

## WEB Biotechnology makes wireless ECG a reality

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Electrocardiography (ECG) imaging system with a bulky instrument, tangled with wires may soon become a thing of the past. Singapore-based WEB Biotechnology has designed and developed world's smallest, wireless ECG sensor and display called Spyder. This unique system truly revolutionises personal ECG and heart rate monitoring with its small size and ease of use. Besides displaying ECG waveform, Spyder also provides accurate measurement of a person's heart rate and metabolic rate on the go.

Spyder won the BioSpectrum Asia Pacific Bioscience Industry Product of the Year for 2011.

Together with the touch-screen display of Spyder Fone, the system is designed by a team headed by Dr Philip Wong, medical director and Dr Winston Shim, chief research scientist, both working at the R&D center of National Heart Centre, Singapore, for ultra-portable, wire-free, round the clock ECG monitoring and recording. The product is designed with next generation technology to drastically reduce the hassle of traditional ECG machines, yet provide a clean and stable ECG signal for real-time heart rhythm analysis. Patients' encrypted ECG data is sent directly to and recorded in a private server at the clinic and it can immediately generate report after the completion of each assessment session.

## Tracking the beat

Using advanced wireless technology, Spyder is able to record ECG information continuously on a mobile phone and transmit the data to a computer server. Vital information such as a patient's ECG rhythm can be accessed by authorised physicians or specialists any time. This gives mobile access to the physicians to keep track of their critical patients any time. All that the physicians need to do is to log in to the application and monitor their multiple patients at the same time and give their feedback. The availability of the details of the heart function of a patient at the desk of the physician located anywhere in the world is considered to bring a sea change in the current ECG monitoring systems.

Launched in August 2010, Spyder has paved its way into the clinics of Singapore such as the Raffles Medical and the Gleneagles, and in Indonesia as well. An easy-to-use, compact and light device is attached to the patient's chest that keeps track of the heart function and it can be used at home, in the office, on the road, in the gym or healthcare centers.

Dr Philip Wong, under whose leadership this concept to develop a critically important product in a trendy way was generated, says "As a cardiologist for many years, I observed the bulky and wire-messed ECG devices used in hospitals for tracking the cardiac rhythm of patients. Not only is it complicated but one also has to be careful while using it as it restricts patients' mobility. This inspired me to develop a device for heart patients that could provide them mobility like others and they could lead an easier life."

The team took a lot of effort in designing the product so as to make it sleek and comfortable for use. The device runs on rechargeable battery. The WEB Biotechnology received grants from SPRING Singapore under the Technology Enterprise Commercialisation Scheme (TECS) to develop Spyder Sense.

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## Benefits

Currently, patients in different hospitals, who are using Spyder are comfortable with the product as it has helped them to move around while their ECG imaging is constantly monitored. The light weight of the product, 26 grams as compared to 500 grams of other such heart rate tracking devices, enables hassle free mobility.

Besides checking the heart rate it has other benefits such as, with enhancements attached, it can read the calorie level needed to be reduced by patients after a cardiac surgery. To keep a stringent check, it can send an alarm to the hand phone when there is an increase in calorie level.

Mr Dominic Puah, CEO, Dr Philip Wong, medical director, WEB Biotechnology are keen to explore the markets of the US and Europe and are already in active discussion with the companies in countries from South-East Asia.

Currently, this device is not sold directly to the patients and is released on lease basis.

"No devices of such nature are for direct sale to patients. They are usually leased out to patients. In Singapore, a 24 hour recorded ECG with Spyder will cost about 200 SGD dollars in comparison to 500 SGD by other companies. Interpreting the critical requirement of this device, we prefer to lease out these devices through doctors, who can help patients understand what the sensors are recording," explained Dr Philip Wong.

On receiving the award, Mr Dominic Puah, CEO of WEB Biotechnology mentioned, "WEB Biotechnologies is extremely honored to receive such an award for Spyder. It confirms our vision that Spyder's unique qualities like its lightweight design, wireless connectivity and re-usability are desirable in the healthcare sector. WEB Biotechnologies will continue to develop other light weight sensors that are inconspicuous, and benefit patients who require continuous monitoring but are still mobile and wish to continue their daily activities."

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