EUROPEAN RESEARCH PROJECT

EMERGE Senso-Watch

ELECTRONIC DESIGN AND DEVELOPMENT SERVICES

Development of an unobtrusive, reliable, wrist-wearable device for continuous monitoring of the elderly and to initiate an alarm in case of an emergency, without the need for user intervention.

EMERGEncy monitoring and prevention (EC Project, FP6-IST-045056)

Demographic and social changes are leading to a dramatic increase in the number of emergency situations, with up to 44% of medical emergency-resources being dedicated to people over 70 years of age. Delays in receiving emergency medical treatment (especially in the case of strokes and falls) often leads to extended hospitalisation and movement of elderly people into nursing homes. High quality and affordable emergency services are essential to maintain the independent lifestyle of elderly people in their preferred environment - at home!

How does the it work?

The EMERGE system developed as part of a European research project was tasked with improving emergency assistance through early detection and proactive prevention.

Using ambient and unobtrusive sensors to monitor activity, location and vital parameters, EMERGE detects deviation in daily routines and health status to identify potential emergencies.

In critical situations, EMERGE sends alarm and detailed emergency-related information to medical or emergency dispatch services.

Our contribution

Definition of requirements specification
- domain, user & ethical requirements
- methodological & technological requirements

Medical application modelling
- epidemiology, medical & human aspects
- interaction & communication model
- integration into emergency medical work-flow, nursing home & home care centre

Information model and reasoning
- location, activity & vital data tracking
- end user model & adaptive situation recognition

System design and implementation
- system requirements
- architecture specification
- implementation

Sensors and communication
- environmental, location & vital data sensors
- development of power monitor (monitoring behaviour)
- development of Senso-Watch

Senso-Watch
- worn like a wrist watch, the Senso-Watch is an integral part of the EMERGE system, measuring and transferring vital parameters at regular intervals to a control centre for analysis and, if required, escalation and notification of emergency medical services.

Senso-watch features

Vital data measured
- pulse & skin-temperature
- acceleration (in case of impact)
- movement (or lack of movement)

Design features
- low-power communication
- low-battery alarm
- compact design
- integrated algorithm for data analysis
- connect to PC via USB
- wireless communication (ZigBee)

User features
- alarm button, chargeable battery
- unobtrusive measurements
- no user intervention required

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