

# S'pore start-up develops unique LED lighting solution

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## System promises high power lighting at lower cost

By AMIT ROY CHOUDHURY

A SINGAPOREAN start-up, BrightLite Systems, has come up with an innovative liquid crystal display (LED) lighting system that promises to help users save more than 30 per cent in electricity bills.

The technology was developed by the company in collaboration with the Singapore Institute of Manufacturing Technology (SIMTech), an Agency for Science, Technology and Research (A\*Star) research institute.

Speaking to BizIT, the company's CEO Bernard Lim said BrightLite's Ultra-BrightLite LED engine, which is at the core of its products, was an Economic Development Board-approved project under the EDB's Industrial Commercial Scheme.

LED is a semiconductor lighting system with a life span typically 50 times longer than that of traditional fluorescent lighting.

However, the widespread application of LED in lighting is constrained by two major challenges - effective heat dissemination and non-direct power source contact. For each LED type, a power supply must be specifically designed.

The worldwide LED lighting market is estimated by some market analysts to be worth around US\$6.7 billion, with a 15 per cent yearly growth rate.

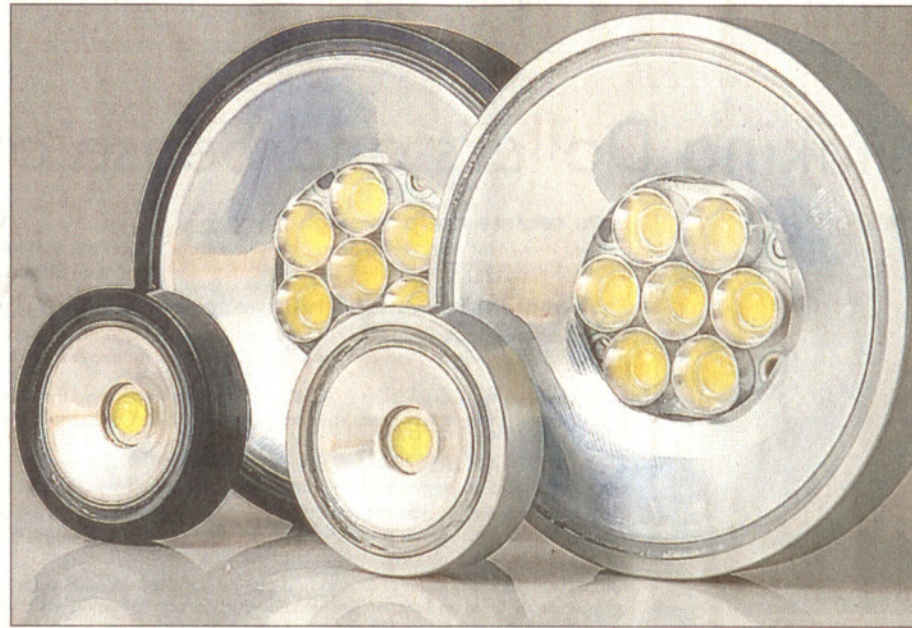
Mr Lim noted that his company's collaboration with SIMTech in thermal analysis and simulation of a patent-pending LED housing design solved the problem of heat through "effective and rapid three-dimensional heat dissipation".

SIMTech's executive director, Lim Ser Yong, added: "SIMTech's expertise in thermal management has helped BrightLite Systems develop an innovative high power LED lighting solution for the company to make its foray into the global market."

The Ultra-BrightLite solution integrates the key elements - high power LED ranging from 5 to 30 watts, smart electronics, hard optical lens and aluminium metallic housing - into one integrated package.

Mr Bernard Lim however said the product is not something one can go into a store and buy. Rather, it's targeted at architecture and building firms and lighting and fixture manufacturers, among other customers. These companies will assemble the end products to either install in buildings or sell to consumers. BrightLite has no plans to retail the lighting solutions on its own.

"Ultra-BrightLite offers



**Brighter:** The Ultra-BrightLite solution integrates high power LED, smart electronics, hard optical lens and aluminium metallic housing - all in one package

low cost, high reliability, fast time-to-market LED design solutions and products to companies that make lights that consumers buy," Mr Lim said.

Asked how a small Singaporean company can hope to compete in a market which has such giants like Philips making similar products, Mr Lim, who used to work in Creative Technology, said product differentiation was the key.

"When one looks at the overall LED supply chain from the LED die, packaging and the finished products, big companies like Philips and Cree own the die patent and not many

other companies can hope to enter this market," he noted.

However, in terms of packaging - that is integrating the LED die in a casing to make an effective lighting system - there has been no marked improvement in design since way back in the 1960s, when the first LED lights started appearing.

He added that till 2005, most LED lights were low power, low wattage types. It was only after 2005 that high power, high wattage LEDs started to be designed.

However, packaging has proved to be a major hurdle.

"Since LED lights dissipate a high amount of heat due to high power lighting, not many designs can take high watt LED lighting. In an LED light, the temperature can reach six to seven times higher than in a normal CPU (central processing unit) of a computer.

"With our Ultra-BrightLite technology we can integrate the LED into a metallic housing which also houses a temperature monitor. If the temperature is too high, for example during summer time, it will control the current."

Mr Lim noted that by leveraging on SIMTech's competency and experience in

'With our Ultra-BrightLite technology we can integrate the LED into a metallic housing which houses a temperature monitor.'

- Bernard Lim

thermal management of advanced electronics and microsystems, his company has successfully developed a unique patent-pending LED housing design.

"SIMTech's expertise has enabled us to achieve a miniaturised and high performance LED solution with integrated electronics. This 'Made-by-Singapore' product will enable us to capture the exciting opportunities in solid state lighting."

At present BrightLite is funded internally by Mr Lim and his associates. However, a few venture capitalists have expressed interest in the company.

Said Mr Lim: "We are talking to a couple of VCs and for marketing we are in contact with some government departments such as the Housing and Development Board (HDB) as the government is looking at making buildings more energy efficient."