

Service ID S00285



Location At user's premises, Poland

Performance Testing of Robotic Systems and AI Solutions

Provider service

Lukasiewicz Poznanski Instytut Technologiczny (L-PIT)

Link to content

<https://agrifoodtef.eu/catalogue-of-services/performance-testing-robotic-systems-and-ai-solutions>

Type of Sector

Arable farming, Food processing, Greenhouse, Horticulture, Livestock farming, Tree Crops, Viticulture

Accepted type of products

Design / Documentation, Physical system, Software or AI model

Type of service

Collection of test data, Data analysis, Desk assessment, Performance evaluation, Test design, Test execution, Test setup

Description

We provide physical testing services, under both laboratory and field conditions, to assess the proper performance of the object under test, the level of quality, and the performance achieved. These tests focus on evaluating the performance of an object under laboratory and operational (field) conditions while maintaining its proper functionality. Our testing process helps identify potential weaknesses in the design of the device, offering insights that can inform adjustments to algorithms or hardware. This service aims to ensure that systems perform reliably under a variety of conditions, helping to prevent failures and maintain optimal performance in real-world applications.

How can the service help you

Our testing service provides verification of the correct performance of the assumed tasks and activities by the test facility and an assessment of the quality of their performance. By undergoing laboratory and field testing, you will receive valuable feedback on the impact of external conditions on the performance of your product, allowing you to make the necessary adjustments before implementation.

This can reduce downtime, extend operational life, and improve the overall reliability of the solution. Testing can also allow you to select the right working component solution if you are investigating several design solutions for such components.

How the service will be delivered

Our service offers customised testing for devices, robots, and AI-based systems. In addition to physical testing, we offer the possibility to analyse the technical documentation of the object in terms of compliance with safety requirements. We offer laboratory and field functional tests that allow a broad determination of the quality and performance parameters of the object under test under different conditions. We offer tests focused on the analysis of changes and behaviours of specific elements with the possibility of expanding the measurement equipment and applying advanced data analysis techniques.

We require a fully functional prototype and complete technical documentation. There are limitations regarding the dimensions and weight of the devices, and some tests may require prior resource reservations. All information is treated confidentially, with the option to sign a non-disclosure agreement (NDA). Please be aware of the risk of prototype damage during endurance tests. If the tests need to comply with specific industry standards or regulations, kindly inform us in advance. The timeframe and costs are determined individually based on the scope and complexity of the tests. We ensure flexibility and professional support at every stage of the testing process, including both physical and virtual analyses. Please feel free to contact us to discuss the details and tailor the service to your unique needs.

Service customisation

Our service is based on a structured process for a thorough evaluation of a robotic or AI-integrated system:

- You provide a functional prototype or research model of your solution, along with any previous analysis of its performance, to help identify sensitive functions and kinematic capabilities.
- A comprehensive system analysis is carried out, considering specific guidelines and expectations. This allows us to identify the necessary materials and testing methods, focusing on the robotic components and artificial intelligence algorithms used in the product.
- A detailed test plan is developed, defining the scope, methodology, and schedule of activities. This plan is discussed with the client and approved before testing commences.
- Tests are carried out using professional measurement equipment under laboratory or operational conditions, as required. Measurements include the range of working movements, gripping force, and the duration of working movements. The condition of the crop before and after the operation of the robot, as well as the quality and condition of the material collected, are also evaluated. This will allow an assessment to be developed of the quality and productivity of the facility's work.
- An optional simple report or protocol is prepared containing test results of performance and process qualification. - Post-test support is offered in the form of workshops or consultations for the team to discuss the results and proposed improvements. The process is flexible and tailored to specific needs, ensuring professionalism and commitment at every