AVISTO
EASTERN EUROPE

Servo Drives Firmware Verification

90% of tests are automatically executed

Case Study: Servo Drives Firmware Verification

FW Verification

Firmware verification takes an important part in the development process of an industrial automation device in order to make sure that the device meets the desired level of quality and to make sure that requested features are met.

Therefore, AVISTO Eastern Europe team consists of experienced embedded and industrial automation engineers, which enables us to provide a full range of services to our clients.

Comprehend the Client
Profound understanding of client's main pain points, problems and goals.

Goal
Prevent SW bugs to enter the production.

Solution
Develop different test methodologies, test the software in different test environments, report bugs and issues noticed during the test cycles.

Results
Delivered software is bug/ issue free and quality requirements are met.

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Comprehend Client

Profound understanding of client's main pain points, problems and goals.

Industrial Automation

Multinational company

Our client is a multinational company which provides software, hardware and services in the field of industrial automation.

They are one of the leaders in this field. Beside industrial automation, they also address home and building automation, data centers and infrastructure.

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Goal
Increase number of automated tests.

SW QA services

Expertise in software testing

The client has three-week-long sprints. In each sprint, one firmware version is built.

Due to manual testing the client was spending a lot of time on verification of each version. Consequently, a lot of functionalities were not covered.

Our primary goal was to conduct **Firmware Verification** and in order to do so, we have proposed:

- o to build a test system (hardware part),
- o to automate tests (mostly regression tests), and
- o to develop new tests for new functionalities.

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Solution

Developing brand-new test systems.

Tasks & Responsibilities

Test environment design

During the **three years of our cooperation**, we have been in charge of **ensuring quality** for one of the customer's main products – **servo drives**. We built **one huge test rack** with dozen of motors and servo drives. Project highlights:

- o Complete hardware for testing (mechanical and electrical part) was **designed by AVISTO Eastern Europe** and it was manufactured locally;

- o Mechanical design was done in **Autodesk Inventor Professional**;

- o Electrical design was done in **EPLAN P8**;

- o Test rack is modular and portable.

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Solution

Developing brand-new test systems.

Process flow:

- Testing framework is located inside customer's application, which is dedicated for **PLC programming**.

- All tests are written in **Structured Text** (ST) which is one of the five languages supported by the **IEC 61131-3 standard**, designed for PLCs. Tests are running automatically after new FW versions are built.

- Automatic running is done **by using Jenkins** as an automation server, with the help of **Python** scripting and **SVN** as a versioning system.

- FW update on the drives is done by **TestComplete**, an automated UI testing tool. After each run, **HTML test reports** with clear results are automatically sent to desired email addresses.

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Results
Delivered software is bug/ issue free and quality requirements are met.

3 years of successful cooperation
More than 30 verification test runs

Preview of the results achieved after three years of successful collaboration, which has been continued and expanded on new projects.

- More than **40 industrial devices integrated**;

- Almost 200 tests running for each sprint verification;

- 40% increase in test coverage;

- **90% of tests are automatically executed**;

- 9 additional device functionalities are covered with new tests.

ABOUT US

AVISTO Eastern Europe

AVISTO Eastern Europe is a service provider that focuses on empowering Industrial automation and Semiconductor projects by offering tailored made solutions in areas of Embedded Systems, Test Automation, Application Software and DevOps.

Established in 2007, AVISTO currently operates three design centers in Serbia and boasts a strong network of experienced engineers empowered by high level of technical adaptability to meet the specific requirements and demands of clients' projects.

As a French company and a member of the Advans Group, which comprises over 1000 engineers, AVISTO can deliver comprehensive product-based development support to clients at the enterprise level.

THANK YOU

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