

A sophisticated multi-parametric system for the continuous-effective assessment and monitoring of motor status in Parkinson's disease and other neurodegenerative diseases (PERFORM)

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Title of project or programme

A sophisticated multi-parametric system for the continuous-effective assessment and monitoring of motor status in Parkinson's disease and other neurodegenerative diseases (PERFORM)

Principal Investigators of project/programme grant

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Source of funding information

European Commission

Total sum awarded (Euro)

6999999

Start date of award

01-02-2008

Total duration of award in months

36

The project/programme is most relevant to

- Parkinson's disease
- Neurodegenerative disease in general

Keywords

Research abstract in English

The PERFORM project aims to tackle problems associated with the efficient remote health status monitoring, the qualitative and quantitative assessment and the treatment personalisation for people suffering from neurodegenerative diseases and movement disorders, such as Parkinson's disease (PD). The PERFORM project aspires to research and develop an innovative, intelligent system for monitoring neurodegenerative disease evolution through the employment of a wide range of wearable micro-sensors, advanced knowledge processing and fusion algorithms. Advanced sensors, attached to everyday personal gadgets (e.g. cloths, accessories) will be able to "sense" the user's behaviour and motor status and store the recorded data in a local portable/handheld computer. These data are then processed and seamlessly transmitted to the centralised system for further fusion, monitoring and evaluation.

The system will be modular and extensible, to enable different combinations of measurements. An indicative list of measurements includes: tremor through accelerometers or gyroscopes and possibly ElectroMyoGram (EMG), skin conductivity and sweating through appropriate Galvanic Skin Response (GSR) sensors, SPO2 and pulse rate through a pulse oximeter sensor, bradykinesia, through the finger tapping, other similar tests using devices to detect finger pressure such as piezo-electric and eye blinking rate through ElectroOculoGram (EOG) measurements.

All monitoring gadgets will be wirelessly connected and seamlessly integrated to produce a user-friendly and patient-customised monitoring tool. The recorded signals will be pre-processed and stored at the patient site. At the point of care (hospital centre), the supervisor health professionals will be able to remotely monitor their patients, personalise their treatment and medication schedules and generate statistical data, so as to study and evaluate the efficacy of medication and drugs on various patient groups

Lay Summary