

Distance Support: Remote Hearing Aid fitting

Jean Anne Jordan, Phonak AG

During the hearing aid fitting process, the hearing impaired patient has to travel to the audiologist's office a number of times to have their hearing aids adjusted. The repeated trips to the audiologist can be a barrier for some to receiving care. A prototype to complete a remote hearing aid fitting session will be demonstrated in this session. This tool enables the patient to receive care remotely, therefore increasing accessibility to qualified professionals and services. The session will also highlight patients that would be candidates for this type of technology, and the technical feasibility of setting up such a system.



Location Based Services (LBS) for real-time indoor location and management of medical assets

Giuseppe Conti, Trilogis

MEPI is the result of an innovation project funded by the research council of the Province of Trento, Italy and it is now being extended by the i-locate EC-funded project (www.i-locate.eu). The system provides a complete software/hardware solution to:

Track medical devices within healthcare facilities.

Track patients and operators inside healthcare facilities

Automatically generate events conditions (related to movements of hardware and people) to be dispatched to appropriate operators.

Target users of MEPI are: doctors, maintenance or clinical engineers, nurses who receive on their mobile devices events regarding the use of the devices (e.g. alerts with abnormal patient information) or its maintenance (e.g. a malfunctioning) together the position of the device within the building.

The system has been designed and optimized for assistance or healthcare scenarios requiring real-time indoor localization of asset or people. The system scales up to hundreds or different devices/persons to with high localization accuracy (down to centimeters). The system allows configuration of different alert conditions (e.g. a device being moved from a room, a device needing maintenance, a patient leaving the healthcare premises etc.).

The system provides support for different indoor localization technologies (GPS-based, ZigBee-based, vision-based etc.) and it can be integrated with enterprise IT systems (e.g. user or document management). The system provides support for geographical standards from the Open Geospatial Consortium – OGC®.



WebPatient – A fully integrated home monitoring data collection and reporting system

Ib Johansen, MedCom, Coordinator Antilope project

Home monitoring of Blood Pressure, Glucose, Weight, INR and COPD parameters are widely used by citizens in Denmark.

A new, easy to use, software « WebPatient » for datacollection and reporting for home monitored results is developed in cooperation with General Practioners as part of the National labtest «WebReq » ordering system. It is already used widely by citizens.

The complete system will be live demonstrated focusing on the full process from:

Electronic ordering from the GP, Secure access by Citizens/Patients, Keying in or collection of results from different devices, transmitting results, calculating results, data transfer to GPs EMR systems and further reporting results in national portal as well as automatic reminders for the citizen.

The data collection and data exchange is based on international standards and codes. A set of different MedCom National eHealth standards are fully supported and reused.



Wearable Health Monitoring System

Ali Kahn, University of Bremen

One of the major scientific undertakings over the past few years has been exploring the interaction between humans and machines in mobile environments. In this work, we will examine how to utilize existing technology in order to build eHealth system for the heart patients. This system should be able to establish an interaction between patients and health physician so that patients don't need to visit clinic every time.

Heart patients are supposed to visit their health physicians for a routine medical check-up on a regular basis. Sometimes, they come from long distance and sometimes they miss some events because of their medical appointment. Question is that why patients always need to follow this old tradition, cannot they just send all needed information to the health physician so that he could assess them? What kinds of information do health physicians need for assessing their patients' health conditions? In some cases, especially in heart diseases, physical activities and emotion states are also required along with the physiological information for the doctor in order to examine his patient's conditions when he is away from the doctor's clinic. Researchers think that following information is needed for assessing heart conditions:

- Physical activities {sitting, standing, laying, walking, ascending/descending stairs, running, cycling, strength-training, swimming etc}
- Emotion states {sad, dislike, joy and stress}
- Physiological data {blood volume pulse, respiratory rate and ECG}

I will also present following video to audience so that they could have better understanding about the system. <http://www.informatik.uni-bremen.de/~akhan/index.php>

Additionally, I will give a demonstration about a following device where I will explain how to retrieve physiological data (i.e. EMG, body temperature, ECG, heart rate, galvanic skin response, oxygen in blood (SPO2), airflow (breathing), patient position (accelerometer) and blood pressure (sphygmomanometer)) from a very cheap device.

<http://www.cooking-hacks.com/documentation/tutorials/ehealth-biometric-sensor-platform-arduinoraspberry-pi-medical>