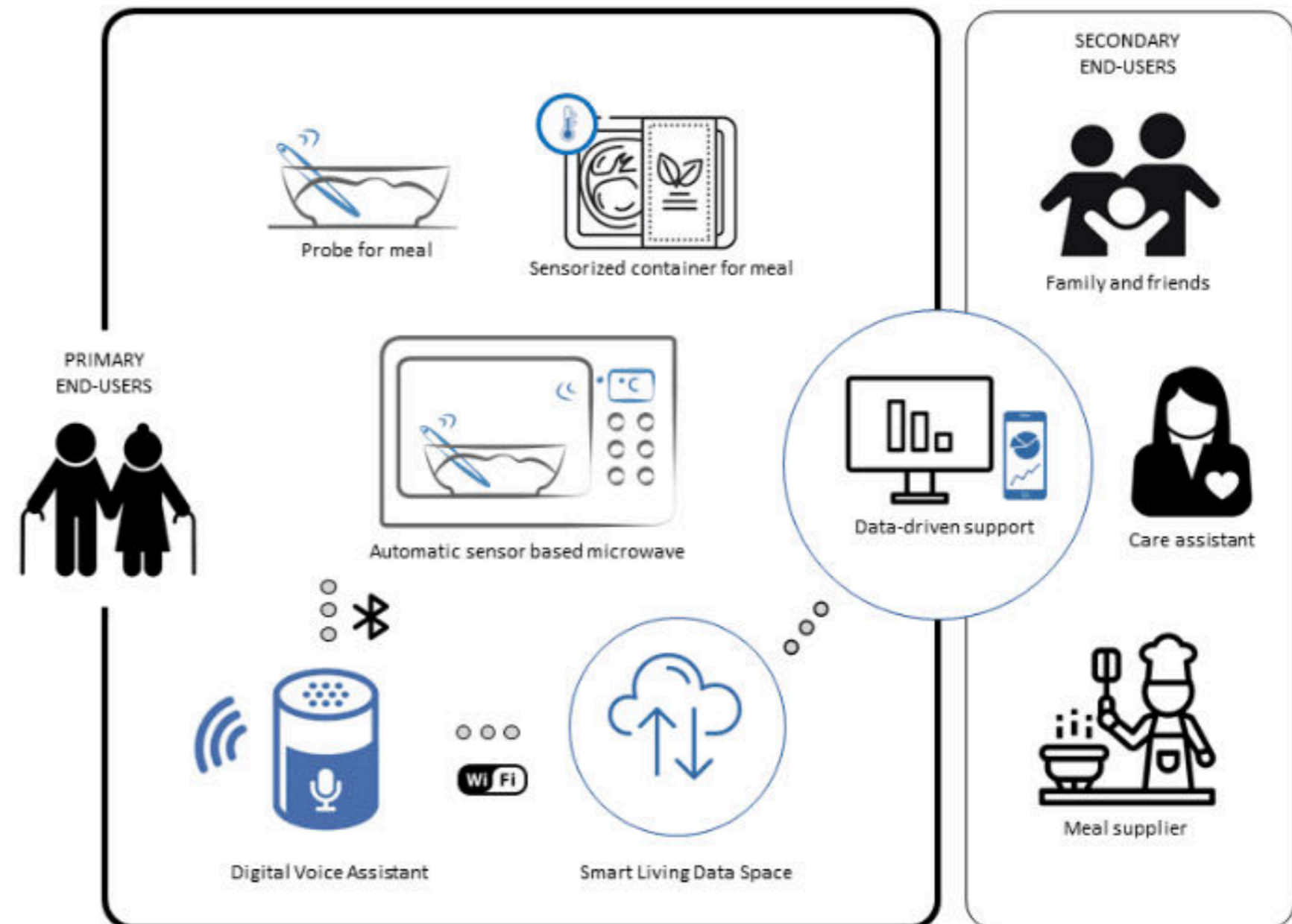
Primarily working in the field of **digital information systems**, she now focuses on **active and assisted living**, in particular on making everyday life easier, counteracting the degenerative process through training and collecting physiological data using wearable sensors.



