Perform Project

A sophisticated multiparametric system for the continuous effective assessment and Monitoring of motor status in parkinson's disease and other neurodegenerative diseases.

Grant Agreement no: 215952

Start date: February 2008
Duration: 42 months

Project Co-ordinator
Prof. Maria Teresa Arredondo Waldmeyer

LifeSTech
Ciudad Universitaria
28040 MADRID, SPAIN
Madrid
Spain
28040

Tel: (+34) 91 549 57 00 ext. 3407
Fax: (+34) 913366828

Email: lifestech@lst.tfo.upm.es
Web:http://www.lst.tfo.upm.es

PERFORM PROJECT

Welcome to the final issue of the Perform Newsletter! This newsletter aims to provide the latest information on the Perform project and disseminate knowledge on related issues.

The Perform newsletter is issued periodically to inform you about the latest news in our project. In this issue of the newsletter you will be updated on the progress of activities within the framework of the project, and, as usual, information on the latest developments in dissemination. We hope you will find this information useful and please feel free to make suggestions on what you would like to see in future releases at: perform@talanton.info

The Perform Project partners are:

Universidad Politecnica de Madrid

MEDTRONIC IBERICA, S.A.

ANCO S.A.

POLITECHNIKA GDANSKA

LOGICOM LTD

THE UNIVERSITY OF WESTMINSTER

PAPASAVAS A.E.

UNIVERSITY OF IOANNINA

PATMOS S.R.L.

UNIVERSIDAD DE NAVARRA

TALANTON A.E.

OXFORD COMPUTER CONSULTANTS LIMITED

Centro de Estudios e Investigaciones Técnicas de Gipuzkoa

Kingston Computer Consultancy Limited

Azienda Unita' Sanitaria Di Modena (Neuromo)

Change in Project's co-ordination

From 8th of March 2010, the Life Supporting Technologies Group (LifeStech) of the Technical University of Madrid (UPM) undertook the project management role of PERFORM project, upon SIEMENS withdrawal. The new coordinator is Prof. María Teresa Arredondo Waldmeyer, full professor of Bioengineering. She has been Principal Investigator of more than 30 Granted Scientific & Technical Projects and EU-funded projects dealing with Ambient Intelligent applied to the social and healthcare sector

Even if this is a very demanding and challenging role, the previous involvement of UPM, as one of the partners involved in the technical developments of the project from the beginning, has facilitated this task, carried out in cooperation with ANCO, as technical coordinator.

The project duration has been extended 6 months, in order to be able to fulfill the planned scientific and technical objectives, therefore, the new duration is 42 months.

The Perform Project partners are:

Universidad Politecnica de Madrid

MEDTRONIC IBERICA, S.A.

ANCO S.A.

POLITECHNIKA GDANSKA

LOGICOM LTD

THE UNIVERSITY OF WESTMINSTER

PAPASAVAS A.E.

UNIVERSITY OF IOANNINA

PATMOS S.R.L.

UNIVERSIDAD DE NAVARRA

TALANTON A.E.

OXFORD COMPUTER CONSULTANTS LIMITED

Centro de Estudios e Investigaciones Técnicas de Gipuzkoa

Kingston Computer Consultancy Limited

Azienda Unita' Sanitaria Di Modena (Neuromo)

System integration, testing and evaluation

Detailed specifications of the interfaces between the various components and the definition of technologies and messages to be exchanged have been defined.

Based on this, the various technical partners were able to develop components that had a known API that could be used by other components. Moreover, the integration of the 1st prototypes of all components was performed in each subsystem, Sensor to LBU, LBU repository to LBU Communicator, LBU Communicator to CHU Communicator, CHU Communicator to Information Handler, Information Handler to Alert Manager, Alter Manager to the Clinician Decision Support Systems (the Patient Modelling and Patient Management modules), Alter Manager and the PERFORM system to Clinician UI and Interoperability Manager.

Partners uploaded their software to a shared code repository on the CHU Server and provided deployment, configuration and integration instructions.

The verification of the PERFORM system was be based on the successful completion of the following activities:

- Execution of unit tests for verifying the software components of each individual subsystem.
- Integration of the subsystems already verified as individual entities and verification of PERFORM system interfaces.
- System tests execution mainly by performing the required data exchange between subsystems.
- Definition of test scenarios that cover the verification of the functional specifications.

The PERFORM system verification allowed the system to be ready for becoming operational and therefore ready for running the field trials during the validation campaigns. The main objective of the PERFORM system prototype validation was to demonstrate in front of the end users and experts all the functionalities identified during the system specification phase.

