



HEALTHY AIMS

Nano scale materials and sensors and microsystems for medical implants
improving health and quality of life
FP6, IST, IP, 2003-2007; *Project number: 001837*

Coordinator: European Technology for Business Ltd, United Kingdom

Contact Person: Dr. **Diana HODGINS**, diana.hodgins@etb.co.uk; <http://www.healthyaims.org>

Healthy Aims, a new EU Framework 6 project securing over 16M Euro of funding over 4 years for the 26M Euro project. There are 26 partners, including 6 SMEs, across 9 EU countries. These partners will develop a range of medical implants to help the aging population and those with disabilities. The project is funded under the IST Microsystem programme and combines experts from a wide range of disciplines.

Eastern european partner in HEALTHY AIMS: Institute of Electron Technology (ITE), Poland

Contact Person for Healthy Aims project: Dr **Krzysztof DOMANSKI**, e-mail kdoman@ite.waw.pl

Mission: Intelligent Medical Implants and Ambulatory Measurement

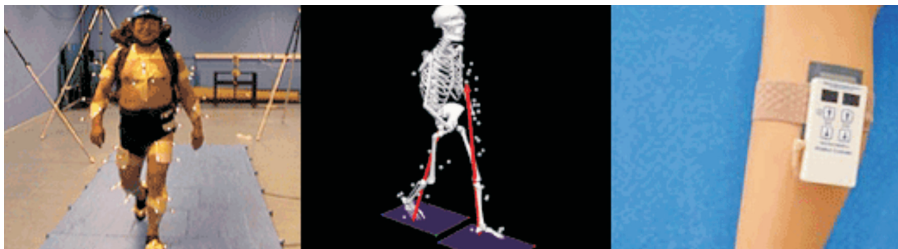
'Devices that communicate with the outside world, providing ambient intelligence to the human health level'

Background: This Framework 6 project is developing key microsystem technologies and communication methods that bring intelligence directly to the human, in the form of medical implants and ambulatory measurement systems. Information from these devices will be transmitted out into the wider environment for remote interpretation and diagnosis.

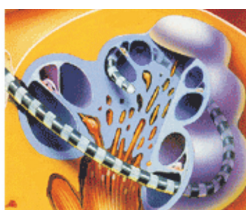
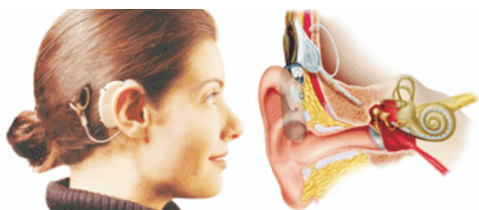
Medical applications have been chosen that will have a direct positive impact on the health of EU citizens and also contribute significantly to economic growth and intellectual capability.. In particular, this multi-disciplinary project will integrate and extend the existing State of the Art in microsystems, biomaterials, wireless communications, power sources and body area networks (BANs).

The overall objective is to produce intelligent medical devices that have communication capability and exploit the full range of advanced technologies in design, materials, processes and manufacturing.

The medical products being developed include:



1. Cochlear implant
2. Retina implant and glaucoma sensor
3. Functional electrical stimulation for upper limbs (FES)
4. Sphincter sensor for oesophageal and urological applications
5. Implantable pressure sensor to monitor intracranial pressure
6. Inertial Measurement Unit (IMU) for human body motion and to trigger the FES



In order to achieve this a number of key technologies are being developed including:

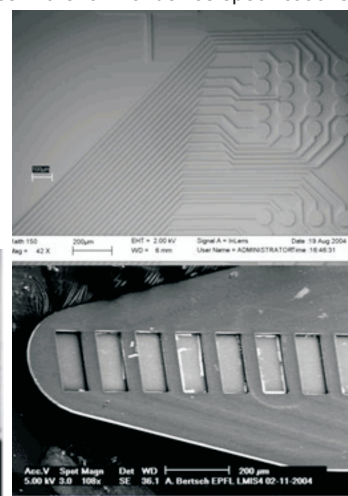
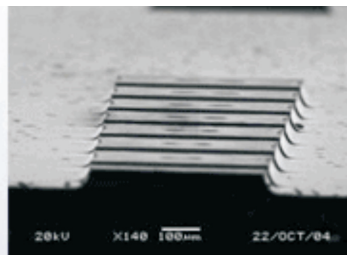
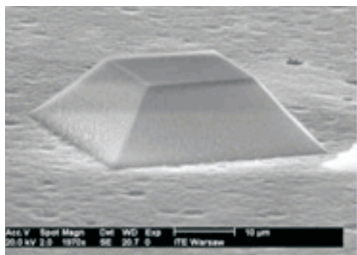
- A body area network enabling communication from implants or on the body devices to a base unit which may be up to 3m away
- Micro-electrodes
- Micro assembly techniques, particularly for 3D structures
- Implantable power sources
- Biomaterials, suitable for interfacing devices in and on the body

The 4 year, 25 partner project started on December 1st 2003 and already there have been key deliverables in the form of device specifications, communication architectures and some early hardware demonstrators. Many of these have been presented at various meetings and in journals across the EU, stimulating considerable interest from the wider EU community.

The Healthy Aims Team: Research Groups in micro and nano technology; Biomaterials experts; RF Communications experts; Power sources experts; Design teams; Medical Device manufacturers; Surgeons and clinical teams, including ethics; These all came from the NEXUS Medical Devices USC and includes 6 SMEs from across the EU.

Healthy aims technologies (examples):

Micro scale electrodes :
Process can provide both high density electrodes and "first level" interconnections.
Electrode tips can be formed in 3D.
Interactions with the biomaterials work package will define electrode shapes for improved electrode-tissue interaction.



Partners:

European Technology for Business Ltd, UK; Assuta Medical Centers Ltd, Israel; Campus Micro Technologies GmbH, Germany; CEA/Liten, France; Cochlear Technology Centre Europe, Belgium; Ecole Polytechnique Federale de Lausanne, Switzerland; Universitat Rovira i Virgili, Spain; Finetech Medical Ltd, UK; Hahn-Schickard-Gesellschaft Fuer Angewandte Forschung E.V., Germany; IIP-Technologies GmbH, Germany; IMTEK - Institute of Microsystem Technology, Germany; Instytut Technologii Elektronowej, Poland; Interuniversitaire Micro-Elektronica Centrum vzw, Belgium; Mediplus Ltd, UK; Mediuniversity of Graz, Austria; MicroTEC Gesellschaft fur Mikrotechnologie mbH, Germany; The NEXUS Association, France; North Bristol NHS Trust, UK; Queen Mary and Westfield College, University of London, UK; Saft SA, France; Salisbury District Hospital NHS Trust, UK; TWI Ltd, UK; University of Newcastle upon Tyne, UK; University of Salford, UK; Zarlink Semiconductor Ltd, UK.