# Introduction

The presented paper explores the **design and testing** of a connected system for heating delivered food.

The system aims to improve the **quality of life** for elderly individuals by ensuring perfectly heated meals, as simple, safe and hygienic as possible.





# Challenges in Elderly Care

The **aging** population faces challenges in accessing nutritious and timely meals. Limited mobility and health issues can hinder their ability to prepare and heat food. Addressing these challenges is crucial for promoting **healthy** aging.





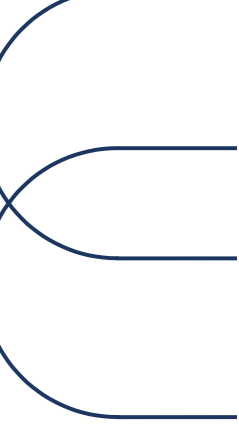
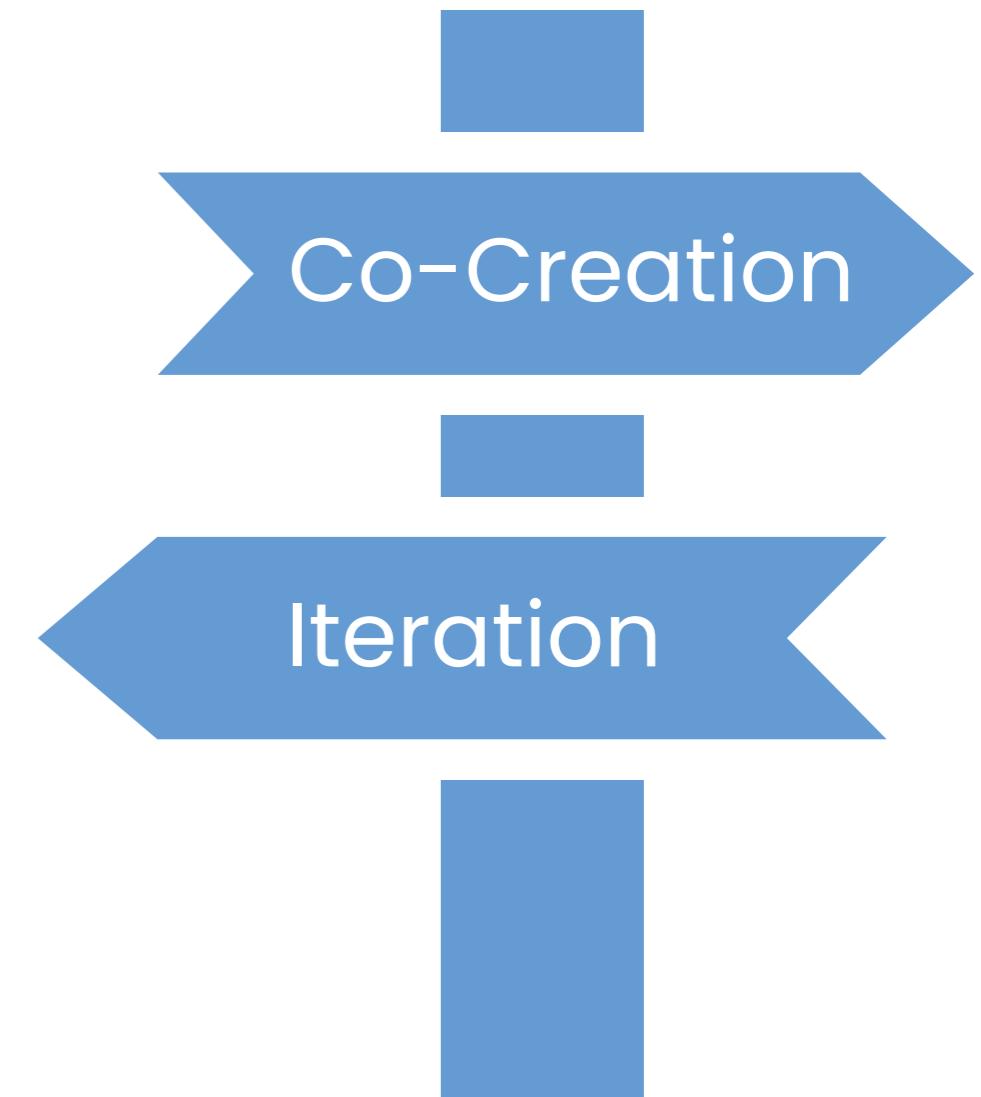
# Traditional Microwave

