ieeta instituto de engenharia electrónica e telemática de aveiro

deti universidade de aveiro departamento de eletrónica, telecomunicações e informática

Proposta de Projeto Eng. de Computadores e Informática (2023-2024)

Kitchen Assistant for Active Ageing at Home

Keywords: Active ageing, Nutrition, Assistants, Smart Homes, Evaluation.

Supervisors: Nuno Almeida (nunoalmeida@ua.pt), Ana Patrícia Rocha (aprocha@ua.pt), António Teixeira (ajst@ua.pt)

Collaboration: Samuel Silva

CONTEXT

The population in many countries, including Portugal, is ageing. Also, there is a decrease of human resources in healthcare. It is essential to invest in prevention, creating conditions for older adults to stay longer in their homes and remain active, but at the same time provide some assistance in their daily life tasks.

This assistance has the potential to help elderly people maintain a dignified life at home, in their space, with more autonomy, and increased safety.

To serve as a proof-of-concept for this new paradigm, University of Aveiro, in partnership with OLI company, Rovisco Pais Rehabilitation Center, and several companies associated with INOVADOMUS, is exploring novel solutions for an older adult smart home. A key part of this project is the construction of a real home (with the main infrastructure already in place).

OBJECTIVES

Development of a conversational assistant for the kitchen of the smart home in construction, capable of providing a unified, natural, intuitive, and easy-to-use interaction with the main functionalities (Young, 2022), in particular: Help preparing meals; management of groceries and expiration dates; provide health information about products.

Additionally, the assistant should include extended capabilities in terms of initiative to alert and transmit information regarding products that are expiring, products that needs restocking, as well as following the recipe procedure until the end.

TENTIVE WORK PLAN

- Acquisition of knowledge regarding the state-of-the-art on conversational assistants.
- Getting acquainted with the existing proofs of concept for the home (for example (Almeida, 2022)).
- Definition of main requirements and system architecture.
- Selection of tool(s) for the development (Kong, Wang, & Nichol, 2021) (Perez-Soler, Juarez-Puerta, Guerra, & de Lara, 2021).
- Iterative development of the assistant and its main components.
- Agile evaluation (for each iteration of the assistant).
- Addition of more advanced functionalities (e.g., initiative).
- Integration with kitchen devices of the smart home.
- Addition of integrated system evaluation capabilities.

- Demonstrations.
- Writing documentation and reports.

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NUMBER OF STUDENTS

4 or 5

RELATION WITH PROJECTS

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