The Perform Project partners are:

Universidad Politecnica de Madrid

MEDTRONIC IBERICA, S.A.

ANCO S.A.

POLITECHNIKA GDANSKA

LOGICOM LTD

THE UNIVERSITY OF WESTMINSTER

PAPASAVAS A.E.

UNIVERSITY OF IOANNINA

PATMOS S.R.L.

UNIVERSIDAD DE NAVARRA

TALANTON A.E.

OXFORD COMPUTER CONSULTANTS LIMITED

Centro de Estudios e Investigaciones Técnicas de Gipuzkoa

Kingston Computer Consultancy Limited

Azienda Unita' Sanitaria Di Modena (Neuromo)

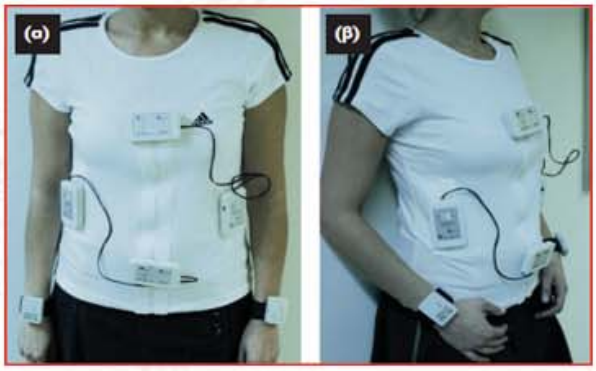
Awards

Honor from the Hellenic Federation of Enterprises (SEV)/ EUROBANK EFG for the project PERFORM (PERFORM - a Wearable System for Remote Monitoring and management of Parkinson's Disease) at the competition "Greece Innovates"

AN INTEGRATED PROGRAM TO OPTIMALLY MANAGE PARKINSON DISEASE PATIENTS ("PERFORM")

Research Team: Fotiadis Dimitrios, Alexandros Tzallas, Markos Tsipouras

PERFORM is a system consisting of two accelerometers/ gyroscopes attached to the patient's chest and belt: a) front, b) side view



Recorded shots of Parkinson disease patients clinical exams

This integrated program for the optimized management of Parkinson's disease patients aims at providing individualized treatment by seamlessly and continuously monitoring and collecting data that objectively depict daily expression of symptoms such as tremor, slowness in movement and chorea. This integrated system consists of two sub-systems: an ambulatory system for the patient and one for the clinic that treats them. The project is well-grounded on international, long-term scientific and technological expertise. This is an innovative system the world over as it helps upgrade and promote state-of-the-art technology. This is the very first time such type of constant monitoring is provided to prop up patient treatment. PERFORM has been used in the past three years thanks to EU funding.

The Perform Project partners are:

Universidad Politecnica de Madrid

MEDTRONIC IBERICA, S.A.

ANCO S.A.

POLITECHNIKA GDANSKA

LOGICOM LTD

THE UNIVERSITY OF WESTMINSTER

PAPASAVAS A.E.

UNIVERSITY OF IOANNINA

PATMOS S.R.L.

UNIVERSIDAD DE NAVARRA

TALANTON A.E.

OXFORD COMPUTER CONSULTANTS LIMITED

Centro de Estudios e Investigaciones Técnicas de Gipuzkoa

Kingston Computer Consultancy Limited

Azienda Unita' Sanitaria Di Modena (Neuromo)

The first exhibition took place in Thessaloniki (11 April 2011):

The Perform Project partners are:

Universidad Politecnica de Madrid

MEDTRONIC IBERICA, S.A.

ANCO S.A.

POLITECHNIKA GDANSKA

LOGICOM LTD

THE UNIVERSITY OF WESTMINSTER

PAPASAVAS A.E.

UNIVERSITY OF IOANNINA

PATMOS S.R.L.

UNIVERSIDAD DE NAVARRA

TALANTON A.E.

OXFORD COMPUTER CONSULTANTS LIMITED

Centro de Estudios e Investigaciones Técnicas de Gipuzkoa

Kingston Computer Consultancy Limited

Azienda Unita' Sanitaria Di Modena (Neuromo)

Perform Training and promotional video

Talanton SA has created a fully deatailed video in DVD to train the Perform user in detail . This video is available in four languages and is accompanied by an operation manual. Includes general information on the project and fully detailed instructions so as it can be easily understood by anybody. The video can also be found in the Project's website.

Basic unit of the computer with touch screen

Set of the wearable Perform system

Wearing the devices

The Perform Project partners are:

Universidad Politecnica de Madrid

MEDTRONIC IBERICA, S.A.

ANCO S.A.

