



Australian Tech Brings Memory to Cheap Flexible Plastic

Australian memory ink technology has enabled cheap plastic to remember data even after being wrapped around a motorised wheel and rotated with speeds up to approx. 1000 rpm.

It has today been announced that ASX listed Strategic Elements (ASX:SOR) and the University of New South Wales have successfully coated memory cells from a patent pending 'memory ink' onto **flexible plastic**, which was bent and then **rotated over 2000 times**.

The flexible plastic prototype was then tested to see if data could be reliably stored and retrieved **over 5000 times**.

Revealing strong potential for use in flexible electronic devices from consumer electronics to healthcare, the flexible plastic prototype **reliably** stored and retrieved data for **all 5000** test cycles after the **combined** mechanical stresses of bending and rotation.

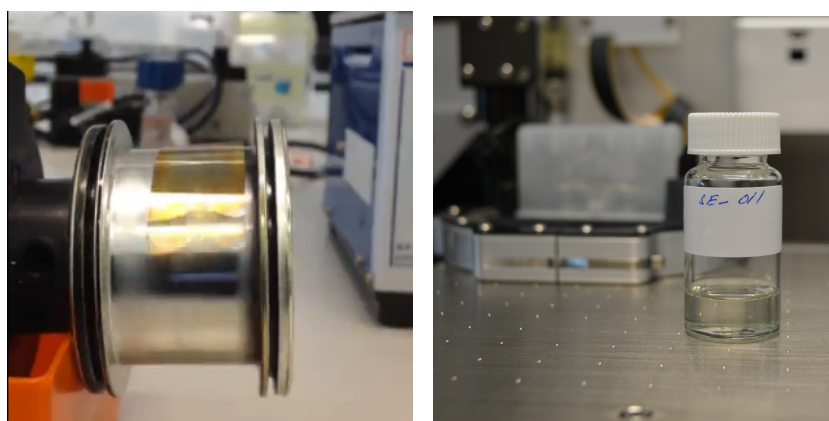
Printed Electronics is where chemical, printing, materials and electronic companies have collaborated to create what is already a multi-billion dollar industry. However it is recognised that a memory technology that enables more complex devices is still lacking.

The **additional flexibility** potential of the technology is a significant breakthrough in development and opens up even larger opportunities for the Company.

Although estimates vary as to the eventual market for **flexible** electronics products, the range for potential annual revenues by the early 2020^s is pegged by informed observers at \$75 billion to \$190 billion.

As **memory is the key component** of all electronics, a memory technology that is printable, transparent, reliable and flexible has the potential to play a significant role in a rapidly growing industry.

The Company is currently in discussions with potential development partners although to date no agreements have been entered into.



The technology is owned 100% by an investee of Strategic Elements Ltd (ASX:SOR) however it has recently extended a research and development agreement for work to continue at UNSW laboratories. The research team and the Company are currently reviewing additional printed electronics technology for potential development.

Managing Director Mr Charles Murphy said "The team at UNSW has consistently achieved increasingly more advanced technology every time they focus on different aspects of the ink for use in printed, and now flexible electronics. These prototypes highlight a memory technology that is extremely robust across different materials from glass to plastic".

Flexible Electronics

Traditional memory technology relies on silicon chips that are rigid, cannot bend or flex and need to be fabricated in expensive billion-dollar silicon plants. However, new printed electronics are being developed to be printed or coated onto materials such as glass and plastic, which enables electronics to be manufactured easier and cheaper and be put in places and on objects that have never had them before.

Flexible electronics refers to advanced electronic devices that can be bent or flexed without getting damaged and have applications across many sectors such as consumer electronics, healthcare, industrial, and military and defense.

Testing

The results are the first from tests of the flexibility capacity of the Nanocube Memory Ink, a technology invented at the UNSW by the team led by Professor Sean Li at the Department of Materials Science and Engineering.

Fatigue is the weakening of a material caused by repeatedly applying stress. The flexible nanocube memory device was subjected to high cycle fatigue under flexed conditions simulated through high-speed rotation using a motorized wheel.

The current results provide an early indication of three important aspects by simulating:

- 1) A plastic based electronic device being bent and stressed.
- 2) Potential rolling action of printing manufacturing process.
- 3) Day-to-day movement and vibration a plastic electronic device might go through in real world applications.

The results again show that robustness may be a strong feature of the technology. They also come on the heels of the team successfully revealing a **glass** based prototype device with **transparent** memory ink cells that could read and write data 100,000 times reliably.

The development team will now access specialised materials (plastics, electrodes etc) and equipment to assist in further testing the maximum flexibility performance capabilities of the Nanocube Memory Ink.

Nanocube Memory Ink Technology

- The patent pending Nanocube memory technology is based on RRAM, which potentially allows faster, less power hungry, more reliable, cheaper and more scalable memory.
- The memory ink contains ultra small cubes (nanocubes) thinner than a human hair, which assists the memory to read and write 1's and 0's – data.
- In December 2015 testing results were released after 5 months of work clearly demonstrating the potential of the technology.
- In March 2016 an enhanced method of prototype fabrication commenced.
- In May 2016 a glass based memory device prototype with transparent memory ink was successfully developed.
- In September 2016 a breakthrough in developing a flexible plastic prototype was achieved.

More on the Company

Strategic Elements shares are listed on the Australian Stock Exchange under the code "SOR". The Company is registered under the Pooled Development Program run by the Australian Federal Government to encourage investment into SME's.

To assist Pooled Development Fund's to raise capital, the Federal Government enables most shareholders in a Pooled Development Fund to **make capital gains and receive dividends tax-free**.

In return the Company must back only Australian SME's. The Company has a current focus on the technology and resource sectors, with approx. \$7M in cash and no debts.

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