

MHTX's Novint Falcon Technology Featured in Financial Times

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LOS ALAMOS, N.M., -- Manhattan Scientifics (Pink Sheets: MHTX) announced today that an article featuring its Novint Falcon Technology is available in this week's Financial Times magazine.

Physical moves in virtual reality

By Chris Nuttall

Tom Anderson has come up with a video-game device that can simulate with unprecedented accuracy how he has been banging his head against a brick wall for the past five years.

The Novint Falcon controller is a strange contraption featuring three motorised arms attached to a ball. The arms create subtle resistance to allow games players to feel three-dimensional objects and be jolted by the impact of explosions, bullets and tight turns on a racing circuit.

But his difficulty in selling the idea of the \$150 Falcon to game publishers, hardware manufacturers, console makers, retailers and the public has been a source of great frustration. Until, that is, he came up with a new business model that broke the impasse.

"For the past five years I've been telling everybody that we're going to get games [designed to be played with the controller] but people were sceptical," he says.

"They said: 'How are you going to get game support when you don't have an installed base [of players using Falcon], and how do you get an installed base if you don't have games that support it?'"

Mr Anderson decided the solution to this conundrum would be to force a breakthrough with the games publishers. "Instead of telling publishers, 'We want you to support the Falcon,' we said, 'We want to buy the 3D touch rights to your game.'

"So instead of asking them to do something for us, we went to them and wanted to buy something that they didn't even know they had - and we were the only company that could buy it."

Novint also agreed to pay an advance on any royalties due to the publishers for the adapted versions of their games. In addition, it would do the work of incorporating the technology into the games. "There was no risk and no cost for them - it was all upside. Publishers have loved this deal," he says.

It sounds as if Novint, a small company with 35 staff, would need to have big pockets to make these sorts of payments, but the chief executive and founder says this is not the case.

He cites an example of a publisher spending \$8m to develop a game. Novint would spend about 1 per cent of this amount: \$40,000 to acquire the rights and \$40,000 to pay a developer to work for three months on adapting it.

Mr Anderson, 34, began developing his ideas about touch - the field of haptics - in 1995 in the US government's Sandia National Laboratories in New Mexico. He had grown up in Los Alamos, where his father had worked in Sandia's sister laboratory, focused on weapons research and design. His grandfather

also worked in the Los Alamos lab on the Manhattan project, where Robert Oppenheimer developed the first atomic bomb.

The Novint founder, a student of electrical engineering at the University of New Mexico, joined Sandia on graduation and led a haptics project there for five years before leaving in 2000 and licensing the technology he had developed.

"I discovered I had an entrepreneurial itch so I founded Novint. It was just me to start with until another Sandia employee joined a few months later and an intellectual property lawyer from there," he recalls.

The Albuquerque-based start-up originally planned to bring touch technology to consumer applications through online worlds. However, with the collapse of the dotcom bubble, investment in such areas dried up, so it turned its attention to high-end applications in design, medical and automotive fields.

For Chrysler, for example, Novint designed haptics software in a virtual system that would allow the carmaker's testers to check the ergonomics of tuning a radio or reaching out to a cup holder during the design process. Elsewhere, it enabled the drilling of virtual teeth to a surgeon's standard.

The company was still going through tough times at this stage. "We had lots of missed payrolls and at one point I was looking at selling my car to keep us going, but we got enough contracts that we made back the back-payroll by 2003."

Novint was finally able to turn its attention to the consumer market when Mr Anderson acquired a design for the Falcon's hardware from a company called Force Dimension, making such a device affordable for the mainstream market for the first time.

Mr Anderson had received his initial \$1.5m in funding from an incubator company called Manhattan Scientifics, with Sandia also taking stock. He raised another \$3m by going public in 2006. Mr Anderson still owns a 10 per cent stake.

While Novint reported revenues of just \$156,000 and a net loss of \$4.1m for the first six months of this year, the chief executive says it has now reached an inflection point with wide acceptance of its new business model.

Electronic Arts, the second largest video game publisher, is allowing Novint to develop versions of its Tiger Woods golf game, Madden NFL football, Need for Speed car racing and Battlefield and Mass Effect action titles. Other developers and publishers have signed up, including Codemasters, Valve and Eidos.

In use, the Falcon is impressive. Players can feel their way through spaces, brush past objects and bump into trees. Touching a virtual ball in 3D, one can feel its surface change from knobby golf ball to one of sandpaper and then slippery ice. The experience is more sophisticated than the "force feedback" with which many existing controllers are equipped.

So while the appeal of his device is at present confined to early adopters, Mr Anderson believes the Falcon, or something like it, can achieve mass market appeal. "The field of haptics - our sense of touch - will easily be as big as graphics, but people don't know it yet, it's not in the mainstream."

Mr Anderson envisages applications such as people virtually shaking hands with one another across the internet, taking cars for test drives, going virtual shopping and touching fabrics and playing with virtual toys such as sticking eyes into a Mr Potato Head. "Our vision has always been to create a technology that's going to fundamentally change not just gaming but computing overall," he says.

"This is what makes virtual reality seem real - vision and sound are important, but being able to feel as well is the missing piece of the triad."



A case of game, set and match up those breakthroughs

Entrepreneurial efforts in the gaming industry have suffered from long development periods.

Cybernet Systems, a small Michigan-based research company, came up with force feedback - technology that mimics real-world impacts - in the late 1980s and licensed its patents to Immersion Corporation a decade later.

Immersion shared its technology with Microsoft and Sony but became involved in years of litigation after alleging use of its patents in games controllers for the PC and consoles.

Novint's more sophisticated approach has been held back by market conditions and hardware that cost \$15,000. A breakthrough came when the company bought a design that made the hardware 100 times cheaper.

Emotiv Systems, another start-up, has developed the Epoc headset, which can pick up electrical waves from the brain, using the power of thought to control games.

The Epoc is due to go on sale later this year at about \$300. Like the Falcon, it has been made possible by cheaper components and hardware designs that have brought costs down from tens of thousands of dollars.

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