

Project abstract

Title:

Anslut min kropp: från in-body kommunikation till hälsovårdssystemet
Connect my body: from in-body communication to the health care system

Objective

The objective of this project is to reliably connect in-body sensor networks to health care systems

Abstract

Already in 2005, 25 Mio US citizens were relying on implanted medical devices (IMDs) such as pacemakers for life-critical functions. This number is expected to increase tremendously in the future in particular as new application areas for implanted medical devices such as drug delivery systems, intracranial pressure monitoring devices and artificial kidneys are emerging. A further trend is to network these implanted devices which is both necessary since more and more (elderly) people have multiple diseases that can benefit from implanted devices. Some applications can, however, not be realized today due to a lack of bandwidth inside the body. Uppsala University has recently pioneered a novel approach that addresses exactly these issues: we have shown that the human body's adipose (fat) tissue can be used as a communication channel for RF-based communication and allows for energy-efficient communication at high data rate. The full potential of in-body sensor networks attained when they can be connected to other existing systems. The project addresses exactly this issue: Alleato and Intel are interested in getting the data from in-body networks connected to the Swedish national Service Platform "Tjänsteplattformen". To demonstrate the versatility of our in-body system, we will devise new applications with clinical partners for in-body sensor networks with a focus on non-invasive intra-cranial pressure (ICP) monitoring - A non-invasive ICP monitoring system being developed at UU could help in prioritizing the medical intervention and in planning the proper treatment.

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Total cost of project: 3 163 056 kronor

Total grant: 1 486 152 kronor