- Complicated user interface
- Lack of temperature control
- Uneven heating
- Zero connectivity



# User Centred Approach

- Interviews with end users and subject-matter experts.
- Hands-on experience:  
Heating a meal, eating, and evaluating the experience.
- Identifying and listing problems.
- Brainstorming technical solutions.
- Defining technical solutions to develop and test.
- Defining tests to evaluate solutions.
- Evaluating and sharing results.





# Co-Creation

Questionnaires for 81 stakeholders at the beginning of the project.

Engaging in co-creation workshops allows for collaboration among stakeholders including elderly individuals, caregivers, and technology experts.

- Workshops in AT & PT in Nov 2023
- International Workshop in Apr 2024

These workshops provided a platform for generating innovative ideas and solutions that address the challenges of meal delivery and preparation for the elderly.



# The PREPARIO System

- Specialized microwave with a temperature probe
- Integration with the personal smart voice assistant "Emma" via BT
- Feedback through Assessment App

The connected system integrates smart technology to heat delivered meals. It includes a user-friendly interface and **automated heating functions.**





# Design Considerations

Designing for elderly users requires a focus on **simplicity** and accessibility.

The user only needs to push the START button on the microwave. It stops automatically when the desired temperature is reached.

The system incorporates large, easy-to-read buttons and intuitive controls on the assessment tablet.

A reminder is issued by the voice assistant when the meal is ready.



# Benefits for Seniors

The connected heating system provides seniors meals that are heated to the **optimal** temperature.

This system promotes **independence** and convenience for the elderly.





# Benefits for Caregivers

The connected heating system alleviates the burden on caregivers by providing a reliable and **efficient** solution for meal preparation.

It enables caregivers to focus on providing **personalized** care and support to elderly individuals.





# User Feedback through Trials

Incorporating user feedback is integral to refining the system. Insights from elderly users and caregivers guide **iterative improvements**, ensuring that the system aligns with their needs and preferences.

