Media release

Introducing the SBRA project

A “smart bra” for detecting breast cancer

Neuchâtel, 28 June 2019 – A French-Swiss consortium is conducting exploratory research to develop a “smart bra” for detecting breast cancer. It wants to leverage technological progress to offer a more accessible diagnostic method than mammography. This initiative – that involves five partners – is supported in France by the FEDER (European fund for regional development) and in Switzerland by the Confederation and the canton of Neuchâtel within the framework of the European program for regional cooperation Interreg France-Switzerland.

According to the GLOBOCAN database, throughout 2018 breast cancer was the main cause of cancer-related deaths in women worldwide - with a million new diagnosed cases and approx. 627,000 deaths. French statistics in 2017 painted a similar picture, with this form of cancer cited as the reason behind 11, 883 deaths and 59,000 new cases. The Swiss estimates, published for 2018, further described 6000 new cases of invasive cancer, with 1372 deaths over that period; equating to the main cause of Swiss female mortality between the ages of 40 – 50 years. But these difficult statics needn’t be so - when detected early, this form of pathology can often be cured in more than 90% of cases.

Mammography – an efficient method, but onerous and costly

Currently, breast cancer prevention methods in France and Switzerland rely on patient’s individual and/or organized screening. Most commonly, mammography is used to assess patients’ health, and presently it still remains the most effective and scientifically proven method to detect cancerous tissues. However, despite this technique’s effectiveness it comes with various barriers, including: access to care, the uncomfortable nature of the technique, and availability of appointments. Moreover, this method is expensive, requiring it to be performed by specialized doctors, which rules it out for large-scale screening programs in some countries. Therefore, the development of new screening method is a major need and issue within the public health sector.

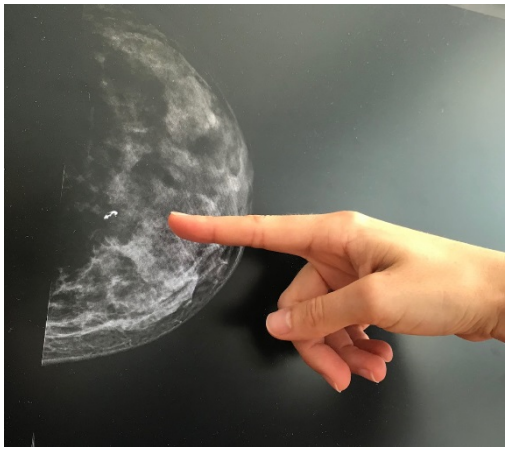
The SBra project aims to study the feasibility of a solution combining non-invasive and non-intrusive technologies, based on the measurement of electrical and thermal properties of the mammary tissues. The ultimate objective is to design an effective, comfortable, portable and personalized system that is not only capable of detecting early stage breast cancer, but poses no risk to human health - and what better way to achieve these needs, than by creating the system in the form of something most woman are highly familiar with – the humble bra.

Easier access to screening

The SBra project aims to develop an intelligent bra, equipped with sensors, capable of effectively detecting this cancer early, comfortably and without risk to health. The device would be intended primarily for women considered to be at high risk, not those who are scheduled for a routine screening or check-up.

The project relies on French-Swiss cooperation involving: **CSEM** (Neuchâtel – CH), the ***Ecole Nationale Supérieure de Mécanique et des Microtechniques*** (ENSMM Besançon – F), the ***Hôpital Nord Franche-Comté*** (HNFC Belfort – F), the ***Université de Technologie de Belfort-Montbéliard*** (UTBM Belfort – F), and the company **ZTC Technology** (La Chaux-de-Fonds – CH). The teams are made up of around twenty people in France and around ten in Switzerland, including experts in Engineering, IT, Medicine, Philosophy and Sociology, as well as Clinical Research Coordinators.

The project was selected within the framework of the French-Swiss Interreg European territorial cooperation program for a duration of 24 months, with a budget of € 991,000 (CHF 1,102,000). It also benefits from financial support from the European Union via the European fund for regional development FEDER (€ 321,000 / CHF 383,000), the Swiss Confederation (€ 142,700 / CHF 158,500) and the canton of Neuchâtel (€ 140,900 / CHF 156,500).



Interpretation of a mammogram by the radiologist
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Additional information

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About CSEM

CSEM—technologies that make the difference

CSEM, founded in 1984, is a Swiss research and development center (public-private partnership) specializing in microtechnology, nanotechnology, microelectronics, system engineering, photovoltaics and communications technologies. Around 450 highly qualified specialists from various scientific and technical disciplines work for CSEM in Neuchâtel, Zurich, Muttenz, Alpnach, and Landquart.

Further information is available at www.csem.ch

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About HNFC

HNFC – Hôpital Nord Franche-Comté

The *Hôpital Nord-Franche Comté* is the main hospital in the urban region of Belfort-Montbéliard-Héricourt, covering a population of 350,000. It has 3700 employees, of whom 400 are doctors and interns, and is equipped with a clinical research unit designed to increase the knowledge of diseases and the treatments administered to patients. This unit is important, as it enables the development of new therapies and improvements in the care of patients.

For more information, see www.hnfc.fr

About UTBM

UTBM – Université de technologie de Belfort-Montbéliard

Created in 1999, UTBM is a public institution with a scientific, cultural and professional focus. A member of the network of technology universities, it was formed from the merger of the *Ecole Nationale d'Ingénieurs de Belfort* (1962) and the *Institut Polytechnique de Sevenans* (1985). With more than 3000 students, it represents the seventh largest engineering training entity in France. The engineers trained there quickly become productive and adapt easily to technological developments and changes in society. The training programs are based on research activities and their commercialization.

For more information, see www.utbm.fr

About ENSMM

ENSMM – Ecole nationale supérieure de mécanique et des microtechniques

ENSMM is a higher education state school, specializing in research. It provides multi-disciplinary training for engineers, strongly oriented towards mechatronics and microsystems. ENSMM is home to various teams from the FEMTO-ST Institute (*Franche-Comté Électronique, Mécanique, Thermique et Optique — Sciences et Technologies*). Four of the seven research departments of the Institute are housed on the premises of – or adjacent to – ENSMM (AS2M, DMA, TF, MN2S). The scientists-lecturers actively participate in research, in particular in the mechanics and physics of materials and surfaces, structures and processes, in automation, time-frequency electronics and micro- and nano-systems and technologies, contributing significantly to technological and scientific innovation.

For more information, see www.ens2m.fr

About ZTC Technology

ZTC Technology

ZTC Technology is an ISO-certified company (13485 Version 2016) specialized in sub-contracting. Its mission is to support its clients on innovative projects, ranging from conceptualization to production. With over 25 years of experience in microtechnology relating to medical devices, watchmaking and aeronautics, the company has acquired the know-how required to address the challenges of its clients and satisfy their needs.

For more information, see www.ztc-techno.com

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