UNIVERSITATEA TEHNICĂ DIN CLUJ-NAPOCA

Faculty of Automation and Computer Science

DSRL Distributed Systems Research Laboratory

Improving the transitional care of seniors with heart failure
H2020 / AAL H2HCare

ucfiscdi

AAL PROGRAMME

HORIZON 2020 European Commission

Authors:
- S.L. Dr. Ing. Cristina Bianca Pop

PRO INVENT, Cluj-Napoca, ROMANIA,
21 October 2021

Presentation Outline

- Motivation and Background
- H2HCare Vision
- H2HCare Project Identity Card
- H2HCare Conceptual Architecture
- Related publications

https://h2hcare-aal.eu/

Motivation and Background

- Seniors with heart failure are confronted with re-hospitalization
  - 25% of 65 years or older with heart failure require readmission within one month of hospital discharge, 40% within 3 months after discharge
- Causes
  - Problems in adhering to the medication plan and recommendations after discharge
  - Lack of care network support for managing chronic diseases
    - Between 13% and 20% of readmissions of chronically ill older adults can be avoided by employing transitional care models
- Challenges to be addressed by digital assistants
  - Monitor and follow up accurately patients' adherence and responses to changes after discharge (i.e. Medical professionals, formal caregivers)
  - Difficult to implement the recommended changes (i.e. patients)

https://h2hcare-aal.eu/

H2HCare Vision

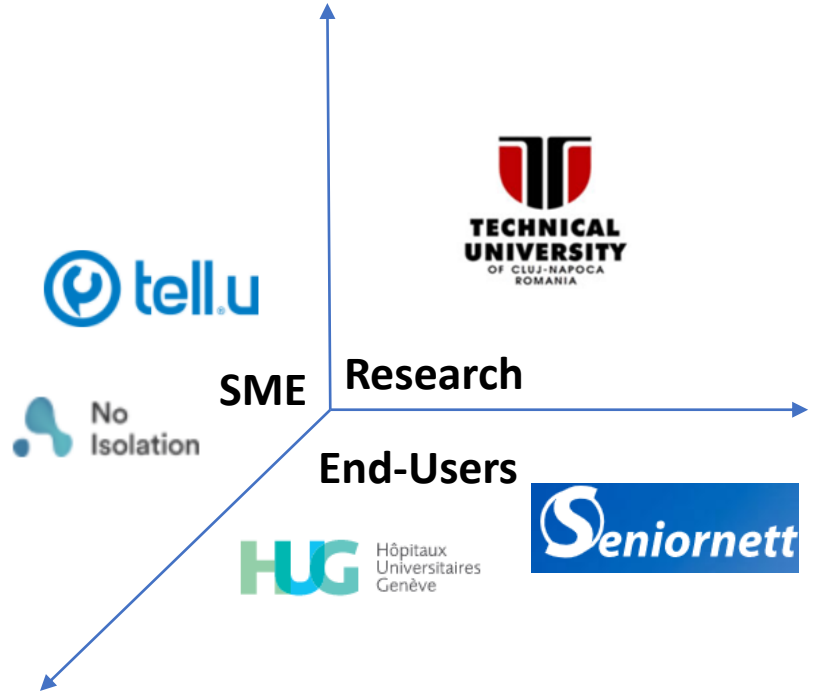
- **Develop and integrate digital assistance technologies, with artificial intelligence and IoT monitoring solutions**
  - **to address the needs of elders with heart failure during transitional care process and to avoid hospital readmission**

- ❑ Assess the elderly patients prior to discharge by stratifying the lifestyle risks of needing hospital readmissions
- ❑ Monitor daily life activities remotely to check the adherence to post-discharge lifestyle changes recommendations and treatment
- ❑ Provide personalized coaching and motivation at home using KOMP/AV1 digital assistants
- ❑ Ensure direct communication through the digital assistant between the patients and other actors of the healthcare chain facilitating remote care

