Wall to Wall Software

Customer
Cobble Blackburn Ltd is the major European manufacturer of carpet tufting machines. As well as Europe, Cobble machines are sold across the world to countries such as China, South Africa, Saudi Arabia and the United States.

Business Problem
Towards the end of the 1990's Cobble realized that the DOS based software used by the operator to control their machines was out of date. The text based user interface looked dated compared to modern Windows systems. In short the software was unattractive to prospective buyers.

In addition the software was proving difficult and expensive to maintain. The numerous combinations of mechanical attachments that can be fitted to a carpet machine mean that most machines are unique. Unfortunately the software had not been designed to handle such flexibility, which meant that each machine required a 'hand-crafted' piece of code.

Tessella Solution
Tessella and Cobble staff worked together to design, implement, test and release the new user interface system within a tight timeframe. The system was developed to run under Windows NT using Visual Basic 6.0 as a series of Active X server components. This approach provided a means of building a multithreaded application under Visual Basic.

The approach outlined above was required so that the user interface software could communicate with the other systems on a tufting machine. A programmable logic controller (PLC) is used to manage the numerous attachments and safety interlocks fitted to the machine. To achieve the level of precision required for accurate and repeatable patterning, the machines are equipped with a motion coordinator (MC) controlling up to 15 independent servo motors.

Cobble machines can be fitted with up to 2000 needles

Not all of the legacy code was rewritten. C code running on an embedded pc to control a patterning mechanism was 'wrapped' so that it could communicate with the new user interface software using a TCP/IP link. Selected reuse of code in this way provided a cost effective solution to Cobble.

Results and Benefits
Cobble now has a flexible and maintainable system for controlling their carpet machines. Individual machines can be set up by using a machine definition file meaning that the code running on each machine is the same.

Customers have benefited in many ways including a more intuitive user interface, better machine diagnostics, on-line help and improved security against operator misuse.

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