

MuTracx and Sioux together in PCB printing

AGILE PARTNERS MAKE FOR SWIFT INNOVATION

In the future, inkjet printing can revolutionise Printed Circuit Boards (PCBs) manufacturing. MuTracx in Helmond is well on the way to starting this revolution by developing Lunarix, an inkjet printer for PCB inner layers. Embedded systems specialist Sioux in Eindhoven is a development partner and has invested for over a year now in this project. Sioux found a solution to handle the enormous amounts of data processed for this novel production process.

Systems Ron Willems: 'At the end of 2010, the first printer to be used for commercial production will be installed at a launching customer. Based on the results of that printer, some optimisation will probably be required. We expect the Lunarix to hit the market by mid-2011.'

Sioux is not only co-developer, but also an investment partner in the Lunarix-project, De Geus explains: 'Sioux started out as a traditional

software developer and service provider. We noticed that more and more customers wish to work with one partner for all software development. Therefore we founded Sioux Technologies in 2009. Sioux Technologies seeks companies working on new technologies with a solid business case. When we find a promising project we participate in it by taking part of the risk. Of course we share in future revenues as well.'

Sioux Embedded Systems develops the software for these projects, Willems says: 'We work mostly for large oems, but increasingly we notice many start-ups engaging in low volume, high complexity products. They don't have the capital to hire the necessary expertise. Therefore they are looking for business partners, in the way Sioux Technologies and

MuTracx co-operate. It's an investing project partner, and in this case it's also an equity partner of MuTracx.'



Ron Willems (left) and Arnoud de Geus: 'We constantly acquire knowledge that our customers will need tomorrow.'
Photo: Bureau Lorient Communicatie

by Wouter Klein Ikkink

PCB manufacturing is a complex process involving cleanroom lithography. Printing specialist Océ in Venlo developed a new inkjet printing technology to replace this process. Océ's spin-off MuTracx is busy engineering the first PCB printer Lunarix for market introduction. Eindhoven-based

software and embedded systems specialist Sioux acts as a development partner. Business development manager Arnoud de Geus: 'Lunarix jets the PCB in one go, eliminating the need for lithography. It's a less complex and less labour intensive process with higher yield compared to lithography.' This printer development has run for some years now, says managing director of Sioux Embedded

STRAIGHT CURVES

Developing software for the Lunarix printer is challenging, De Geus says: 'The printer has to fit perfectly in the production process. The software has to generate a print strategy based on the PCB-design. This requires enormous amounts of data processing to map the dots to the image. To handle these data streams, we

used graphics processing units (GPUs), the kind of processor that a graphics card in a computer uses. Contrary to central processing units (CPUs, typically the core calculating unit of a computer), GPUs are optimised for parallel calculations. If you find a way to divide a large data stream in smaller, parallel streams, a GPU can process the data much faster than a CPU. The Compute Unified Device Architecture (CUDA) software deve-

software and a robot is just a dead piece of metal.' Willems agrees: 'We like to joke that with software, you can make curves straight. For instance, no stage ever moves in a perfect straight line. But with the right sensors and actuators, software can make exactly the right adjustments.' Given that the importance of software will only increase in the future, Sioux invests quite a lot in new technology, says Willems: 'To be able to compete with low cost

train our own employees and our customers. We constantly acquire knowledge that our customers will need tomorrow.'

SPLITTING THE VALUE CHAIN

The Lunaris project also shows how the character of high-tech innovation changes. De Geus: 'It used to be the domain of major companies. It now shifts towards open innovation partnerships, in which small companies equally co-operate with partners. These companies are more agile, enabling them to innovate faster. The presence of knowledge institutes like TNO and the Embedded Systems Institute (ESI) stimulates open innovation. Multinationals also acknowledge this and more and more tend to split their value chains and seek open innovation partnerships with smes.'

To see how the way of thinking changes look at Philips, De Geus says: 'Large buildings with fences around have made way for a campus open to all.' Because of this, innovation in the region is thriving, De Geus states: 'This is one of the world's leading regions for mechatronics and embedded software.' ●

'The Lunaris project shows that software development gets ever more important in mechatronics'

lopment technology enabled us to do just that.'

The software Sioux is developing also takes care of motion control, user interfacing and remote interfacing. De Geus: 'There is much competition worldwide, not only in the area of production but in engineering as well. That is why the Lunaris also offers the possibility of remote diagnostics, which saves costs.'

'The Lunaris project shows that software development becomes ever more important in mechatronics', De Geus says. 'Take away the

countries, we have to stay ahead. We participate in a number of r&d programmes, like the European TWINS project that addresses co-design problems of integrated hard- and software development. We invested in model-driven software engineering, as well as in expertise on analytical software design (ASD). This is a method for analysing software to find inconsistencies even before the test phase. We have our own 'Hot-or-Not' programme that aims at selecting new promising technologies and inviting the gurus of that technology to

links

www.mutrax.com
www.siuox.eu