

Fancy a battery that lasts 20 years?

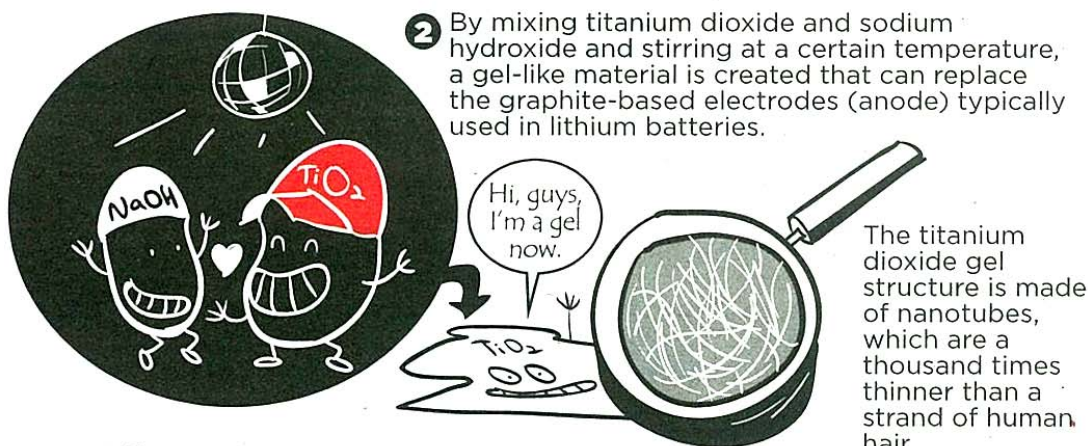
Nanyang Technological University (NTU) has developed next-generation batteries that have a lifespan of up to 20 years. Infographics journalist **TEOH YI CHIE** takes a light-hearted look at the technology

1 A team of four scientists led by Associate Professor Chen Xiaodong from NTU embarks on this battery research project three years ago.

