

SAVVY ECG BODY SENSOR FOR DETECTION OF CARDIAC ARRHYTHMIAS

Problem and solution

The main causes of death among the elderly population are cardiovascular disease and cancer. For example, the atrial fibrillation (AF) is a cardiac arrhythmia that affects more than 4 million people in the European Union and about 100 million worldwide. The AF is associated with more frequent hospitalisations because of stroke, transient ischemias, and heart failure. Long-term electrocardiographic (ECG) recordings are recommended from the European Society of Cardiology and European Heart Rhythm Association for detection and maintenance of AF and other threatening arrhythmias. Screening for the early detection and appropriate management of diseases could dramatically improve health outcomes and reduce the cost of medical treatment. Existing long-term ECG recording technology is costly, cumbersome in management and bulky therefore hindering the movement of the patient e.g. in doing sports. Furthermore, it is mostly applied for 24 hours only.

In a TETRACOM experiment the Jožef Stefan Institute (JSI) and medical centre SIMED d.o.o developed a medical graded ECG wireless body sensor with a low power Bluetooth connection to a smartphone, and corresponding software for interpretation of measurements. The system is suitable for long-term monitoring of the heart activity, from a few hours up to a whole year or even longer. Because of its simple use and acceptable price, the system can be used as a personal medical device or in a mobile health system. The system can support solutions to every-day problems of the medical personal in hospitals, health clinics, homes for the elderly and health resorts.



The role of the DIH

The CE certification of the innovation as a medical device was recognised as a crucial requirement for further industrialisation and mass production. The DIH Jožef Stefan Institute supported the activities for CE certification, and consequently the successful know-how transfer from research to industry. The activities included preparation of technical maps and other documentation for medical device certification. SIMED d.o.o. established the spin-off company Saving d.o.o exclusively for the purpose to take up the developed technology and organise the production and marketing of the Savvy ECG sensor recognised as CE marked Class IIa professional device serving as Event Recorder or Long Term ECG Monitor.

Impact

End of January 2017 Saving d.o.o has completed all necessary registrations for selling the solution in the EU, which started on February 2017. The Savvy ECG sensor has already been successfully implemented in the public and private health care sector such as cardio centres and hospitals. In 2018, the company expects 5.000 customers growing to 50.000 until 2020. The company estimates revenues of €200.000 still in 2017 that should grow to €1.750.000 by 2020.

The societal impact of the developed solution is enormous. The low cost of the Savvy ECG sensor allows for more monitoring ultimately saving lives without increasing health care cost. The patient enjoys more flexibility whilst being monitored also being informed in real time about his heart activity.

End-user: Saving d.o.o. (SME, SI)
Technology provider: SIMED d.o.o (SME, SI)
DIH: Jožef Stefan Institute (RTO, SI)