

Automating Software Testing

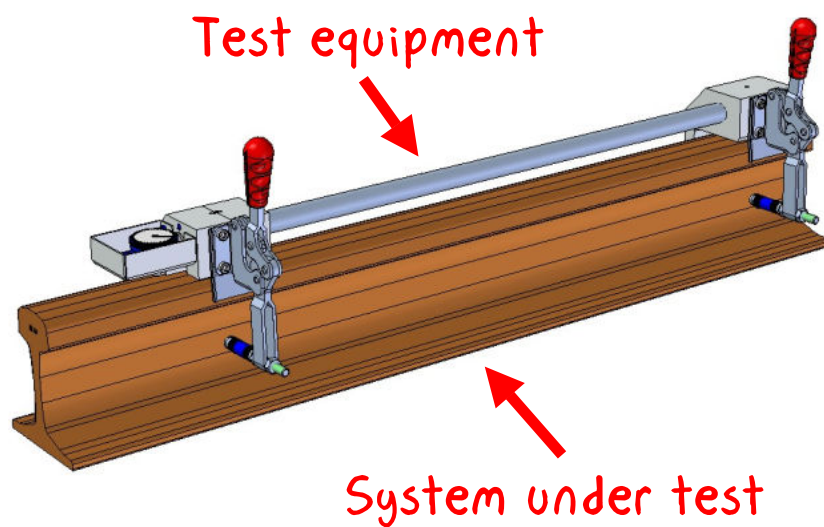
Myths, Benefits and Tools

Phil Robinson



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Mechanical Testing

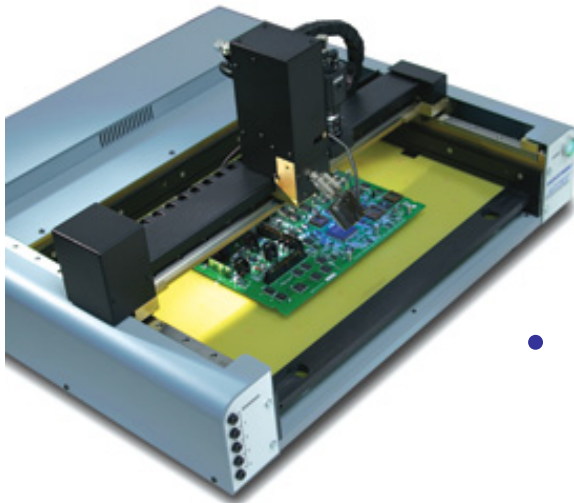


Electrical Testing

System under test



Test equipment

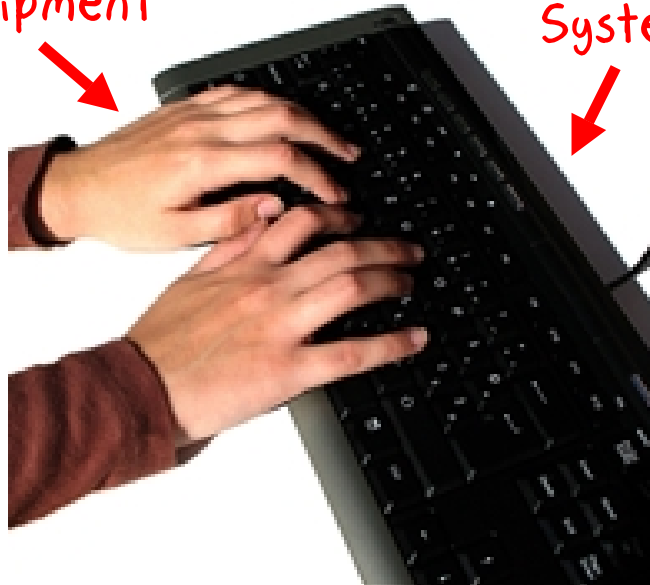


Electrical Test Automation

- **Benefits**
 - Large volume of tests
 - Feasibility of manual tests
 - Test throughput
 - Accuracy of results
- **Costs**
 - Equipment
 - Setup
 - Maintenance

