

Fraunhofer Institut für Biomedizinische Technik (IBMT)



Medizintechnik Neuroprothetik

Ambient Assisted Living
European Day at German AAL Congress
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Fraunhofer Institut
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Technik



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- Project idea:
Mobility support to carry on an independent life in preferred environment

 - Medical Engineering (K.-P. Hoffmann)
 - Neuromonitoring
 - Neuroprosthetics

 - Health Telematics / Home Care (S. Kiefer)





Microsystems, Microelectrodes, Assembling Technology

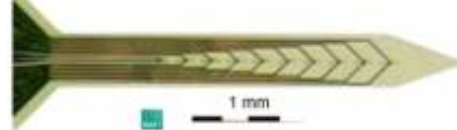
Cuff- Electrodes with multiplexer

Cuff- Electrodes are placed around the nerves (separated nerve fibres).



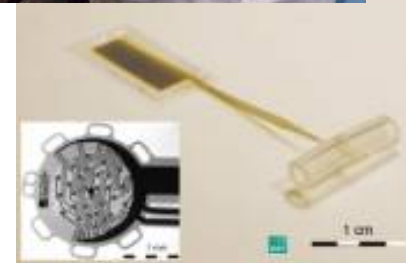
Schaft- Electrodes

Schaft- Electrodes are needle-like (spicular) multichannel intrafascicular electrodes.



Sieve- Electrodes

Sieve- Electrodes are implanted between two nerve ends.



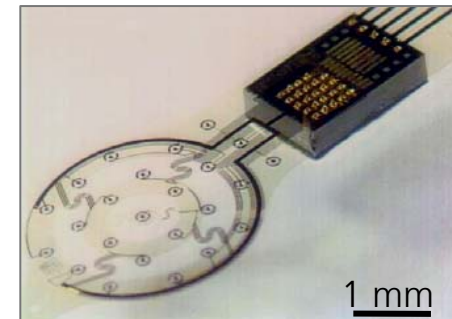
Longitudinal intrafascicular Electrodes (Life / tfLife)

Life's are intrafascicular electrodes which are built up with a tungsten needle, Kevlar fibre and polyimide loop (incl. electrode contacts) for implantation.



Electrodes for Retinaimplant

For stimulation of the retina.





Sensors, Devices and Methods

Development of medical technology

(Test- and validation equipment)

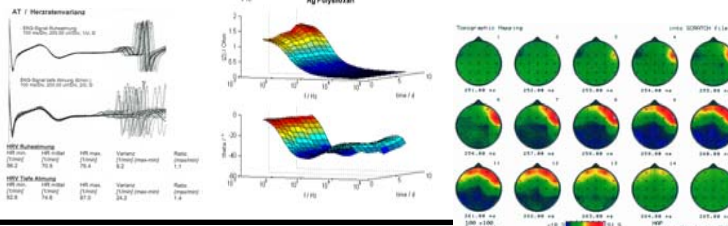
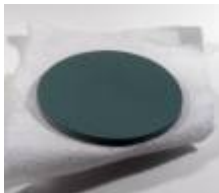
EasyAmp, EasyStim, EasyImpi



Development of novel surface electrodes

Material science

Test stations for long term characterisation



Clinical trials

e.g. Multistimulator



Methods and devices of Clinical Neurophysiology

EMG/ ENG, vegetative Parameters

Eye movements

Thermography

Heart Rate Variation

Pulse Transit Time





Telemedicine

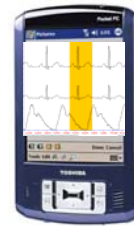
Dry ECG-electrodes



- A disease management and telemedicine platform
- Mobile monitoring of cardiac disease
- Sensor shirt



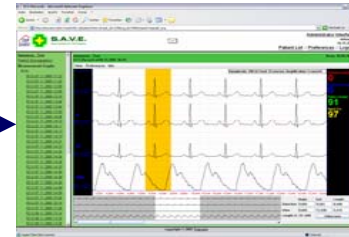
Bluetooth
Ad-Hoc-
Netzwerk



Internet
UMTS/WLAN



Internet



ECG-shirt



Bluetooth
Scales

TOPCARE
Personal Health
Assistant

TOPCARE-Server

Web-Client

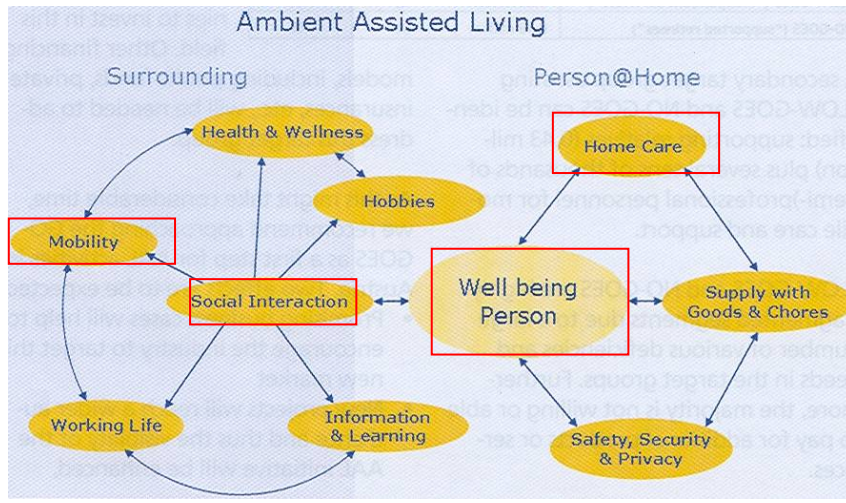




■ Independent and autonomous life

■ Take care of

- Increased risk of near future reduction in physical and/or cognitive capability
- Increased need for support to carry on an independent life in a preferred environment
- Preservation of social integration, mobility, and social interactions
- Changed need for safety and security at home, on the road, and during driving a care





Mobility and mobility support to carry on an independent life in preferred environment

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