

AUTOMATING BOARD LEVEL FUNCTIONAL TEST FOR A LEADING UK BASED MANUFACTURER OF LABORATORY ANALYTICAL INSTRUMENTS

A CyFast Case Study

Overview

Cyient engaged with an organization in the pharmaceutical and life sciences domain, with a strong position as an international leader in precision measurement and analytics. The customer engaged Cyient to verify and validate their laser diffraction particle size analyzers, which set the standard for delivering rapid, accurate particle size distributions for dry and wet dispersions. Customer faced a challenge wherein they were required to manually execute verification protocols, resulting in several errors in setting up test environments and verifying results.

As part of its test automation accelerator CyFAST, Cyient offered a solution aimed at automating and executing 60% of manual verification protocols with simple business-readable test scripts in a Gherkin language. It also had the ability to communicate with test devices via CAN bus. Additionally, CyFAST provides easy configuration of remote test execution environments, customized reports and intuitive traceability.

The Challenge

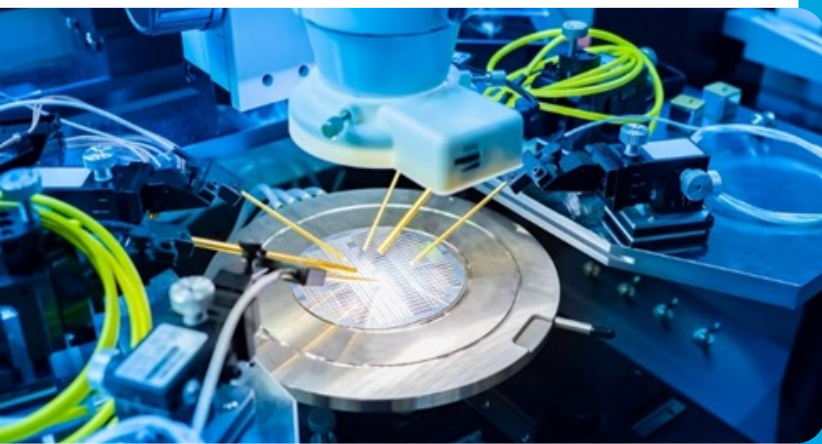
- The existing testing process relied heavily on manual intervention, requiring testers to open CANalyzer software, enter test-related details such as CAN ID and CAN Data Frame, and manually verify the response. This manual approach was not only time-consuming but also prone to human errors.
- The manual testing process was inefficient and time-consuming, leading to significant delays in test execution.

The Cyient Solution

- Cyient developed a custom CAN-based library designed to establish communication with the Hydro EV Accessory. This custom library served as the backbone of the testing solution and played a crucial role in automating and improving the efficiency of the testing process.
- The custom CAN library was seamlessly integrated with Robot Framework, a popular open-source test automation framework. This integration allowed for efficient and flexible test automation within a user-friendly framework.
- The testing approach adopted a behavioral-driven methodology, where tests were written in plain English statements. This approach simplified the test creation process and made it more accessible to non-technical team members. Test cases were defined in a human-readable format, enhancing collaboration and understanding among team members.
- Test scenarios included sending CAN frames to the target hardware, receiving response CAN frames, and verifying these responses by comparing them with expected values. This comprehensive testing approach covered the entire communication process, ensuring that the hardware responded as expected to various inputs.
- A crucial aspect of the solution was the introduction of traceability. Each test case was meticulously mapped to specific requirements, enabling a clear and structured way to trace the testing process back to the original specifications. This traceability feature greatly enhanced quality control, making it easier to confirm that all requirements were met.

The Results

- CyFast automated 60% of the test cases, reducing the dependency on manual testing. This resulted in significant reduction in test execution time, with 50-60% savings in terms of execution time for accessories. The manual time was reduced from 388 minutes to 145.5 minutes for 97 out of 164 total tests, thus enhancing efficiency and productivity.
- The solution generates test reports in multiple formats, enhancing communication and documentation of test results. This allowed them to be easily shared with stakeholders. The solution introduced risk-based impact analysis for prioritizing test case execution and planning. This ensured that critical test cases received priority, reducing the likelihood of missing crucial issues during testing.



DESIGNING TOMORROW TOGETHER

To ensure the software is thoroughly tested and dependable, having lengthy testing cycles, proficient test engineers, and allocating adequate time, effort, and funding have become imperative.

CyFast offers a brilliant cross-platform solution with capabilities for Distributed Testing, Customizable Reports, and End-to-End Traceability, ensuring high flexibility and scalability for customers' ongoing needs. We, at Cyient, are evolving CyFast towards "Future needs of Automation Testing with Cognitive Intelligence".

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Cyient (Estd: 1991, NSE: CYIENT) partners with over 300 customers, including 40% of the top 100 global innovators of 2023, to deliver intelligent engineering and technology solutions for creating a digital, autonomous, and sustainable future. As a company, Cyient is committed to designing a culturally inclusive, socially responsible, and environmentally sustainable Tomorrow Together with our stakeholders.

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