Software Testing

Test equipment



System under test

Software Test Automation



- Magic
- Expensive

Benefits of Test Automation

- Faster test throughput
- After hours testing
- Better use of testers time
- Improved test accuracy
- Reduced effort in some areas



Cost of Test Automation

- Tool selection, acquisition and implementation costs
- Support and maintenance
- Training costs
- Increased effort in some areas



Acquisition Costs

www.Opensourcetesting.org

opensourcetesting.org
open source software testing tools, news and discussion

Home Testing tools Unit testing tools News Resources About FAQ Forum

News

New tool added: Maveryx - Maveryx is a free and open source Test Automation Framework for functional and regression testing of... [Read More](#)
Posted on Oct 06

New tool added: Feed4TestNG - Feed4TestNG makes it easy to write parameterized tests for the TestNG framework and feed them with fix... [Read More](#)
Posted on Oct 06

New tool added: tSQLt - tSQLt is a framework for unit testing SQL Server databases. It runs tests in transactions, allows tests... [Read More](#)
Posted on Oct 06

New tool added: Feed4JUnit - Feed4JUnit makes it easy to write parameterized tests for the JUnit framework and feed them with predefined... [Read More](#)
Posted on Oct 06

New tool added: loadUI - loadUI is a tool for Load Testing numerous protocols, such as Web Services, REST, AMF, JMS, JDBC as well... [Read More](#)
Posted on Oct 06

New tool added: GrinderStone - GrinderStone is an Eclipse plug-in for Grinder load testing scripts development including debugging... [Read More](#)
Posted on Oct 06

Sonar 2.2 released - The Sonar Team is pleased to announce the release of Sonar 2.2. There are three key features in this... [Read More](#)

Cute & funny video - Great QA humour!

WebLOAD Defeats Ajax Widgets

Advertisement

TestTrack Studio
Combine TestTrack Pro and TestTrack TCM to track and manage all the details of your testing effort

Features include:

- Turn defects into test cases for better test coverage
- Give developers access to test run information
- Improve collaboration between QA and

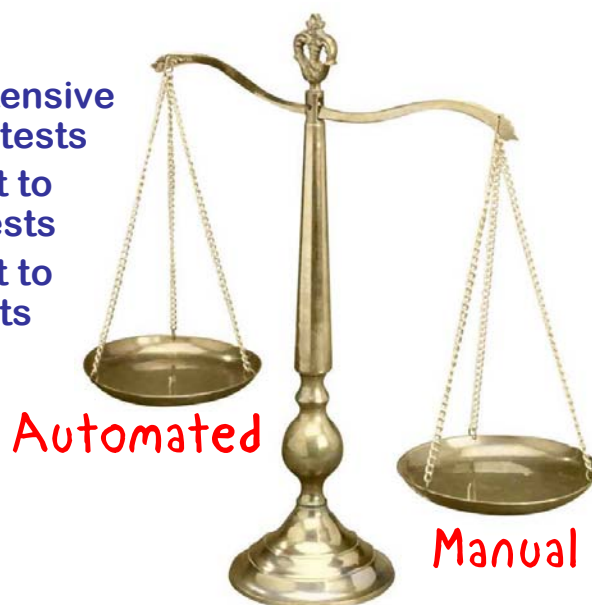
Latest tool count: 446

Recent discussions

Automated tool for testing Qt/QML apps for mobile phones
Posted on Nov 15 by justinahaze

Increase/Reduction in Effort

- Labour intensive to specify tests
- Less effort to execute tests
- Less effort to repeat tests



- Less effort to specify tests
- Labour intensive to execute tests
- Labour intensive to repeat tests
- Some tests are impractical

