Aktiv@Home

Keywords: eHealth, activity monitoring, Smart Homes, Active ageing.

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

Collaboration: Samuel Silva

CONTEXT

Project "Casa da Saúde" aims at providing autonomy, control of own life, and better living conditions to older adults staying at home. To achieve that, a variety of new solutions will be deployed in a real home, designed, and built based on these aims.

For the 1st phase of the project, 3 areas were selected for the new solutions: (1) support of inhabitant activities; (2) global health state monitoring, and (3) prevention and rehabilitation.

The context for this proposal is part of the second area. As maintaining activity is essential for Health, the house monitors the inhabitant's activities, reminding and encouraging him/her to keep active.

OBJECTIVES

Explore multiple devices/sensors capable of monitoring aspects of the user in the different divisions of the house, including: activity tracking and health-related parameters such as heart rate, respiratory rate, etc.

Development of a proof-of-concept of an activity monitoring system with adequate interaction with the inhabitants of the Smart Home (including conversational capabilities).

Development of an intuitive dashboard capable of sharing information with authorized persons, such as caregivers.

TENTIVE WORK PLAN

- Acquisition of knowledge and skills in Activity monitoring.
- Acquisition of skills in Interaction, Assistants and Development frameworks, profiting from previous work at IEETA.
- A state-of-the-art update on activity monitoring and assessment, solutions of AAL, conversational assistants for related applications, frameworks, tools, and technologies, focused on the last years.
- Iterative and user-centered development of a first proof-of-concept.
- Development of Architecture and initial specification of the main modules.
- Development of an Activity Monitoring system (AMS) for older adults staying at home, exploring technologies such as radar.
- Development of the dashboard.
- Demonstrations.
- Writing of documentation and reports.

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

REFERENCES

Wang, J.; Spicher, N.; Warnecke, J.M.; Haghi, M.; Schwartze, J.; Deserno, T.M. Unobtrusive Health Monitoring in Private Spaces: The Smart Home. *Sensors* **2021**, *21*, 864. https://doi.org/10.3390/s21030864

Cicirelli, G.; Marani, R.; Petitti, A.; Milella, A.; D'Orazio, T. Ambient Assisted Living: A Review of Technologies, Methodologies and Future Perspectives for Healthy Aging of Population. *Sensors* **2021**, *21*, 3549. https://doi.org/10.3390/s21103549

NUMBER OF STUDENTS

4 or 5

RELATION WITH PROJECTS

This proposal is related to project Casa Viva+, funded in its initial phase (2022-2023) by OLI and INOVADOMUS associates.