REACTION event

Hellas, September 26-27 2013

SAAPHO: Meeting Users' Needs For Active Ageing in AAL Scenarios
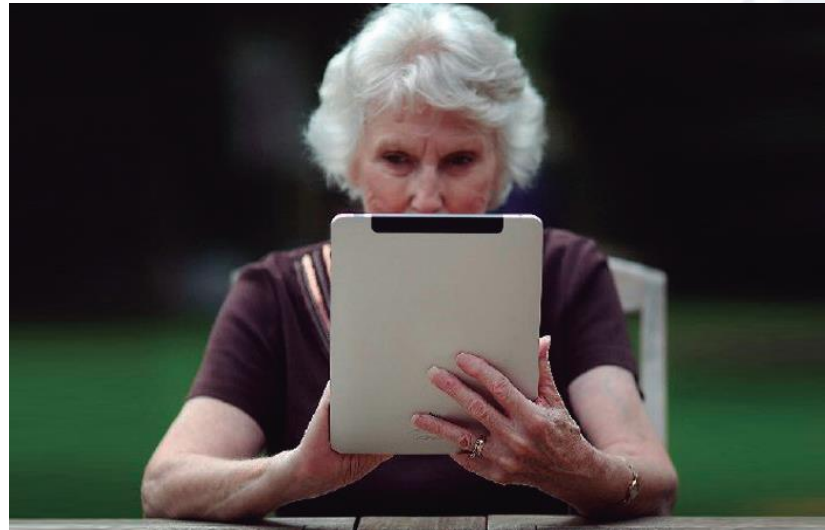
The Ageing problem: Active Ageing

According to the recommendations made by WHO in the policy framework *Active Ageing, this term entails the optimization process of the health, participation and security opportunities in order to improve the life quality of people as they get older, including the disabled fragile people who need attendance (WHO, 2002).*

The attendance of seniors might be eased by the use of novel ICTs initiatives which are called to play a key role in the following years.

The SAAPHO project

The SAAPHO project (AAL-2010-3-35) supports Active Ageing by assisting seniors to participate in the **self-serve society** preserving and enhancing independence and dignity through the application of innovative ICT-based solutions.

To boost **accessibility** to a diverse number of services by means of easy-to-use and easy-to-configure user interfaces.

To offer **intelligent**, intuitive and user-friendly tools using tactile screens and mobile devices which represent a more intuitive form of human computer interaction for seniors.

PARTICIPATION SERVICES   SECURITY SERVICES   HEALTHCARE SERVICES

The SAAPHO project

Touchable interface Seniors interact with SAAPHO through a multi-touchable adaptative user interface that offers direct interaction experience without using mouse or keyboard

Social participation empower social inclusion by means of easy to use communication and participation services especially adapted to seniors

Security and safety ensure well-being of seniors using ambient sensors and monitoring ambient parameters in a smart and proactive way

Healthcare support seniors to follow their medical routines and monitor their health condition regularly by means of an expert system which also recommends good habits and best practices

SAAPHO: user-centred design

User-Centred Design Process: From the very beginning, SAAPHO involves the direct participation of end users in the iterative design lifecycle of the system

Questionnaires and **Focus Groups** have been run in Spain and Slovenia

Topics related to users interaction, interface adaptations, health monitoring, home security and social participation have been widely discussed with users

Interviewed people considered SAAPHO a good opportunity to facilitate their daily life	Users felt confident towards a system adapted to their needs and preferences

SAAPHO: System architecture

Decoupled architecture The system is composed by independent but interoperable components. This enables a clear and understandable design with great performance and scalability

Open system the middleware offers generic interfaces to be compatible with diverse communication protocols, services and sensors from the market

User data privacy The system design counts with secure transmission protocols and data cyphering to provide a secure and trustable system

Low cost we are aware about economy of its users thus system design avoids wired and propietary technologies for open source and wireless protocols (WiFi, Z-Wave, Bluetooth)

