

Dynamic Companions – a company focus



Our series of articles featuring InstMC Companion Companies continues as we go behind the scenes at C-Cubed Ltd...

The Expert in your Pocket

When a young engineering post graduate framed his PhD around his vision to place in the palms of non-specialist operatives a simplified, low cost method of performing highly complex measurements and analyses for condition monitoring, it was to herald a progressive line of innovations that would give a new and powerful emphasis to hand-held pocket computers in rugged industrial environments.

That post graduate was Dr Russ Sion who is now managing director of C-Cubed Limited – a company which he and a few colleagues formed in 1997 to pursue the practicalities of his vision. Based in Whitchurch, Hampshire, and three-times winner of the prestigious DTI SMART award for technological innovation, the company – a subsidiary of Jenton International Limited – has built up an enviable reputation for leading-edge, problem-solving technology. Applications extend across many industrial sectors – in fact any area where there is a crucial need to ensure that machinery and equipment do not break down.

First SMART Award

Early success came with the first SMART award to develop a low-cost force sensing washer, or tension sensing unit, for measuring and assessing bolted joint tension in heavy industrial environments, such as bridges and multi-storey buildings. The unit was rugged, low cost and able to produce both dynamic and static information in areas of high volume production. However, an important element – the ability to measure electronic signals in a Windows™ format – was yet to be developed for pocket computers. It was not practicable to link up Windows-based laptop computers because of their vulnerability in harsh industrial environments. C-Cubed's breakthrough to overcome this deficiency cemented the company's international reputation for pioneering solutions to problems concerning sensors and instrumentation.

World's First

With the support of a second DTI-funded SMART award, the company developed the world's first Compact Flash 2-inch data acquisition card for commercial, off-the-shelf, pocket computers – or PDAs (Personal Digital Assistants). For the first time it was possible to collect and measure electrical signals into Windows-based pocket

computers. A new and exciting industrial tool had evolved which was rugged, low cost and easy to use. Operatives who were not necessarily highly skilled were now empowered to tackle the complexities of notoriously difficult signal measurements and analyses which were previously the preserve of highly trained consultants. Systems were developed for various applications, for example, in the pharmaceutical industry for drug process R&D, in the biotech sector for measuring bio sensors and in the dairy industry for measuring the salt content of milk, butter and cheese.

Soon users were demanding custom design pocket computer systems to meet specific requirements and this area now plays a key role in C-Cubed's business. The first major assignment was to develop a Personal Electronic Torque Analyser (PETA) to replace an outdated torque calibration unit being sold by Torqueleader, part of a German group of companies. Whereas the existing calibration unit could produce data only in numerical form, the Windows-based PETA system enabled for the first time personnel on the factory floor to work with easy-to-navigate graphical presentations. PETA is now in its third version and is available in nine languages across 35 countries. End users have included Airbus (the new A380), Boeing, General Motors and Trident Data Systems.

Market Niche

The data acquisition capability for Windows-based portable PDAs presented non-specialist users with a collective solution to a combination of three major problems – obtaining inherently difficult measurements, performing a subsequent series of complex calculations

and presentation of the data in an easily understood format. The market niche which this solution created led the company into measuring vibration and today its vibration analysis products include two world market leaders – the Pocket VibrA Pro and its add-on tool, the Pocket Balancer.

The IP67-rated Pocket VibrA Pro unit for easy predictive maintenance and condition monitoring literally fits in the pocket and can be applied in harsh industrial environments where lap tops simply would not survive. It features full graphical trending of all vibration data with colour-coded alarms and asset status, and will diagnose and display out-of-balance, misalignment, looseness and bearing faults. The add-on hand-held Pocket Balancer allows users to correct out of balance problems on rotating machines – probably the single biggest cause of premature bearing failure in motors, pumps, fans and blowers. Described as “the expert in your pocket,” these tools will not

only present a number and a graph but will also analyse that graph and make a prediction of what needs to be done.

The Company continues to explore new markets while innovation to develop and enhance product depth and range continues to be at the heart of a vigorous R&D programme. Sales across the world are conducted through an extensive chain of distributors, in Africa, Canada, Italy, France, Germany, Spain, Portugal and Brazil, and a joint venture company has been set up in the USA to address the biggest market.



Bryan Richardson
InstMC Consultant