https://h2hcare-aal.eu/

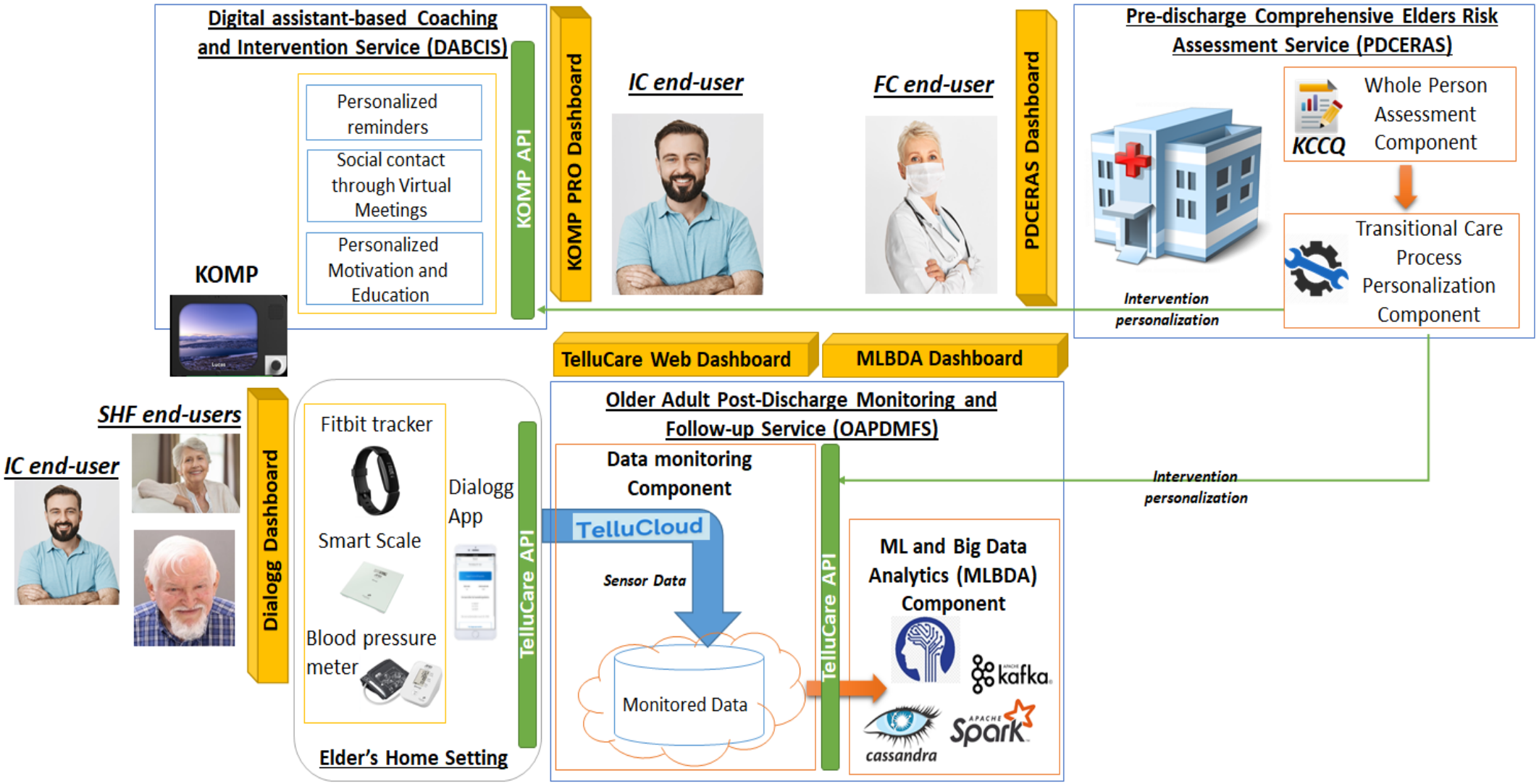
H2HCare Project Identity Card

- **ID:** aal-2019-6-128-CP (AAL159/2020)
- **Title:** Social robot-based solution for elders' Care management and coaching after discharge from Hospital to Home (H2HCare)
- **Lifetime:** 01.04.2020 – 31.03.2023
- **Program:** ACTIVE AND ASSISTED LIVING 2019 (AAL 2019) - H2020
- **Budget:**
  - **378750 Euro (UTCN-DSRL)**
  - 1.600.000 Euro (Total)



https://h2hcare-aal.eu/

H2HCare Conceptual Architecture



https://h2hcare-aal.eu/

UNIVERSITATEA TEHNICĂ CLUJ-NAPOCA

Related publications

- Anghel, I.; Cioara, T.; Moldovan, D.; Antal, M.; Pop, C.D.; Salomie, I.; Pop, C.B.; Chifu, V.R. Smart Environments and Social Robots for Age-Friendly Integrated Care Services. Int. J. Environ. Res. Public Health 2020, 17, 3801. IF: 3.39 Q1 https://www.mdpi.com/1660-4601/17/11/3801
- A. V. Vesa, V. Simion, R. Rus, M. Antal, C. Pop, I. Anghel, T. Cioara and I. Salomie, Human Activity Recognition using Smartphone Sensors and Beacon-based Indoor Localization for Ambient Assisted Living Systems, IEEE International Conference on Computer Communication and Processing (ICCP 2020), 3 – 5 September 2020, Cluj-Napoca, Romania https://ieeexplore.ieee.org/document/9266158
- Jessica Rochat, Alexandra Villaverde, Helge Klitzing, Tore Langemyr Larsen, Martin Vogel, Jacques Rime, Ionut Anghel, Tudor Cioara, Christian Lovis, Designing an eHealth Coaching Solution to Improve Transitional Care of Seniors' with Heart Failure: End-User Needs, Studies in Health Technology and Informatics (MIE2021 articles), IOS Press, Vol. 281, pp. 530 – 534, 2021, ISBN: 978-1-64368-184-9, https://ebooks.iospress.nl/doi/10.3233/SHTI210227
- TUC team, Human Behavior and Anomaly Detection using Machine Learning and Wearable Sensors, ICCP 2021 – accepted for publication
- TUC team, Machine Learning-based Approach for Predicting Health Information Using Smartwatch Data, ICCP 2021, ACCEPTED

- More info: https://h2hcare-aal.eu/
- Cristina.Pop@cs.utcluj.ro