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Designing wearables for healthcare

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Designing wearables for healthcare

Singapore: The healthcare industry is looking for new ways to manage resources as the demand for beds grows in tandem with ageing populations across Asia. Today's talk of the town is the wearables or devices that monitor physiological changes in the body when worn.

Analysts have already seen the potential for health-related wearables as Transparency Market Research reports that the market for wearable medical devices will be worth $5.8 billion worldwide by 2019. ABI Research has also predicted that over 100 million wearable wireless medical devices will be shipped annually by 2016.

While most have been designed for consumers' personal interests, new types of wearables can also allow doctors to monitor a patient's health remotely and continuously after he or she has been discharged from a hospital. This eases the crunch on healthcare resources without diminishing the patient care. These devices that work outside the hospitals are now more usable (small and lightweight) and consume less power. They are also more elegantly designed - no long wires needed, and attractively priced within the range of $200. Given these improvements, wearable devices are now being worn for longer periods.

Medicine has relied on devices to monitor the body for years, but these were traditionally wired, and were unable to store more than a few hours' worth of information. The use of discrete components made such wearable devices bulky and the power consumption of these devices were impractical as they required frequent re-charging. The confluence of advanced

mobile technology, better connectivity and electronics is supporting the emergence of a new class of health-related wearables that are portable, accurate, and reliable. Regardless of what is being measured and monitored, key components of wearables usually include bio sensors, micro-controllers, memory to store data, power management functionalities to minimize energy consumption and a wireless interface to communicate to a mobile gateway.

Electronics manufacturers such as Intel, Toshiba, Broadcom, MediaTek, and India's Ineda Systems have already invested in creating specialized systems on chips for this purpose. The hardware is typically enclosed in a small package, characterised by long battery life, connectivity support for standards such as via bluetooth or wifi, location awareness, and very responsive sensors.

Wearables created with such hardware could track vital signs like heart rates, skin temperature, skin resistance and blood oxygen levels on a 24-hour basis to provide suggestions for general wellness. The devices could also look out for signs of distress in patients who have recently been discharged, or in those with a history of heart problems. They could issue warnings to the patient advising to visit a doctor, or request help from emergency medical services as needed.

Wipro has worked with a manufacturer to create a wearable device that maps out how data would be transmitted from the wearer to health professionals for medical analysis and recommendation. We drew on our expertise in the medical field, cloud technology and analytics to help develop a product that stores up to 30 days of high resolution data. That data could then be transferred to an Android or iOS phone app using Bluetooth, and also over mobile broadband networks to the cloud for analysis. The analysis results come in the form of an interactive report that are sent to a medical team, which then prescribes actionable insights that can be forwarded to the wearer of the device.

Truly, wearables have the potential to add a new layer of interactivity to healthcare businesses. The data from well-designed, easily-connected mobile wearable devices, when integrated with the right analytic tools, could yield more accurate insights for healthcare institutions, improving the quality of healthcare overall. Wearables might soon able to reduce medical requirements, visits to the doctor, hospitalisation, and unnecessary healthcare spending.