POLITECHNIKA GDANSKA

LOGICOM LTD

THE UNIVERSITY OF WESTMINSTER

PAPASAVAS A.E.

UNIVERSITY OF IOANNINA

PATMOS S.R.L.

UNIVERSIDAD DE NAVARRA

TALANTON A.E.

OXFORD COMPUTER CONSULTANTS LIMITED

Centro de Estudios e Investigaciones Técnicas de Gipuzkoa

Kingston Computer Consultancy Limited

Azienda Unita' Sanitaria Di Modena (Neuromo)

Clustering

"Clustering with DiPar"

Perform, through OCC and UPM are in discussions with Steve Reeves, Manager of Avantrasara Ltd.(http://avantrasara.com/). Avantrasara is the exploitation manager of the DiPAR project and is responsible for commercializing the results.

DiPAR was funded under R4SME (FP7- Research for SMEs), commencing January 2011, and is scheduled to last 24 months. The objective is a device which can identify characteristics unique to Parkinson's Disease patients in their handwriting. Research partners include University Medical Centre Groenigen, Fraunhofer IPMS and VTT. DiPAR focuses on the diagnosis of PD (rather than monitoring). We are sharing experiences and knowledge, especially of exploitation and market issues.

"Discussions with the Institute of Neurology, London"

The Institute of Neurology is part of University College, London and closely associated with the UK National Hospital for Neurology & Neurosurgery. The Institute has eight research departments and the treatment of Parkinson's disease cuts across these (http://www.ucl.ac.uk/ion/departments). Currently OCC is representing the Perform project to the Sobell Department of Motor Neuroscience and Movement Disorders which pursues research in basic neuroscience that is of direct translational benefit to Parkinson's disease. They are therefore an ideal candidate to use Perform wearable sensors with the LBU classifiers in the clinical trials the department runs.

The Perform Project partners are:

Universidad Politecnica de Madrid

MEDTRONIC IBERICA, S.A.

ANCO S.A.

POLITECHNIKA GDANSKA

LOGICOM LTD

THE UNIVERSITY OF WESTMINSTER

PAPASAVAS A.E.

UNIVERSITY OF IOANNINA

PATMOS S.R.L.

UNIVERSIDAD DE NAVARRA

TALANTON A.E.

OXFORD COMPUTER CONSULTANTS LIMITED

Centro de Estudios e Investigaciones Técnicas de Gipuzkoa

Kingston Computer Consultancy Limited

Azienda Unita' Sanitaria Di Modena (Neuromo)

Dissemination and Exploitation Activities

WP2 is putting together the results obtained in the pilots carried out in Modena, Pamplona and Ioannina to extract conclusions on the best models of use and business that can be applied to the PERFORM system.

At the same time, the organization of the 2d PERFORM Workshop in Modena will serve as a strategic platform to present these results among the medical community and the technical partners of the consortium, contributing to the exploitation of the PERFORM products and solutions.

The Perform Project partners are:

Universidad Politecnica de Madrid

MEDTRONIC IBERICA, S.A.

ANCO S.A.

POLITECHNIKA GDANSKA

LOGICOM LTD

THE UNIVERSITY OF WESTMINSTER

PAPASAVAS A.E.

UNIVERSITY OF IOANNINA

PATMOS S.R.L.

UNIVERSIDAD DE NAVARRA

TALANTON A.E.

OXFORD COMPUTER CONSULTANTS LIMITED

Centro de Estudios e Investigaciones Técnicas de Gipuzkoa

Kingston Computer Consultancy Limited

Azienda Unita' Sanitaria Di Modena (Neuromo)

2nd International Workshop Modena Italy June 2011

We would like to inform you about the 2nd International Workshop that will take place in Modena Italy on June 27th 2011. In order to get further information about this workshop, please visit

www.consorzioferrararicerche.it

The participation is **free** but online pre-registration is stricly requested. For other information you should contact the Congress Secretary:

CONSORZIO FERARA RICERCHE
Ufficio Eventi e Attività Formative
Via Saragat 1 – Blocco B – 1° piano
44122 Ferrara – Italy
Phone: +39 0532 762404 – Fax +39 0532 767347
e-mail: convegni@unife.it
web: www.consorzioferrararicerche.it

The Perform Project partners are:

Universidad Politecnica de Madrid

MEDTRONIC IBERICA, S.A.

ANCO S.A.

POLITECHNIKA GDANSKA

LOGICOM LTD

THE UNIVERSITY OF WESTMINSTER

PAPASAVAS A.E.

UNIVERSITY OF IOANNINA

PATMOS S.R.L.