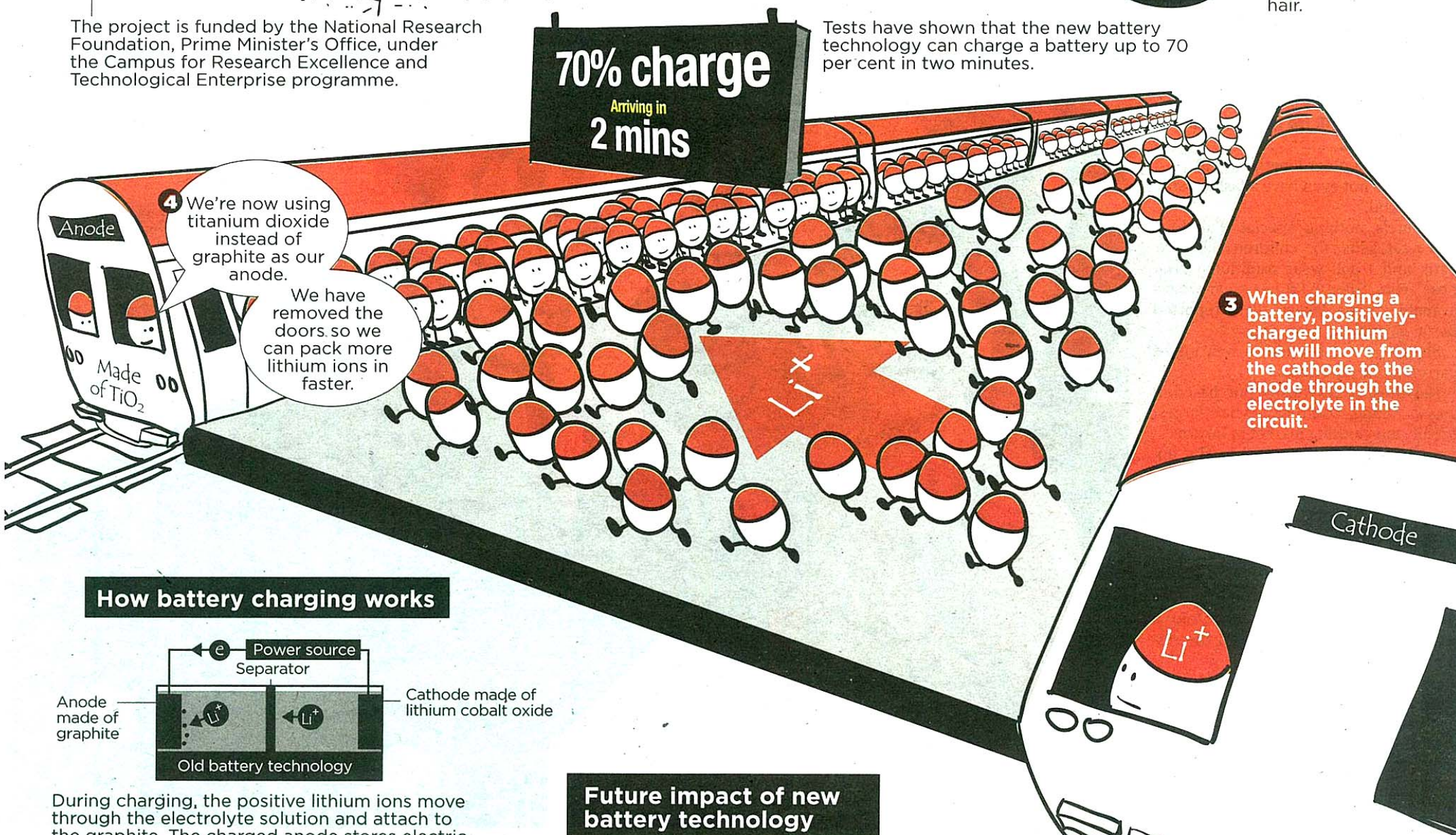


The project is funded by the National Research Foundation, Prime Minister's Office, under the Campus for Research Excellence and Technological Enterprise programme.

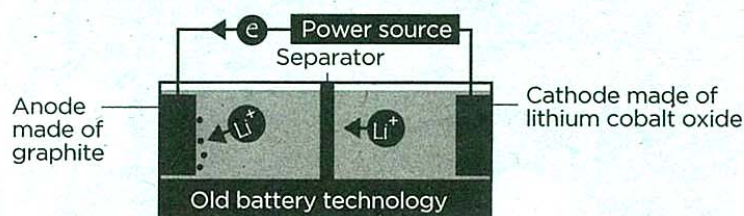
2 By mixing titanium dioxide and sodium hydroxide and stirring at a certain temperature, a gel-like material is created that can replace the graphite-based electrodes (anode) typically used in lithium batteries.



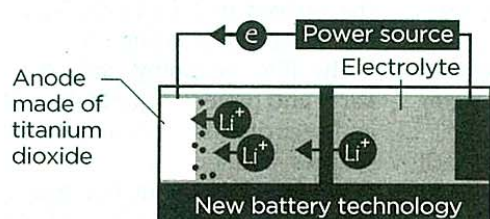
Tests have shown that the new battery technology can charge a battery up to 70 per cent in two minutes.



How battery charging works



During charging, the positive lithium ions move through the electrolyte solution and attach to the graphite. The charged anode stores electric power.

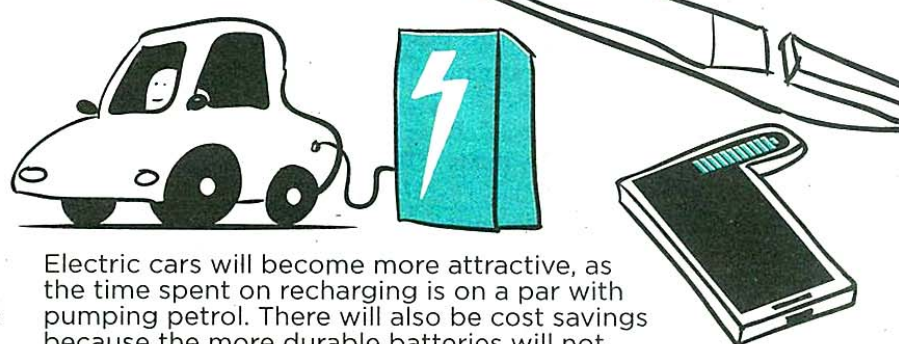


The titanium dioxide's gel-like properties increase the contact surface, which allows more lithium ions to be attached to speed up the charging process.

Future impact of new battery technology



Using the new titanium dioxide technology, batteries can now last up to 10,000 cycles because they deteriorate slower.



Electric cars will become more attractive, as the time spent on recharging is on a par with pumping petrol. There will also be cost savings because the more durable batteries will not have to be replaced as often.