AVISTO
EASTERN EUROPE

SW VALIDATION CONVEYED BY QA SERVICES

Case Study: SW validation conveyed by QA services

SW QA services

QA takes important part in the software development process in order to make sure that final product meets desired level of quality and to make sure that requested features are met.

- Smoke testing
- Functional testing
- Performance testing
- Regression testing
- Acceptance testing

- Code stack and tools migration
- Test tools development

Comprehend the Client
Profound understanding of clients' needs 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 clients' needs and goals.

MEMS

Multinational company specialized in sensor SoC

Our client is multinational company that provides products in semiconductors and consumer electronics industry around the globe.

A world leading provider of MEMS sensor platforms.

Client solutions combine MEMS (micro electrical mechanical systems) sensors, such as accelerometers, gyroscopes, compasses, and microphones with proprietary algorithms and firmware that intelligently process, synthesize, and calibrate the output of sensors, maximizing performance and accuracy.

Its' motion tracking, audio and location platforms, and services can be found in **Mobile, Wearables, Smart Home, Industrial, Automotive, and IoT products.**

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Goal

Prevent SW bugs to enter the production.

SW QA services

Expertise in software testing

The client implemented an in-house custom-tailored processes in software production that has a goal to ensure high quality hardware and software solutions to their customers in a timely manner.

QA takes important part of the software production cycles.

Avisto Eastern Europe is recognized by the client as a reliable partner in one of the most important segment of the software development process – QA.

Motion, Fingerprint, IoT and Algorithm BU's started collaboration with us for SW QA.

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Solution

Develop test methodologies, test SW in different environments, report bugs and issues.

Tasks & Responsibilities

Test framework maintenance / Automation / Execution / Reporting

During the four years of our cooperation we had been in charge of ensuring quality for wide variety of products.

- Specifically, for some products we started from **developing test architecture**;

- For another we **designed** and **developed test framework** from scratch, while test architectures was already defined;

- Hence, for some products we **upgraded** and **maintained existing test frameworks**. All test frameworks are written in Python.

We also designed, developed and automated new test cases.

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Solution

Develop test methodologies, test SW in different environments, report bugs and issues.

Tasks & Responsibilities

Test framework maintenance / Automation / Execution / Reporting

On daily basis we **executed tests**, **report bugs** and **follow up until resolution is implemented**, using tools like git, JIRA, TestRail, Jenkins and Confluence.

Significantly improved test execution as well as **test result visualization.**

At one point due to industry trends, it was mandatory to transfer complete test SW stack from Python 2 to Python 3. As well as to migrate from Redmine to JIRA and TestRail.

The important task for our client was tool investigation and testing, which provided our client with an expert opinion on the best tool per specific situation.

We mainly used Python, C#, C++, JavaScript, HTML, CSS. Tests were executing on Windows, Linux and Android OS.

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Solution

Develop test methodologies, test SW in different environments, report bugs and issues.

Tasks & Responsibilities

Test framework maintenance / Automation / Execution / Reporting

	Motion	**Fingerprint**	**IoT**	**Algorithm**
Tasks	• Upgrade and maintain test framework • Design and develop new test cases • Execute tests, report bugs and follow up until bug is resolved • Transfer test framework Python 2 to Python 3 code stack • Migrate from Redmine to JIRA and TestRail • Improve test execution and visualization	• Upgrade and maintain test framework • Design and develop new test cases • Execute tests, report bugs and follow up until bug is resolved	• Create test architecture • Design, develop and maintain test framework • Design and develop`new test cases • Execute tests, report bugs and follow up until bug is resolved	• Maintain test framework • Design and develop new test cases • Execute tests, report bugs and follow up until bug is resolved
OS	Windows, Linux, Android	Windows, Linux	Windows	Windows, Linux
Tools	Python, C++, C#, JavaScript, HTML, CSS, JIRA, TestRail, Jenkins, Confluence	Python, JavaScript, HTML, CSS, JIRA, TestRail, Jenkins, Confluence	Python, C++, JavaScript, HTML, CSS, JIRA, TestRail, Jenkins, Confluence	Python, C++, JavaScript, HTML, CSS, JIRA, TestRail, Jenkins, Confluence

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Results

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

> 400 completed test cycles

Helped solving more then 3500 issues

More then 400 completed test cycles;

Tested more then 100 different devices (more then 60 new);

Maintenance over 3500 issues;

Code stack transferred from Python 2 to Python 3;

SW robot for GUI testing:

- Test cycle reduced 10 times (from 10 days to one day).

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Results

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

80% of time decrease
in issue finding

New method for **identifying bottlenecks** in sensor communication using graph theory and K-Means clustering (**AI**):

- Issue finding time decreased 80%

- Brought visibility in complicated environment and directly isolate fault sensors

- Significant improvement of test results analyze (before was Excel with 1000s of entries)

New method for supervision of performing motion test sequences using computer vision

- Test failed because of bug in FW or incorrect motion sequence?

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Results

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Four years of successful cooperation

Cost reduction from 10k to Zero

Decrease cost for testing tools (from more then 10K€ to 0)

- Replace some costly tools with in-house developed;

- Evaluate different test tools available on the market.

Decrease power measurement time in Windows OS **by 50%**

- Utilizing equipment which is designed to work in Linux.

Educate customer in test methodologies, tools, etc.

ABOUT
Avisto Eastern Europe

Avisto Eastern Europe is a service company specialized in software engineering with extensive expertise in the area of Applicational Software, DevOps, Embedded Software and Quality Assurance & Automation. Established in 2008 as a fully owned subsidiary of Avisto, a French-based company and a member of Advans Group, Avisto Eastern Europe with its development centers in Belgrade and Novi Sad (Serbia) successfully delivers complex projects and provides support to top-notch international enterprises, highly specialized mid-size businesses, and startups.

Visit us at www.avisto-eastern.com