Fraunhofer
IBMT

FRAUNHOFER-INSTITUT FÜR BIOMEDIZINISCHE TECHNIK IBMT


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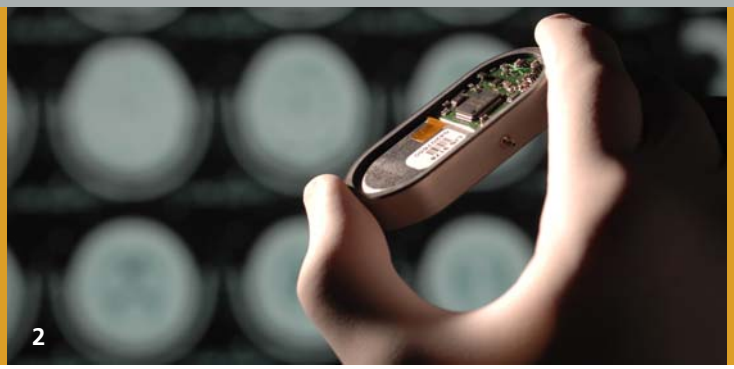
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1 Dental implant: Artificial tooth containing wetness sensor, battery and an electrostimulation unit for stimulating secretion of saliva.
2 Shunt system for treatment of hydrocephalus (cover of titanium housing is removed): Patient-specific programming of the implant is possible via wireless communication .

ACTIVE IMPLANTS

The Market

According to BBC Research, the worldwide market for microelectronic medical implants and accessories will grow to 24.8 billion US Dollar by the year 2016.

Active Implants are technically challenging medical devices that impose particularly high demands to the application-oriented research & development, design, production, testing and regulatory approval. Innovations always need to consider biocompatibility and biostability issues, patient security, reliability over the complete service life as well as compatibility with other medical and non-medical devices.

Miniaturization, efficient and space-saving powering, wireless power and data transfer between external and implanted modules as well as innovations in encapsulation and housing are key issues for the future of active implants.

Our Experience

Fraunhofer IBMT has more than 15 years of experience in the business of active implants and bordering areas. We gained our knowledge in publicly-funded as well as in projects funded by industry covering all aspects of the innovation chain from concept and feasibility studies to product design and development as well as prototyping.

We have experience in various application fields of active implants, such as:

- Dental implants for monitoring, electrostimulation and oral drug delivery purposes.
- Implants for remote-controlled hydrocephalus treatment.
- Implants for wireless monitoring of intracranial pressure.
- Implants for electrostimulation purposes.
- Orthopaedic active implants.

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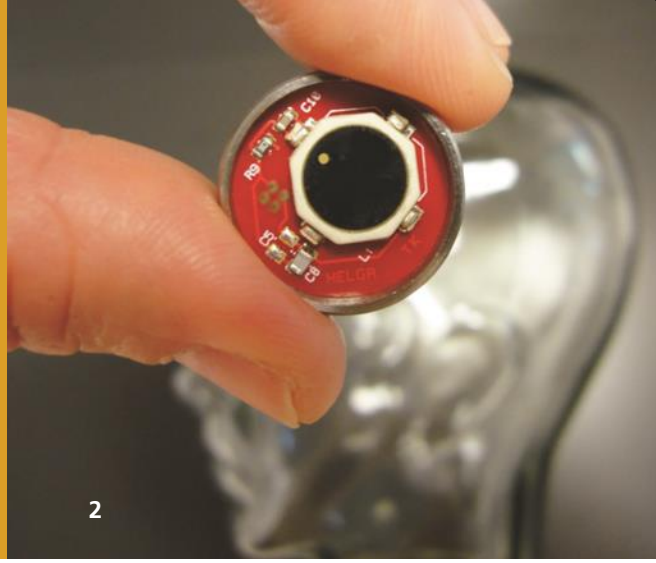


Our Specific Knowledge

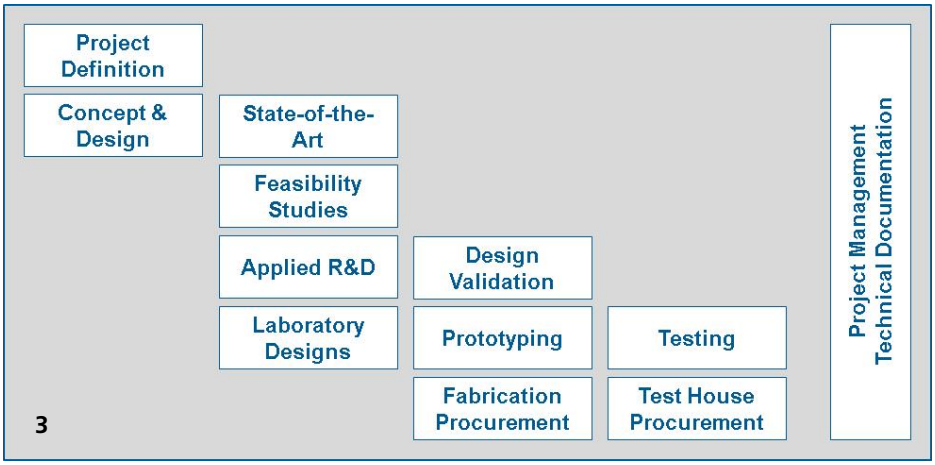
Fraunhofer IBMT has specific knowhow in the following areas:

- Wireless powering & data transfer (RF, RFID, infrared, etc.).
- Microelectrodes, -sensors & -actuators.
- Encapsulation & housing.
- Electronics design & development.
- Miniaturization by intelligent electronic design.
- Firmware/software development and signal processing.
- Biocompatibility & biostability testing.
- System aspects & integration.
- Regulatory issues.

Our Offer

We offer concept, design, development and prototyping services of active implants for various applications.

We develop in very close cooperation and communication with you the active implant that meets your specific demands.
We assure that the implant will consider existing norms and standards.



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1 Dental implant: Artificial tooth for monitoring oral wetness and for treatment of the dry-mouth syndrome (xerostomia). For close-up of the artificial tooth see front side.

2 Long-term implant to be placed in the skull of patients for monitoring intracranial pressure. Pressure values are read out wirelessly via RFID communication.