GiraffPlus

Combining social interaction and long term monitoring for promoting independent living

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The GiraffPlus Project

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Duration of the Project: 36 Months (Jan. 2012 – Dec. 2014)

EC Contribution: 3.042.000 €

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Motivation

Prolongation of independent living

- Elderly people wish to remain in their homes as long as possible as this is in general conductive of a richer social life and paramount to maintaining established habits

However what is needed is:

- **Early detection** of possible deterioration of health
- **Timely involvement of health care and family**
- **Adaptive support** which can offer services to assist in coping with age-related impairments

Challenges

- Measure parameters of interest that may directly or indirectly indicate deterioration or decline of health i.e. early detection.

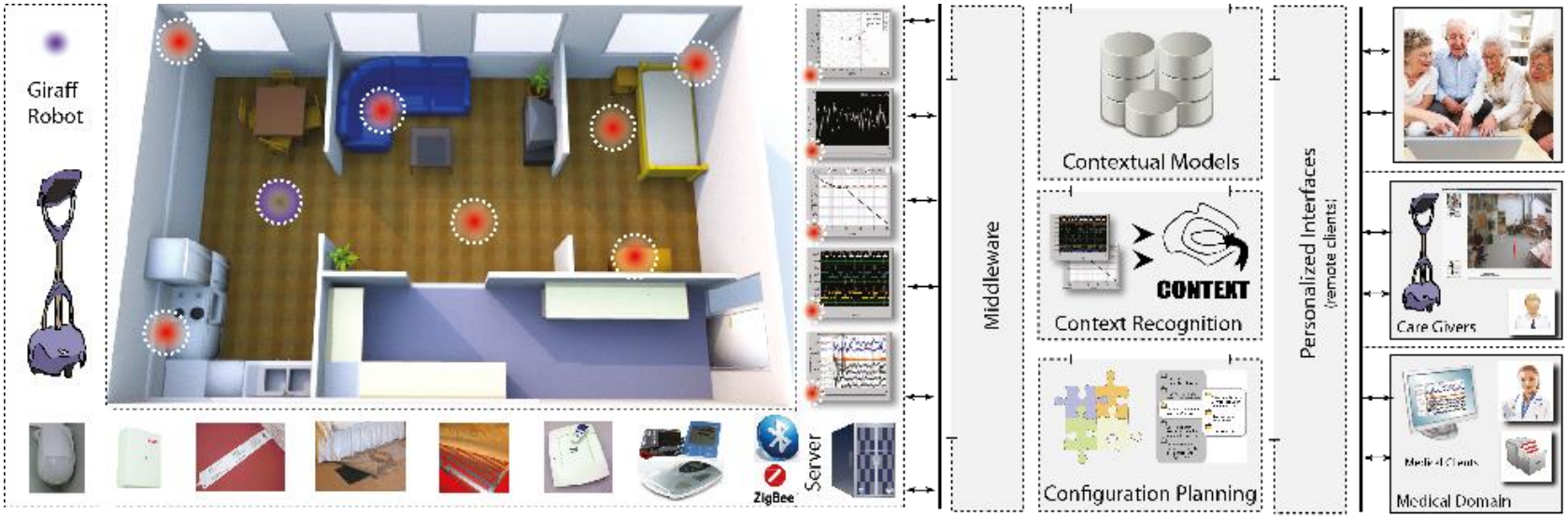
- Convince a healthy elderly group of the utility of adopting the new technologies needed to support independent living.
  - Important that the technological solutions are intertwined with social contact and integrate, facilitate and promote interaction with people.

The aim of GiraffPlus

To develop and thoroughly evaluate a complete system, called the GiraffPlus

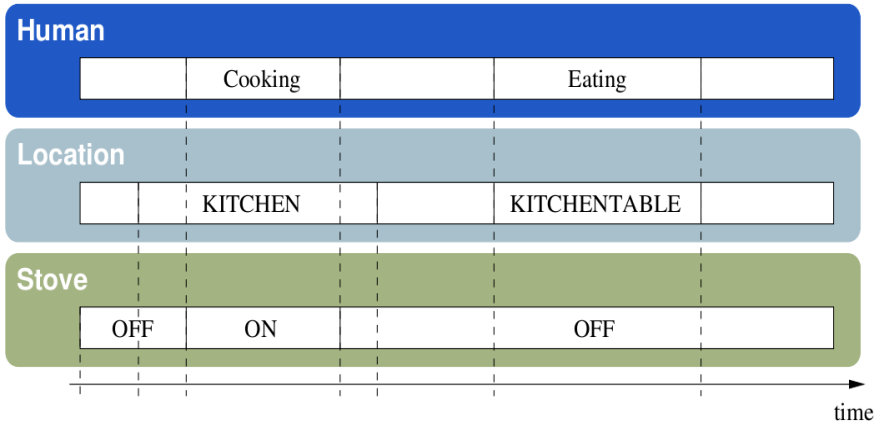
- The system collects daily behaviour and physiological data from distributed sensors.
- Performs context recognition and specifically long-term trend analysis and presents the information via a personalized interface.
- Supports social interaction between primary users (elderly) and secondary users (formal and informal caregivers), thereby offering an immediate and obvious benefit which makes the system attractive and worth using.

