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Tekcapital plc
(“Tekcapital”)

Acquisition of energy harvesting technologies

Pacemaker technology to power smart watches and phones by human motion

Tekcapital plc (AIM: TEK), an international provider of technology and intellectual property services, announces that it has acquired the licencing rights to two technologies that are intended to enable the commercialisation of energy harvesting from human movement to power mobile technologies.

Power Generation Device

Tekcapital has acquired the exclusive worldwide rights to a piezoelectric* electro-mechanical device, from the University of Michigan with patents pending (US 2014/012690). This device may be incorporated into footwear, apparel, sporting goods and recreational equipment to harvest the energy generated through vibrations. The device itself is particular in that it combines principles of micro electro-mechanical systems originally designed to capture the energy generated by the vibrations of a beating heart, in order to charge the battery of a pacemaker implant.

This patent pending technology goes towards the development of new, super-small, power generation devices that may be incorporated into footwear, apparel, sporting goods and recreational equipment.

Brian R. Cople, Assistant Director, Office of Technology Transfer, University of Michigan, added: *“We are pleased to have exclusively licensed this intellectual property to Tekcapital and we are very excited about the potential for this technology to provide wearable power generation and battery recharging for a wide variety of consumer products.”*

Battery Charger Circuit

Additionally, Tekcapital announces that it has acquired the exclusive worldwide licence to a patented (US 8,368,290) rectifier-free, energy harvester/battery-charger circuit from the Georgia Tech Research Corporation. This technology conditions the AC (alternating current) from a piezoelectric transducer, such as that licensed from the University of Michigan, for the efficient conversion into DC (direct current). The AC to DC conversion losses using this circuit have been demonstrated to be a fraction of the conversion losses experienced when using other more established rectifier based technologies. The DC from this efficient battery-charger circuit therefore has the potential to be used to charge the batteries incorporated in wearable devices, such as smart watches, wearable health monitors and portable devices, such as smart phones and tablet computers.

The design of the circuit consists of a piezoelectric-based harvester system, which extracts small amounts of energy from the environment and stores it in a power cache. The Board believes that the key innovation lies in the ability to reliably convert small amounts of energy from a variety of transducers for future use, while minimizing the energy loss necessary to perform the process. This patented and scalable design allows for bypassing input-voltage requirements while providing energy savings and has been shown to induce up to four times more energy than normal rectifier-based harvester circuits.

Lauren MacLanahan, Senior Director, Office of Industry Engagement, Georgia Tech Research Corporation, added: *“We are glad to have exclusively licensed this patented technology to Tekcapital and we will be excited to see it commercialized for numerous energy harvesting applications.”*

Industry potential

According to a recent research industry analyst report¹ the total addressable market for wearable computing devices is forecast to reach nearly \$35 Billion by 2020, with a CAGR of approximately 20%. Wearable computers are small, head worn, hand worn or body worn wireless sensors and microchips that collect data, track activities, enable communications along with providing real and virtual world experiences. The key segments for wearable products are fitness and wellness, medical and healthcare, enterprise and industrial, together with infotainment. Continuous and reliable operation of these wearable sensors may be facilitated with energy harvesting and storage technologies. In addition, smart phones and other mobile consumer products need regular battery charge boosting, as power consuming applications continue to grow at a rapid pace.

Commenting on the licensing acquisitions, Dr. Clifford M. Gross, Executive Chairman of Tekcapital, said:
“We are excited to have acquired the exclusive licenses to these complementary technologies for generating power from human motion, in line with our corporate strategy of acquiring the licensing rights to compelling, early stage technologies and partnering with global OEM companies for commercialisation.”

“The directors believe that together these technologies could help form an ecosystem for the generation of continuously available power for portable and wearable electronics, with the potential for market adoption across multiple sectors via out-licensing. As such, we are seeking to position ourselves to be at the forefront of the technology revolution which seeks to enable people to charge their mobile devices from simply moving.”

*Piezoelectricity is the electric charge that accumulates in certain solid materials (such as crystals and certain ceramics) in response to applied mechanical stress. The word piezoelectricity means electricity resulting from pressure. The initial demonstration of the piezoelectric effect was in 1880 by the brothers Pierre Curie and Jacques Curie.

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Tekcapital helps clients profit from new, university-developed intellectual properties. With our proprietary discovery search engine, linked to 4,000+ universities in 160 countries, coupled with expert scientific review, we provide a turn-key service to make it easy for clients to find and acquire the IP they need to create a competitive advantage. Tekcapital plc is listed on the AIM market of the London Stock Exchange (AIM: symbol TEK) and is headquartered in Oxford, in the UK. For more information, please visit www.tekcapital.com

Cited References

1. <http://www.marketsandmarkets.com/Market-Reports/wearable-computing-market-125877882.html>