Market Oriented The middleware is compatible with available EC products in the market

SAAPHO: Healthcare services

Health care and assistance services such as medication assistance, healthy lifestyle interventions and healthcare management

Monitoring services medical devices such as Blood pressure, glucometer and activity sensor connect to the tablet App via bluetooth for visualization and send data to the healthcare services for intelligent recommendations

Historical data the Middleware (via health gateway) provides historical data measurements, recommendations and alerts to the user
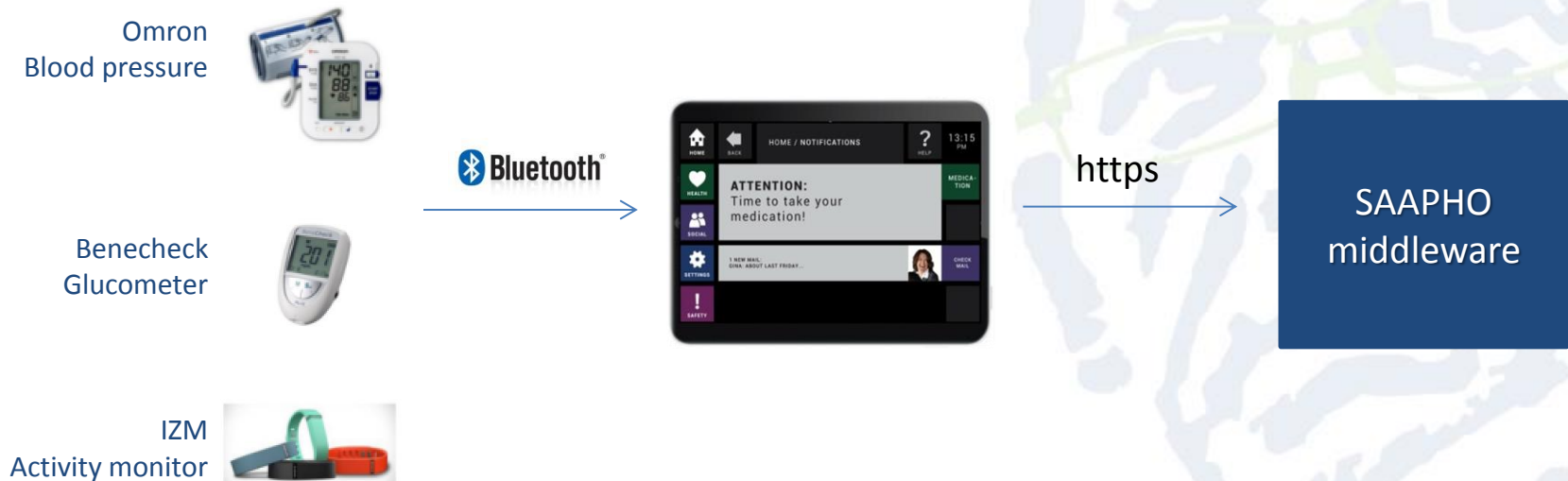
SAAPHO: Participation services

Social services with interaction to Facebook, Gmail, Picasa, Twitter in an all-in-one service included in the participation gateway offering communication services and pictures from friends and relatives.

Leisure services such as news, radio video and games with automatic gathering and intelligent recommendations using social activity and personal data.

Videoconference between user and relatives or caregivers through the tablet App.

SAAPHO: Security services

CE ambient sensors – alarm sensors such as gas leak, CO escape, fire and ambient parameters such as temperature, humidity, luminosity and presence.

Home wireless sensors communicate with a central unit – Collector – using e.g. Z-Wave, Zigbee.

Smart security gateway to collect and analyse data for detection of emergencies and abnormal situations.