The Giraff+ system



Context Recognition

- Continuously inferring high-level data from sensor readings to:
  - Present a view of the current situation to the Giraff visitor
  - Give alarms in acute cases (ex. falls) and synthesizing appropriate action plans that maximally aid the assisted person.
  - Give proactive alerts, e.g., if the user is recognized as having altered sleep/eating patterns over several days, appropriate physiological and activity-related information will be presented to the caregivers upon contact
  - Store the information in a long term database for future use



Configuration Planning

Process of determining which sensors and other devices and programs to activate and how to connect them in order to collect and process the data required in a specific context.

- Devices that are not needed for this purpose can be put on stand-by.
- Able to both self-adapt and self-configure to achieve a system that has a low maintenance and graceful degradation in case of failure.
- The system uses a "plug and play" philosophy for which new devices and sensors that are placed in the environment can be automatically detected, integrated and utilized in order to maximize ease of deployment and overall system configurability.
- If sensors fail or are removed, the system automatically adapts.

Personalization and User Interaction (1)

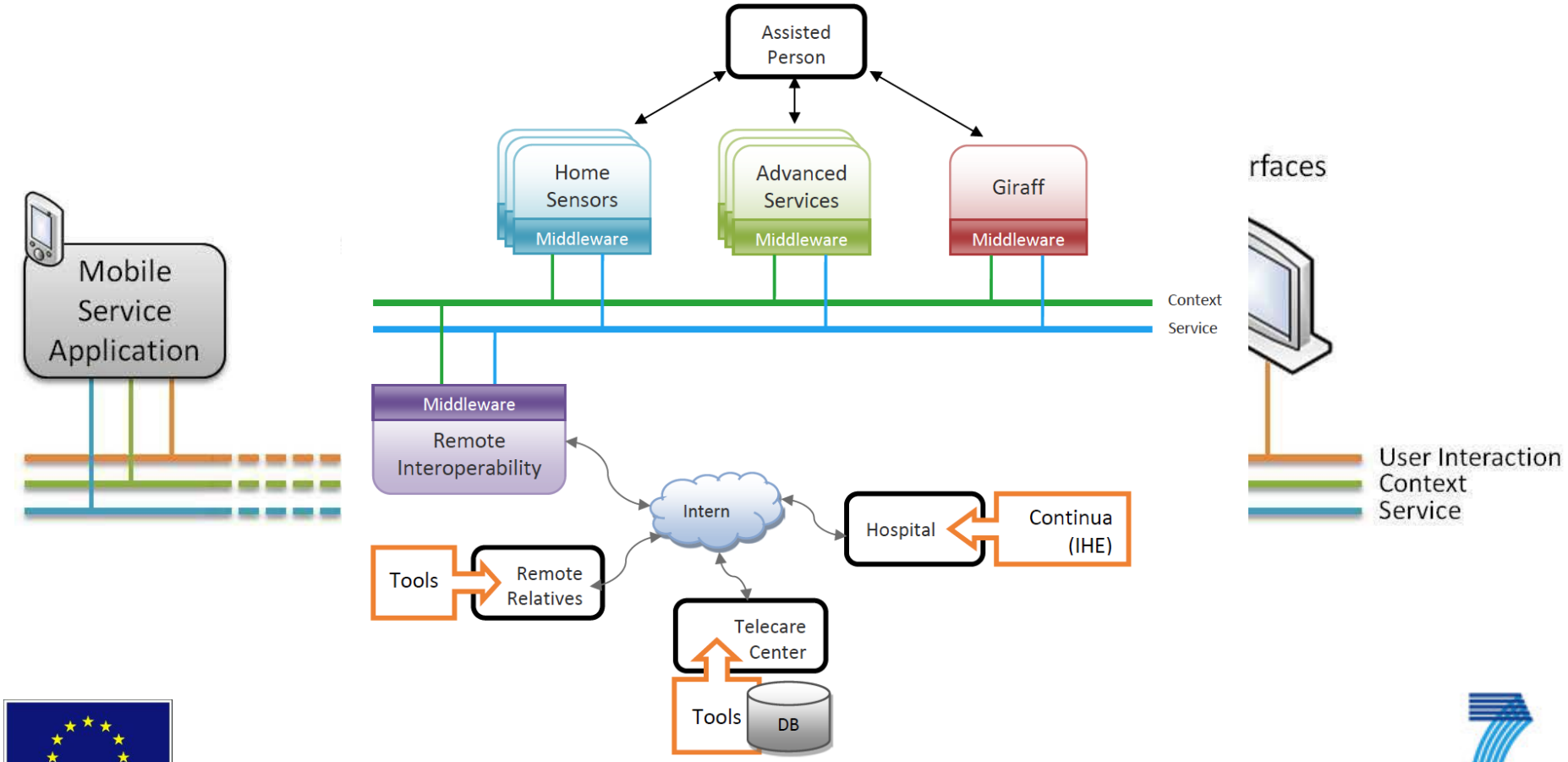
- Virtual visitors can obtain information about the current situation in the home:
  - through the Giraff's camera and microphone
  - though realtime visualization of relevant information from the context model, both related to physiological parameters and activities
  - the information can be displayed graphically also using a map of the environment created by the system.
  - what is displayed can be determined both by the category of secondary user, and by specific request from the secondary user.

