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- · Ultra-fast charging batteries that can be recharged up to 70 per cent in only
- New generation batteries have long lifespan of over 20 years
- Could have major implications for electric car industry

By MARK PRIGG FOR MAILONLINE

PUBLISHED: 17:59 GMT 13 October 2014 | UPDATED: 18:49 GMT 13 October 2014

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It could be the answer to every smartphone owner's dreams - a battery that can be charged in just

Researchers in Singapore say their ultra-fast charging batteries that can be recharged up to 70 per cent in only two minutes.

They also last ten times longer than current batteries, which often struggle to hold a charge the older they get.





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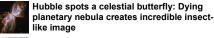
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The end of having to sit by a charger: Researchers in Singapore say their ultra-fast charging batteries that can be recharged up to 70 per cent in only two minutes.

Scientists at Nanyang Technology University (NTU) say their breakthrough has a wideranging impact on all industries, especially for electric vehicles, where consumers are put off by the long recharge times and its limited battery life. the researchers say.

Drivers of electric vehicles could save tens of thousands on battery replacement costs and can recharge their cars in just a matter of minutes.

'Electric cars will be able to increase their range dramatically, with just five minutes of charging, which is on par with the time needed to pump petrol for current cars,' said Associate Professor Chen XiaodongProf Chen, who led the study.

'Equally important, we can now drastically cut down the toxic waste generated by disposed batteries, since our batteries last ten times longer than the current generation of lithium-ion batteries.'

Commonly used in mobile phones, tablets, and in electric vehicles, rechargeable lithium-ion batteries usually last about 500 recharge cycles.

This is equivalent to two to three years of typical use, with each cycle taking about two hours for the battery to be fully charged.

In the new NTU-developed battery, the traditional graphite used for the anode (negative pole) in lithium-ion batteries is replaced with a new gel material made from titanium dioxide.

Titanium dioxide is an abundant, cheap and safe material found in soil. It is commonly used as a food additive or in sunscreen lotions to absorb harmful ultraviolet rays.

Naturally found in spherical shape, the NTU team has found a way to transform the titanium dioxide into tiny nanotubes, which is a thousand times thinner than the diameter of a human hair.

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Invented by Associate Professor Chen Xiaodong from NTU's School of Materials Science and Engineering, the science behind the formation of the new titanium dioxide gel was published in the latest issue of Advanced Materials, a leading international scientific journal in materials science.

Prof Chen and his team will be applying for a Proof-of-Concept grant to build a large-scale battery prototype.

With the help of NTUitive, a wholly-owned subsidiary of NTU set up to support NTU start-ups, the patented technology has already attracted interest from the industry.

The technology is currently being licensed by a company for eventual production. Prof Chen expects that the new generation of fast-charging batteries will hit the market in the next two years.

It also has the potential to be a key solution in overcoming longstanding power issues related to electro-mobility.

HOW IT WORKS

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