Projectfiche

Projecttitel: TDD4ES: Test-Driven development for Embedded Software

Abstract

International research illustrates that more and more concepts of Test-Driven Development (TDD) are migrated to the embedded software domain. In contrast to desktop applications, embedded systems demand for the approach of co-designing hard- and software. This emanates from the fact that the hardware only becomes available at the end of the design. This is the reason that current design methods only pay attention for testing at the end of the configuration. Embedded designers use the final test stage to demonstrate the correctness of their embedded system. To conduct these final tests, debugging tools are used.

Test-Driven Development puts testing much earlier in the design process, even before the hardware is available. This is made possible by developing virtual hardware, a technique called mocking in software engineering. In that case the tests for embedded software don't use the real hardware, but the virtual simulating components. Even more, in Test-Driven Development, the tests have a repetitive nature. This entails that they can be used actively at different moments in the design, to detect faults in good time. Repetitive testing is essential in an embedded environment, because the replacement cost rises dramatically from the moment that the device is used.

Test-Driven Development, as is the case with desktop applications, increases the quality of the source code. Even more so, the greatest advantage of this methodology, namely the early detection of faulty behavior, is essential in an environment where hardware and software are developed at the same moment.

Administratieve gegevens

Kennisinstelling / Departement	EP research group - KHBO Dept IW&T
Type project	IWT/TETRA
Start datum	01/10/2009
Duur	24 maanden

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X Via presentatie

X Via poster