Personalization and User Interaction (2)

- Healthcare professionals can visualize stored data from the context model over different time horizons and at different levels of abstraction, and detect and analyze trends in this data.

- Secondary users can specify what kinds of activities and physiological data that should be monitored, and set up warnings, alarms, reminders and other kinds of active responses to certain events or patterns.

GiraffPlus is *universAAL compliant*



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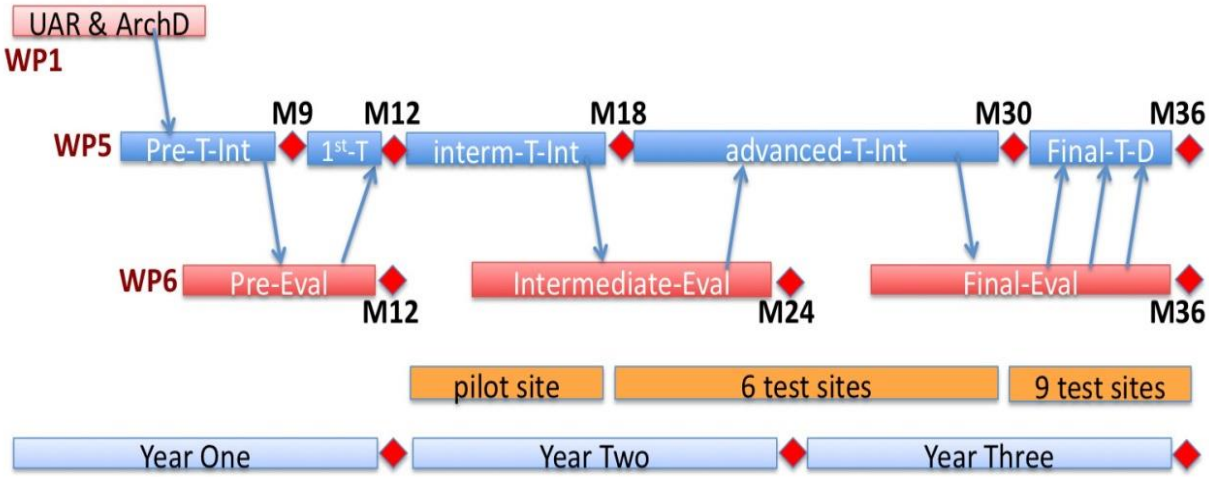
Evaluation

Special emphasis in the project is given to evaluations and input from the users so that the system can have an empathetic user interaction and address the actual needs and capabilities of the users.

- Both the benefits of using the system (the useworthiness) and the easiness of obtaining these benefits (the usability of the interface and the application) are evaluated in Italy, Spain and Sweden.
- "domestication of technology", that is the integration of technology in everyday life.
- concept of **playfulness** as a way to make the learning and subsequent experiences enjoyable and relaxed

Evaluation

- The list of activities and physiological parameters to be monitored selected by users in the first 3 months of the project.
- Initial tests in the smart home lab in Örebro.
- A pilot site set in a selected home where the technology can be tested in a real environment before being deployed to the test sites.
- The system is evaluated in 15 additional test sites beside the pilot site distributed in Sweden, Spain, and Italy.



The consortium

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High level reasoning
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User perspective
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