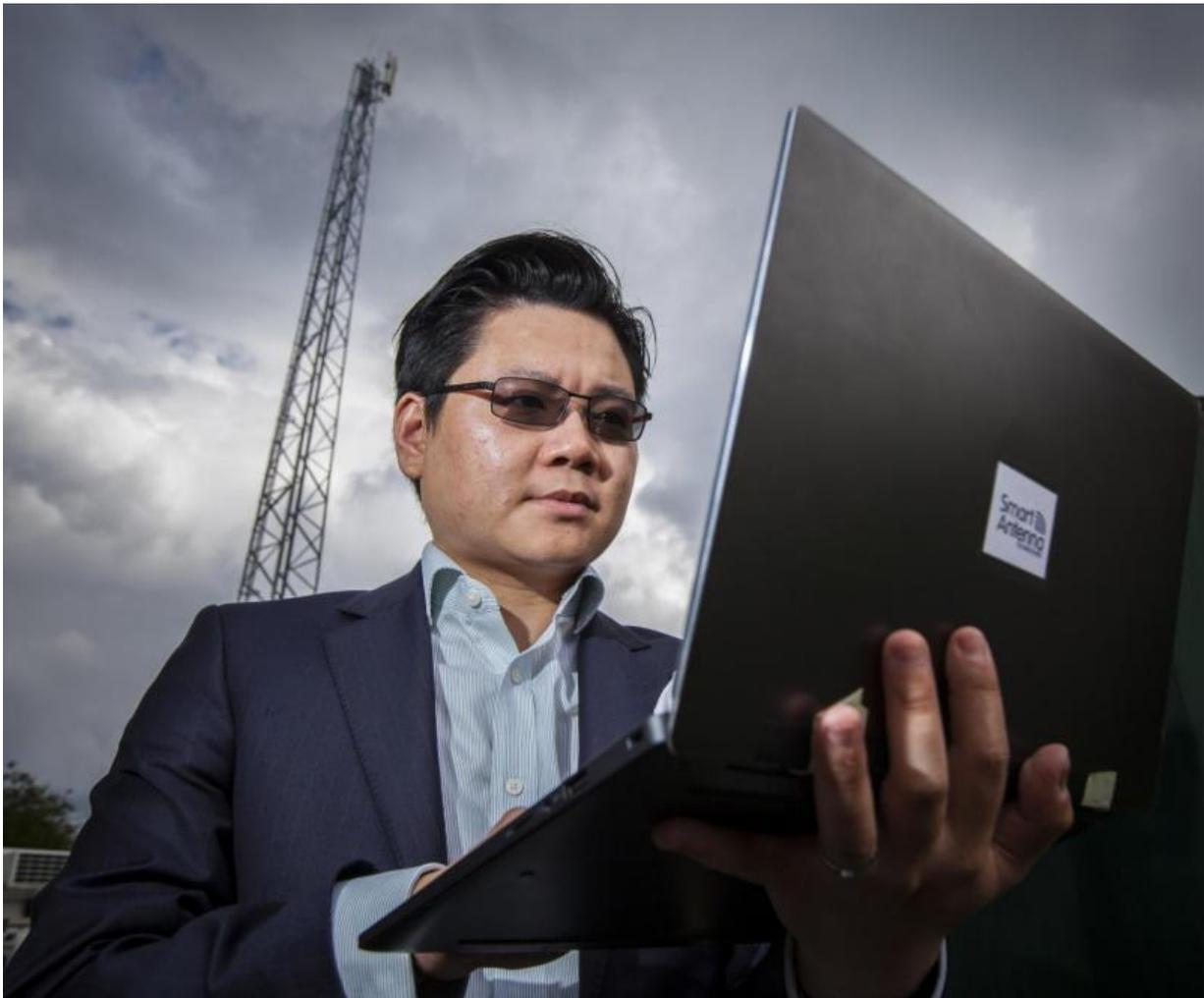


Research signals start-up boost for laptop users

June 24 2016, by Tony Moran



Credit: University of Birmingham

A British tech start-up has invented a world-first multi-function antenna for laptops that fits into the extremely limited space of the hinge cavity.

Smart Antenna Technology's device combines Wi-Fi, GPS and Bluetooth and 3G/4G LTE and WiGig 60GHz wireless standards in one unit.

Developed by scientists at the University of Birmingham, in the UK, SAT's new antenna replaces as many as five separate antennas found in a standard [laptop](#).

Dr Sampson Hu, who founded SAT in 2013 is pictured above (photo: John James). He says conventional antennas cannot be located immediately next to each other because of signal interference which leads to reduced performance.

Dr Hu, 33, who has raised a total of £3.3 million from investors to develop SAT's [antenna system](#), said: 'Within the current laptop the antennas for Wi-Fi or a mobile signal need to be separate so there is no interference of frequencies.

'If the laptop has a metal casing then it is impossible to embed an antenna on the top of laptop screen or motherboard and the antenna must sit in the hinge cavity.

'However, the hinge cavity is a very limited space in which laptop manufactures can only fit two conventional antennas, one for Wi-Fi and one for 3G/4G LTE. If conventional antennas are brought so close together interference degrades efficiency and increases battery usage.

'Additionally If a laptop has metallic covers there is no other space to locate the second conventional Wi-Fi antenna and 3G/4G LTE antennas to support Multi-Input-Multi-Output (MIMO) function to provide

enhanced data download rates.

'That's the problem we have overcome with our integrated MIMO antenna system. All the antennas are combined together as one single system.'

The patented MIMO antenna system improves both data download rates and battery life.

Dr Hu said: 'Our antenna system structure is a world first as it means all the antenna functionality is wrapped into one simple assembly, reducing the cost and size.'

'Another problem that affects laptops is if you are working on a laptop and your hand is placed on the keyboard it often interferes with any of the five antennas. With our invention there is no interruption.'

Dr Hu, originally from Guangdong in China, invented the MIMO antenna system while completing his PhD at the University of Birmingham.

SAT is in discussions with Sony to manufacture the antenna system at the Japanese giant's Technology Centre near Cardiff in Wales.

This 'emerging star' from University of Birmingham also benefits from the expertise of Dr Colin Tucker, former CTO and COO at Orange for European business, and the founding CEO of 3, the first 3G operator in the UK, who sits on the Board as Executive Chairman.

Dr Tucker said 'SAT is a spin out company that has taken academic research and turned it into a high value mass produced product. SAT has raised both significant equity funding and UK government grants which have enabled it to build a substantial business and provide a growing

number of high value jobs. The next stage of growth will bring high volume UK production and associated export revenues.

'Many people complain that in the UK is slow at commercialising academic inventions but SAT has shown that British companies can successfully do this and compete on the world stage.'

Provided by University of Birmingham

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