Robot Aided Testing
– Efficient Testing for Complicated Systems

Internet of Things (IoT) brings new business opportunities, but it also increases complexity for solutions. Instead of closed systems there are now applications for each operation system that need to work seamlessly with different terminals with embedded software.

Quality assurance (QA) is an important part of product development. When bugs are detected during the development phase the product meets exit criteria earlier and the payback time for QA investment is short.

Quality Assurance by Robot Assisted Testing service QARAT

In order to respond to testing challenges of the most complex IoT solutions Symbio has developed Quality Assurance by Robot Assisted Testing service QARAT. QARAT is a perfect solution for companies with testing needs for:

- Embedded software via human interface

- Compatibility between and via operation systems: Android, iOS and Windows

- Complex systems requiring end-to-end testing from devices to cloud

QARAT offers you an incredible opportunity to operate a great deal of QA related operations on autopilot while providing customers efficiency and accuracy. Acquiring the service is easy as we deliver all the needed knowledge on testing and equipment for our customers.

QARAT service includes

- Management
- Test planning
- Robot
- Reports
- QA metrics

QARAT Benefits

1. QARAT is at its best 24/7 and on autopilot

There is no need for instrumentation thanks to its device and application agnosticism. It operates to test the device under test (DUT) as an end user would. But it is far more capable of executing the sequence unlimited number of times with exact precision as designed. This ensures faster and efficient testing cycles.

With one time set up the testing cycles can be executed unlimited number of times with accuracy which in turn results in end user satisfaction promoting productivity. Due to the very nature of the QARAT solution there is almost no support and maintenance costs.
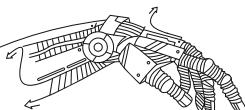
2. Non-intrusive method for more precise results

Since the QARAT solution is external to the DUT so the testing is more accurate compared to an instrumented testing system and thus provides far more trust-worthy results. It also operates following the non-intrusive black box testing methods so there is no risk of issues brought in by compromised security during testing.

## 3. Multi-device testing with improved consistency

A QARAT solution is capable of inter-acting with multiple devices in the same testing environment and thus saves resources while making efficient use of them. Furthermore, each step in the testing process can be fine-tuned, tracked and recorded to get the best possible analysis of the results unlike a manual testing setup where environmental factors may highly influence a human being and finally the outcome of the tests.

Customer Case: Need for precise testing results for sensor product

One of our customers opted in to benefit from QARAT service. This customer specializes in measurements and monitoring promoting sustainable development while ensuring environmental safety for demanding municipal and industrial sites. The tested product is an alarm solution for sensors inside a tank monitoring remotely a liquid level. Company enjoys providing the end customer software products with great reliability and usability while without skimping on performance.

QARAT system makes a new firmware distribution as easy as pushing a button on the continuous delivery system. This also allows for our client to be on time with their releases, be it a hot fix or a new release.

Before a firmware is distributed to the desired end points the software product goes through a set of automated checks and gates ensuring important data collection, bug reporting, verification and machine learning to facilitate further software development and enhancements.
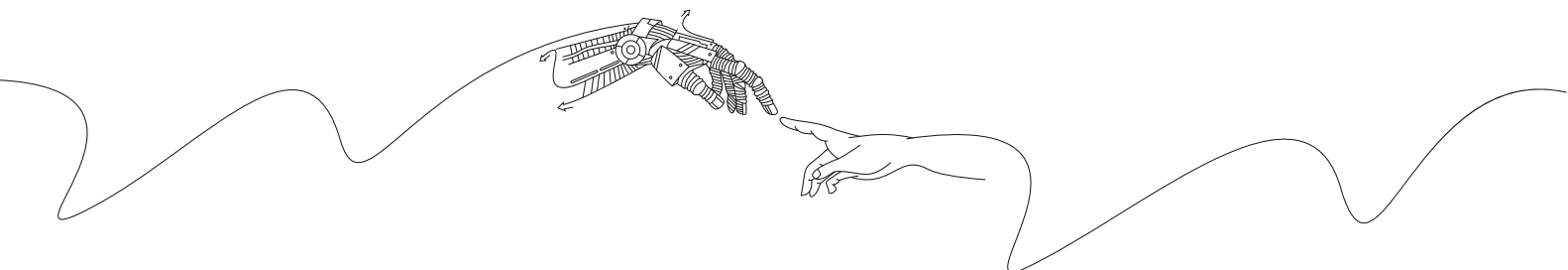
Customer case: QARAT covers all the required QA areas

The customer utilizes an End-to-End software product delivery involving the following areas of automation in its primary stage.

1. Software package integrity verification and successful software installation

Software package installation scenarios differ depending on the different IoT devices. QARAT system is capable of handling any number of steps in the process. Here are some common stages and scenarios:

· Preinstallation

· Complete installation

· Patch installation and upgrade

The software can be only be installed only when the software passes the verification for its integrity and compatibility. If the software does not pass the verification even when it is intended an automated set of maintenance measures are completed including bug filing and reporting for further actions.

2. Smoke testing of the software package

When the software package is successfully installed then it is smoke tested. In this stage of the automated process the software is treated as an end user would use it for a set of scenarios, i.e. the sanity checks.

· Component level

· System level

3. Regression testing and analysis

In addition to performing smoke or sanity checks, regression scenarios are also executed focusing on the repeatability, functionality and the stability of the features and the device.

4. Non-functional testing

In addition to preforming functional testing to ensure conformity of the requirement specifications, performance, usability and reliability of the system is also checked to offer the users a top-notch user experience.