Two Compelling Drivers For Test Automation

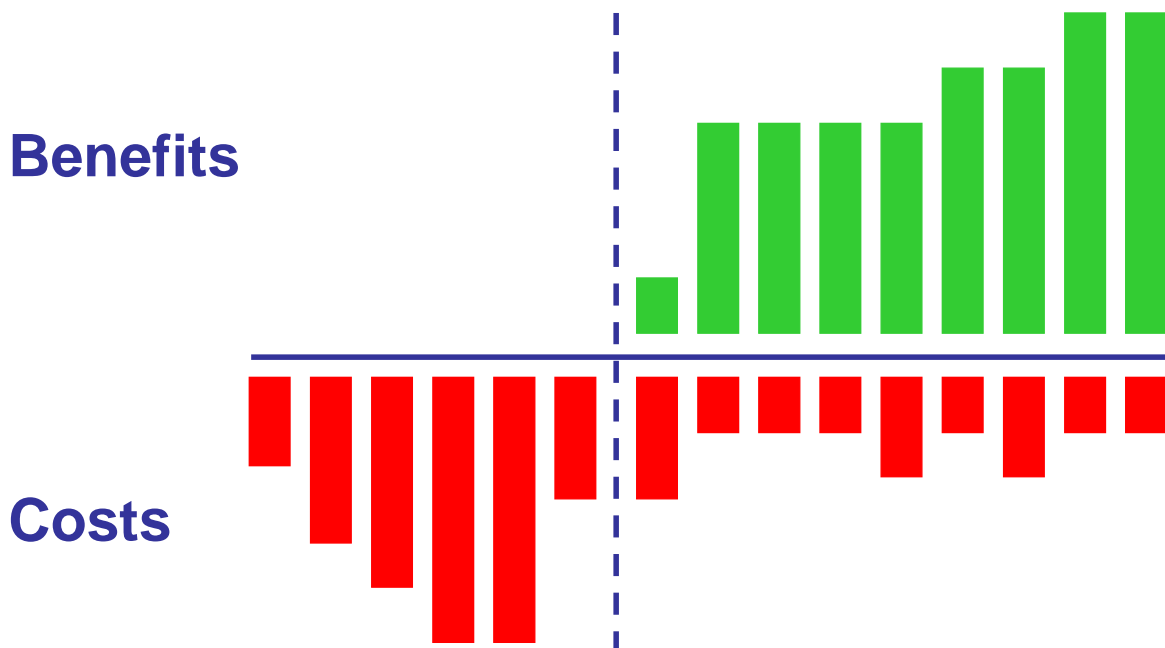


The need for repetitive test execution

Manual execution of some tests is impractical



Test Automation as an Investment Decision



Test Automation Risks

- Insufficient time and resources
- Lack of skills
- Volatile requirements
- Requirements difficult to test
- Changing technology



Guaranteed

Test Automation Myths



Guaranteed

- Capture-replay
 - Automates testing
 - Replaces skilled testers
- Testing can be fully automated
- One test tool is suitable for all tasks
- Tools are “easy to use”
- Immediate reduction in effort

Test Automation Tools

www.autoitscript.com

The screenshot shows the AutoIt website homepage. At the top is the AutoIt logo and a navigation menu with links for HOME, AUTOIT V3, FORUM, WIKI, GIFT SHOP, and CONTACT. The main content area is divided into two columns. The left column contains a sidebar with links for 'AutoIt v3' (Home, Downloads, Graphics & Wallpapers, Forum, Online Documentation, Make a suggestion, Make a bug report, AutoIt v2 (Legacy version)) and 'AutoIt Editor (SciTE)' (Home). Below the sidebar are buttons for 'Download AutoIt v3' and 'DONATE! Help with our hosting bills!'. The right column features a 'News' section with a list of updates, including the release of AutoIt v3.3.6.1 on April 16, 2010, and recent changes like better Unicode support. Below the news is an 'Introduction' section with the AutoIt logo and a paragraph describing it as a freeware BASIC-like scripting language for automating Windows GUI tasks. A second paragraph explains its design for PC 'roll out' situations.


