HypErspectraL Imaging Cancer Detection

Fact Sheet

Project Information

HELiCoiD
Grant agreement ID: 618080

Funded under FP7-ICT

Overall budget € 1 375 838
EU contribution € 992 758

Coordinated by UNIVERSIDAD DE LAS PALMAS DE GRAN CANARIA Spain

Status Closed project

Start date 1 January 2014
End date 31 December 2016

This project is featured in...

RESEARCH*EU MAGAZINE
Let there be light: Technologies for the visually impaired

NO. 66, OCTOBER 2017

Project description
Starting with some specific types of cancers, this project will try to generalize the methodology to discriminate between healthy and malignant tissues in real-time during surgical procedures. Using the hyperspectral signatures of the healthy tissues and the same tissues affected by cancer, a mathematical model of how cancer affects to the hyperspectral signature will be derived. The research will start with the challenging task of brain cancer detection. A precise resection of the gliomas will minimize the negative effect of removing brain cells while assuring an effective tumour resection. The second type of tumours to be analysed will be the lung and breast cancers as they represent the two most common cancers in the world. Based on the experience gained during the evolution of the project and guided by the oncologist expertise, many other types of cancer out from the more than 200 that affect human beings will be studied. As cancer supposes a change in the cellular physiology, it should be detected as a change in the hyper-spectral signature. This project will try to determine if there is a certain pattern that could be identified as a cancer hyperspectral signature. Although previous works demonstrates that hyperspectral imaging can be used for cancer detection in animals, no application to human beings in real-time surgery has been found. This project will develop an experimental intraoperative setup based on non-invasive hyperspectral cameras connected to a platform running a set of algorithms capable of discriminate between healthy or pathological tissues. This information will be provided, through different display devices to the surgeon, overlapping normal viewing images with simulated colours that will indicate the cancer probability of the tissue presently exposed during every instant of the surgical procedure. A high-efficiency hardware/software prototype will be developed with the aim of recognising cancer tissues on real time.

Field of science

/medical and health sciences/clinical medicine/surgery
/natural sciences/mathematics/applied mathematics/mathematical model
/medical and health sciences/clinical medicine/oncology/cancer
/medical and health sciences/clinical medicine/oncology
/medical and health sciences/clinical medicine/surgery/surgical procedure
/medical and health sciences/clinical medicine/oncology/cancer/breast cancer
/medical and health sciences/basic medicine/physiology

Programme(s)

Topic(s)
Call for proposal

FP7-ICT-2013-C

Funding Scheme

CP - Collaborative project (generic)

Coordinator

UNIVERSIDAD DE LAS PALMAS DE GRAN CANARIA

Address
C/ Juan De Quesada 30
35001 Las Palmas De Gran Canaria
Spain

Activity type
Higher or Secondary Education Establishments

EU contribution
€ 145 367

Website

Contact the organisation

Administrative Contact
Gustavo Marrero Callico (Dr.)

Participants (9)

MEDTRONIC IBERICA SA

Address
Calle Maria De Portugal 11
28050 Madrid
Spain

Activity type
Private for-profit entities
(excluding Higher or Secondary Education Establishments)

EU contribution
€ 59 624

Contact the organisation

Administrative Contact
Alejandra Guillen (Ms.)

FUNDACION CANARIA DE INVESTIGACION Y SALUD

Spain

EU contribution

Contact the organisation

Administrative Contact

EU contribution

€ 70 988

Address
Barranco De La Ballena S/n
35010 Las Palmas De Gran Canaria

Activity type
Other

Website

Contact the organisation

Administrative Contact
Jesus Morera Molina (Mr.)

UNIVERSIDAD POLITECNICA DE MADRID

Spain

EU contribution

€ 127 993

Address
Calle Ramiro De Maeztu 7
Edificio Rectorado
28040 Madrid

Activity type
Higher or Secondary Education Establishments

Website

Contact the organisation

Administrative Contact
ROBERTO PRIETO (Prof.)

GENERAL EQUIPMENT FOR MEDICAL IMAGING SA

Spain

EU contribution

€ 117 744

Address
Calle Jeronimo De Monsoriu,
Num. 92 Planta B/Izq, Puerta Izq
46022 Valencia

Activity type
Private for-profit entities
(excluding Higher or Secondary Education Establishments)

Website

Contact the organisation

Administrative Contact
Marta Sáiz (Ms.)

ASSOCIATION POUR LA RECHERCHE ET LE DEVELOPPEMENT DES METHODES ET PROCESSUS INDUSTRIELS

France

EU contribution

€ 97 156
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<td>South Kensington Campus Exhibition Road SW7 2AZ London</td>
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<td>Tremona Road SO16 6YD Southampton</td>
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**VIRTUAL ANGLE BV**
- **EU contribution**: € 126 080
- **Website**
- **Administrative Contact**: Pedro Branco (Mr.)

**IMPERIAL COLLEGE OF SCIENCE TECHNOLOGY AND MEDICINE**
- **EU contribution**: € 128 082
- **Website**
- **Administrative Contact**: Shaun Power (Mr.)

**UNIVERSITY HOSPITALS SOUTHAMPTON NHS FOUNDATION TRUST**
- **EU contribution**: € 95 602
- **Website**
- **Administrative Contact**
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**Record number:** 111274

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