Presence

Humidity,
Temperature,
Luminosity

CO, Smoke

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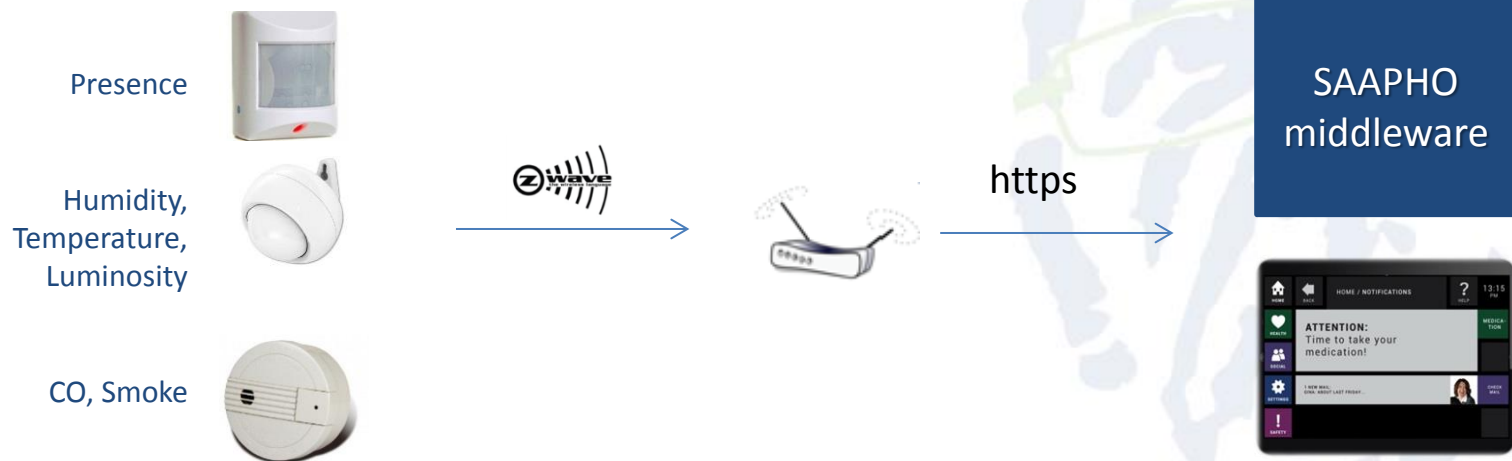
SAAPHO
middleware

SAAPHO: Ambient Intelligence

Assistive Surroundings SAAPHO adds intelligence to user surroundings to facilitate the living conditions such us detection of environmental anomalies, intrusion or abnormal activity conditions

Intrusion detection a system that monitors motion and luminosity sensors located at user's home, and it tries to detect suspicious activity based on past histories and habits of the user at home at a certain day and time

Degradation of activity detection of an abnormal mobility condition in regards of past mobility conditions from the same user and also in regards of other users with same mobility condition.

Anomaly detection is based on distributed sensors mining technology able to learn users' life patterns and to detect different degrees of anomalies inside the home sensor network, providing to the users feedbacks.

Fire detection based in simple trigger system using variation thresholds and also fusing features from multiple environmental sensors to train data and determine if there is an alarm.

SAAPHO: Current State

Year two prototype being thoroughly tested and validated to users in both Spain and Slovenia to end users partner facilities

Health services Omron bluetooth device and activity monitor connected to the tablet

Participation services a full featured communication services to social platforms, developer's and apps registry and social data storage to a NoSQL database

Security services wide range of CE sensors communicating through z-wave to Raspberry Pi and to the security services where data is stored and analysed. First rule based alarms defined

SAAPHO: Future

Year three prototype will be installed and tested at user's home during 6 months

Health services will integrate also the Glucometer sensor

Videoconference and Leisure will be added to the tablet App final prototype. Leisure and news recommendations will be developed in the participation services

Ambient intelligence classifiers will be trained and tested with real data from users. Special use cases are also going to be tested – such as gas and smoke alarms

Exploitation plan and Productization are the main objectives of several partners. The evolution beyond the project goals is going to be explored thoroughly

Thank You!

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