Test Automation Tools

seleniumhq.org

The screenshot shows the SeleniumHQ website homepage. At the top is the SeleniumHQ logo and a search bar. Below the logo is a navigation menu with links for Projects, Download, Documentation, Support, and About. The main content area is titled 'Get started with Selenium!' and features a list of steps: 0. Watch: see the magic. (with a video player and a red circle around the text), 1. Begin: write and run tests in Firefox. (with Selenium IDE description), 2. Customize: your language, your browser. (with Selenium Remote Control (RC) description), and 3. Deploy: scale out, speed up. (with Selenium Grid description). To the right is a large Selenium logo with a green checkmark, followed by the text 'Selenium is a suite of tools to automate web app testing across many platforms.' Below this is a list of features: runs in many browsers and operating systems, and can be controlled by many programming languages and testing frameworks. At the bottom right is a 'Download Selenium 1.0' button and the Sauce Labs logo.


Test Automation Tools

fit.c2.com



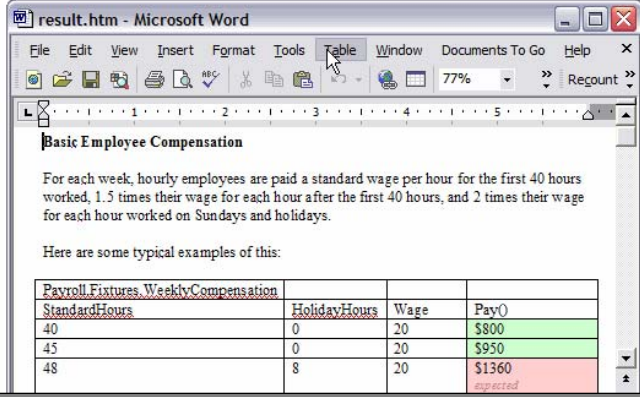
Welcome Visitors

Fit: Framework for Integrated Test



Great software requires collaboration and communication. Fit is a tool for enhancing collaboration in software development. It's an invaluable way to collaborate on complicated problems--and get them right--early in development.

Fit allows customers, testers, and programmers to learn what their software *should* do and what it *does* do. It automatically compares customers' expectations to actual results.



The screenshot shows a Microsoft Word window titled 'result.htm - Microsoft Word'. The document content includes a section titled 'Basic Employee Compensation' with a paragraph explaining that hourly employees are paid a standard wage per hour for the first 40 hours worked, 1.5 times their wage for each hour after the first 40 hours, and 2 times their wage for each hour worked on Sundays and holidays. Below this is a table with the following data:

Payroll.Fixtures.WeeklyCompensation	StandardHours	HolidayHours	Wage	Pay()
	40	0	20	\$800
	45	0	20	\$950
	48	8	20	\$1360

Test Automation Strategies

- Capture replay
- Test scripts
- Data driven
- Keyword driven



Demo

Capture Replay Issues

- Test data hard-coded in script
- Sensitive to changes in the user interface
- No comparison of expected and actual results
- Re-capture takes as long as the original capture
- Hard to manage many small isolated scripts

Test Automation Strategies

- Capture replay
- **Test scripts**
- Data driven
- Keyword driven



Demo

Test Script Issues

- Test data hard-coded in script
- Expected result hard-coded in script
- Hard to manage many small isolated scripts
- Format of the data is hard-coded
- Each test requires a script
- Need a control script to sequence and launch test scripts
- Logging of test results embedded in every script
- Lack of reuse in scripts

Test Automation Strategies

- Capture replay
- Test scripts
- **Data driven**
- Keyword driven



Demo

Data Driven Issues

- Format of the data is hard-coded
- Each data format requires a script
- Comparison of expected and actual results split between test data and script
- Need a control script to sequence and launch test scripts
- Logging of test results embedded in every script
- Dependency between test cases is hard-coded in the control script
- Lack of reuse in scripts

Demo

Test Automation Strategies

- Capture replay
- Test scripts
- Data driven
- **Keyword driven**



Keyword Driven Issues

- Need a control script to sequence and launch test scripts
- Logging of test results embedded in every script
- Dependency between test cases is hard-coded in the control script

Automating Software Testing Myths, Benefits and Tools

Questions