



Deltatron Ltd.

The helping hand of a robot

An expert in manufacturing technology, Deltatron recently teamed up with a number of international research organisations to explore how robot technology and new advances in Human-Machine Interface (HMI) development could help patients recover more effectively from strokes and other debilitating conditions.

Deltatron specialises in manufacturing assembly techniques and provides software solutions for enhancing robot technologies. Projects extend all the way from initial concept to development, testing, remote product support, and training. A leader in advanced robotics nationally, Deltatron has a growing international presence and its products are used on all five continents today.

High standards of reliability, and ensuring that products and manufacturing systems interact as effectively as possible, are key Deltatron priorities.

JOINT RESEARCH YIELDS RESULTS

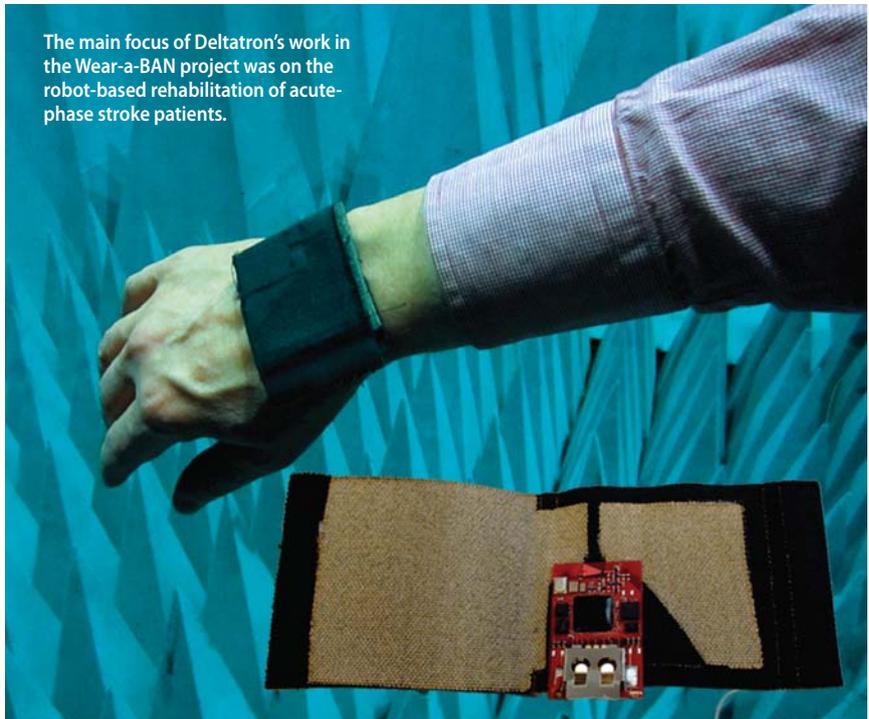
Deltatron has been involved in joint research programmes for many years, in areas such as augmented assembly and DFMA (Design for Manufacture and Assembly) development.

The latest of these joint programmes was an initiative carried out under the EU's Seventh Framework Programme, known as Wear-a-BAN, aimed at developing a low-power wireless sensor network for a new type of solution, with a particular emphasis on smart fabrics, interactive textiles, and the Human-Machine Interface (HMI). Sensor networks with accurate motion-sensing capabilities offer an extensive range of opportunities.

As part of the Wear-a-BAN project, Deltatron concentrated on the robot-based rehabilitation of acute-phase stroke patients with the help of on-body sensors and wireless signal processing software and an off-the-shelf, 6-7 degrees-of-freedom industrial robot.

The main focus was on rehabilitating the upper limbs to make it easier for patients to look after their basic needs – such as eating, personal hygiene, and dressing themselves – and thereby improve their potential to lead an independent and more fulfilling life.

The main focus of Deltatron's work in the Wear-a-BAN project was on the robot-based rehabilitation of acute-phase stroke patients.



EXCELLENT POTENTIAL

Industrial robot and CAD technology is well-suited to this area because of the in-built safety features of robots and the comprehensive 3D arm motions that can be replicated. A compact sensor pack featuring a 3D acceleration sensor, a 3D gyro, and a magnetometer was used during development work on the project and proved successful in most key aspects.

Safety related to automated robot devices is an area of growing interest, and advances in robot control techniques are already addressing these issues with the help of specialised controllers.

The project underlines the potential that this type of rehabilitation support system could have as populations continue to age and the number of people experiencing strokes and other debilitating conditions increases.

Longer term, the technology also has clear potential in other areas of physiotherapy and for opening up new ways for people to use things like gestures to directly communicate with other kinds of automated devices, not only robots.

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