

Service ID S00284



Location At user's premises, Poland

Physical Testing of Endurance & Reliability

Provider service

Łukasiewicz - Poznański Instytut Technologiczny

Link to content

<https://agrifoodtef.eu/services/physical-testing-endurance-reliability>

Type of Sector

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

Accepted type of products

Design / Documentation, Physical system

Type of service

Collection of test data, People training, Performance evaluation, Provision of datasets, Test design, Test execution, Test setup

Description

We provide physical testing services, both in laboratory and field environments, to evaluate the endurance and reliability of devices and their components. These tests focus on the ability of components to withstand external conditions while maintaining proper functionality. Our testing process helps identify potential weaknesses in device design, offering insights that can inform adjustments to algorithms or hardware. The service is designed to ensure your systems can 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 ensures that your devices and components are robust and reliable in challenging environments. By undergoing endurance tests, you will receive valuable feedback on how external conditions impact your product's operation, allowing you to make necessary adjustments before deployment. This can reduce downtime, increase operational lifespan, and improve the overall reliability of your solution.

How the service will be delivered

Our service offers customisation of endurance and reliability tests for robotic and AI-based systems according to your individual needs. In addition to physical testing, we provide the option of conducting advanced Finite Element Method (FEM) analyses on virtual models. These analyses help identify critical points in the structure that may affect durability and reliability concerning the implemented robotic or AI solutions. We can simulate specific environmental conditions such as temperature, humidity, or vibrations and also conduct tests at real-world locations specified by you. We offer long-term testing focused on specific components or AI integration, with the possibility of expanding measurement equipment and applying advanced data analysis techniques. Test reports are personalised and can be supplemented with workshops and training for your team.

Service customisation

Our service follows a structured process to thoroughly assess your robotic or AI-integrated system:

- You provide a functional prototype or research model of your solution, along with any previous durability analyses to help identify critical structural points.
- A comprehensive analysis of your system is conducted, considering your specific guidelines and expectations. This allows us to determine the necessary materials and testing methods, focusing on the robotic components and AI algorithms used in your product.
- A detailed test plan is developed, outlining the scope, methodology, and schedule of activities. This plan is discussed with you and approved before proceeding.
- Testing is carried out using professional measuring equipment in laboratory or operational conditions, depending on your needs. Measurements include stress, mechanical vibrations, displacements, and structural deformations.
- The interaction between physical components and AI algorithms is analysed to assess the impact of integration on the system's durability and reliability.
- Collected data undergoes detailed analysis using advanced methods. Numerical research results are verified, and any weak points in the structure are identified.
- A comprehensive report is prepared, containing test results, analyses, and recommendations for optimising your system.