Trial 1: April 2023  
Trial 2: July 2024



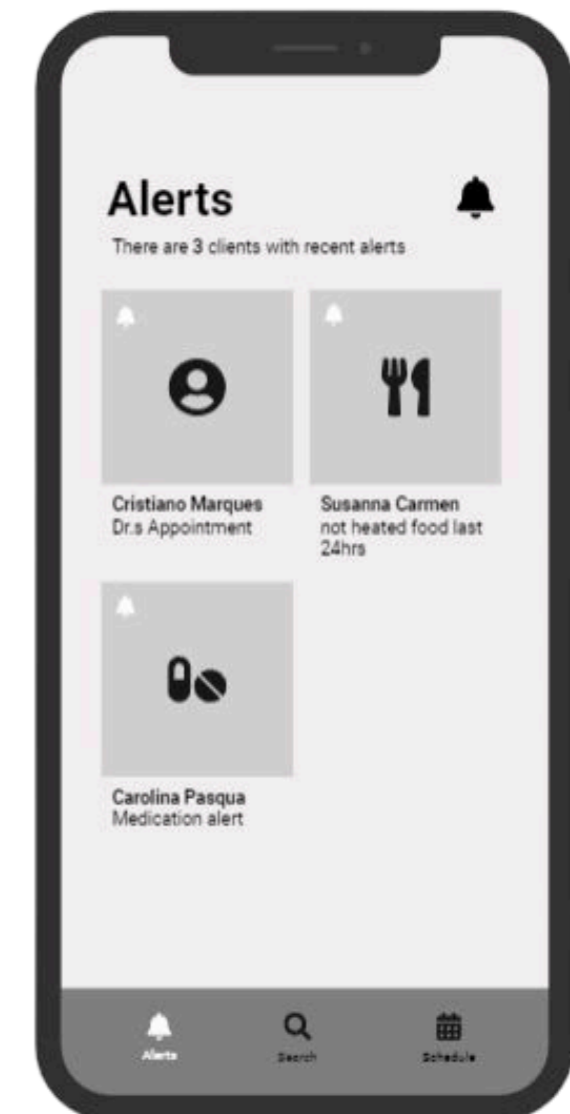
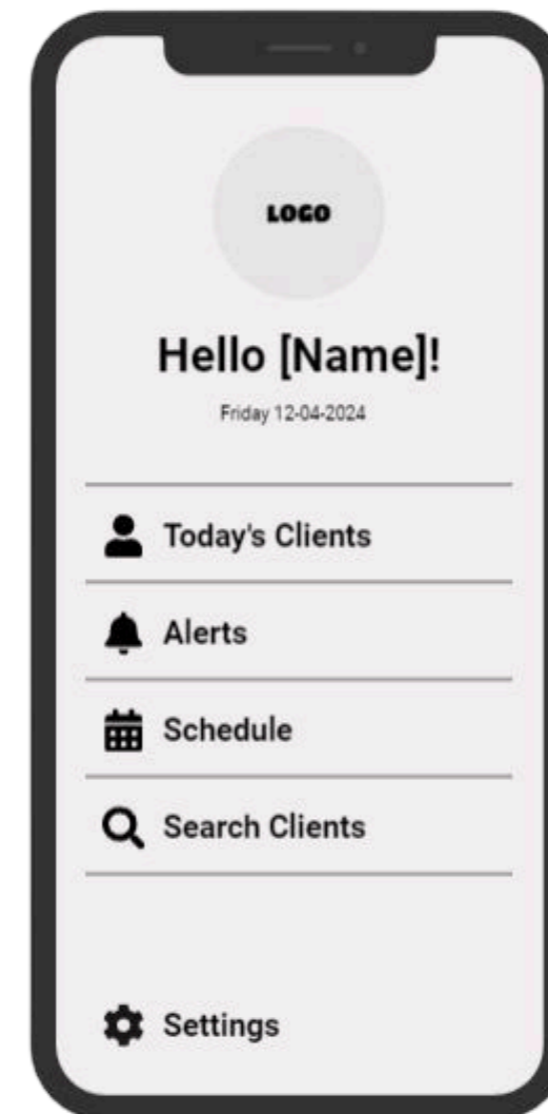


# Future Considerations

- Probe-less temperature sensing solution
- Caregiver App

Future considerations include expanding the system's capabilities to address additional aspects of elderly care and integrating with **health monitoring** technologies for a comprehensive approach.

The system can offer caregivers peace of mind through **remote** monitoring and **alerts** for any deviations in meal delivery or temperature.





# Conclusion

The **PREPARIO** system presents a promising solution to enhance elderly care. By prioritizing **convenience**, **safety**, and user feedback, the system aims to positively impact the lives of elderly individuals and their caregivers.

Engaging stakeholders throughout the project through **co-creation** boosts acceptance and adoption rates.





# Thanks!

DO YOU HAVE ANY QUESTIONS?

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Project co-founded by the AAL Programme and the national authorities of Denmark, Austria and Portugal.