UNIVERSIDAD DE NAVARRA

TALANTON A.E.

OXFORD COMPUTER CONSULTANTS LIMITED

Centro de Estudios e Investigaciones Técnicas de Gipuzkoa

Kingston Computer Consultancy Limited

Azienda Unita' Sanitaria Di Modena (Neuromo)

Articles, Publications, conferences, etc.

For full list please visit www.perform-project.eu

Continuous monitoring and assessment of Bradykinesia in Parkinson's disease patients through a multi-parametric system, Matteo Pastorino*, Jorge Cancela, María Teresa Arredondo, Mario Pansera, Laura Pastor, Federico Villagra, María Asunción Pastor, José Antonio Martín |Proceedings of the 33rd Annual International Conference of the IEEE Engineering in Medicine and Biology Society (EMBC '11).

Gait assessment in Parkinson's disease patients through a network of wearable accelerometers in unsupervised environments Jorge Cancela*, Matteo Pastorino, María Teresa Arredondo, Mario Pansera, Laura Pastor, Federico Villagra, María Asunción Pastor, Ana Pilar Gonzalez | Proceedings of the 33rd Annual International Conference of the IEEE Engineering in Medicine and Biology Society (EMBC '11).

AmI for Health: Chronic Disease Management María Teresa Arredondo*, Laura Pastor, Giuseppe Fico

Tsipouras MG, Tzallas AT, Rigas G, Konitsiotis S, and Fotiadis DI. "An Automated Methodology for Levodopa-Induced Dyskinesia Assessment based on Gyroscope and Accelerometer Signals." Artificial Intelligence in Medicine Submitted Date: 16 May 2011

(

Tripoliti EE, Tzallas AT, Tsipouras MG, Rigas G, Bougia P, Leontiou M, Konitsiotis S, Tsouli S, and Fotiadis DI. "Automatic Detection of Freezing of Gait events in Patients with Parkinson's Disease." Journal of Neuroscience Methods

Rigas G, Tsipouras MG, Bougia P, Tzallas AT, Tripoliti EE, Baga D, Fotiadis DI, Tsouli S, and Konitsiotis S "Assessment of Tremor Activity in the Parkinson's disease using a Set of Wearable Sensors." IEEE Transactions on Information Technology in Biomedicine Submitted Date: 19 April 2011

The Perform Project partners are:

Universidad Politecnica de Madrid

MEDTRONIC IBERICA, S.A.

ANCO S.A.

POLITECHNIKA GDANSKA

LOGICOM LTD

THE UNIVERSITY OF WESTMINSTER

PAPASAVAS A.E.

UNIVERSITY OF IOANNINA

PATMOS S.R.L.

UNIVERSIDAD DE NAVARRA

TALANTON A.E.

OXFORD COMPUTER CONSULTANTS LIMITED

Centro de Estudios e Investigaciones Técnicas de Gipuzkoa

Kingston Computer Consultancy Limited

Azienda Unita' Sanitaria Di Modena (Neuromo)

Articles, Publications, conferences, etc.

For full list please visit www.perform-project.eu

- The 12th Mediterranean Conference on Medical and Biological Engineering and Computing – MEDICON 2010 The XII Mediterranean Conference on Medical and Biological Engineering and Computing will be held between, May 27-30, 2010 in Porto Carras, Chalkidiki, Greece (http://www.medicon2010.org/)

- 7th International Conference on Wearable Micro and Nano Technologies for Personalized Health, Berlin, Germany, May 26 – 28, 2010 (http://www.phealth2010.com/)

- International ICST Conference on Wireless Mobile Communication and Healthcare - Mobi-Health 2010, Ayia Napa, Cyprus, 18-20 October, 2010 (http://www.mobihealth.name/)

- 32nd Annual International Conference of the IEEE Engineering in Medicine and Biology Society "Merging Medical Humanism and Technology" August 31 - September 4, 2010 Buenos Aires Sheraton Hotel, Buenos Aires, Argentina (http://embc2010.embs.org/)

- 10th IEEE International Conference on Information Technology and Applications in Biomedicine, ITAB 2010, Corfu, Greece (http://medlab.cs.uoi.gr/itab2010/)

- The 10th International Conference on Alzheimer's and Parkinson's Diseases, AD/PD 2011, March 9-13, 2011, Barcelona, Spain (http://www2.kenes.com/adpd/pages/home.aspx)

- 33rd Annual International Conference of the IEEE Engineering in Medicine and Biology Society "Merging Medical Humanism and Technology" August 30- September 3, 2011 Boston, USA (http://embc2011.embs.org/)