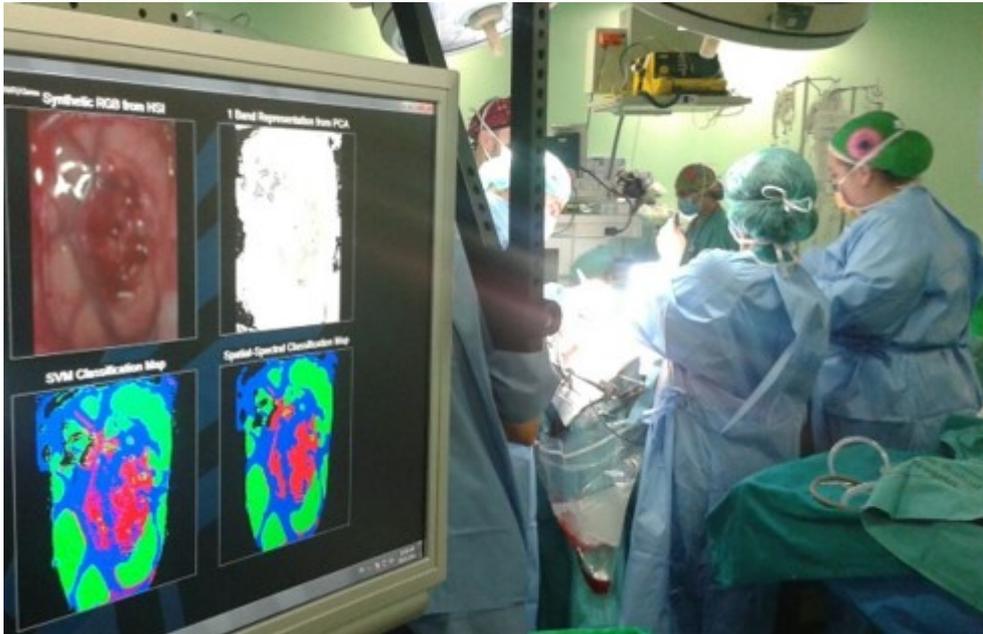


HYPER-EYE

Showing what the eye cannot see. Non-invasive display system for precisely delineating brain tumours during surgery, improving the patient's quality of life.



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Technological Offers type

Technological solutions

Research and innovation areas

- Digital Technologies, Artificial Intelligence, Cybersecurity, 5G, Robotics
- Health and Wellbeing

ODS



Where?

Electronic and Microelectronic Design Group Software and Multimedia Systems Technologies for Sustainability Research Centre (CITSEM)

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Brief description of the solution and the added value it delivers

This hyperspectral image capture, processing and display system helps the surgeon to non-invasively delineate brain tumours during surgery. This technology displays the result in seconds, which means a reduction of up to 95% in the time taken compared to its direct competitor, intraoperative magnetic resonance imaging (iMRI). Furthermore, using this technology increases the precision with which the tumour can be located. This minimises the safety margin to be removed and improves the quality of life of patients, while avoiding possible relapses.

The prototype has been tested on more than 40 patients at two different hospitals, with satisfactory results.

Description of the technological basis

The proposed solution consists of a hyperspectral image capture, processing and display system that makes it possible to non-invasively distinguish between the different elements in the captured image. In brain cancer operations, it helps the surgeon to define the limits of the tumour efficiently and precisely.

Until now, identifying the edges of the tumour has relied on the surgeon's experience, tests carried out prior to the operation and/or intraoperative magnetic resonance imaging (iMRI), which takes more than 45 minutes. Thanks to this technology, it is possible to work with information obtained and analysed in real time during the operation.