Service ID S00287

Location Poland

Support for testing safety devices for safe obstacle avoidance by autono

Provider service

Lukasiewicz Poznanski Instytut Technologiczny (L-PIT)

Link to content

https://agrifoodtef.eu/catalogue-of-services/support-testing-safety-devices-safe-obstacle-avoidance-autonomous-vehicles

Type of Sector

Arable farming, Horticulture, Livestock farming, Tree Crops

Accepted type of products

Design / Documentation, Physical system, Software or AI model

Type of service

Collection of test data, Conformity assessment, Data analysis, Data augmentation, Desk assessment, ELSA assessment, Pe

Description

Our service offers to provide specialised support for evaluating the behaviour of a self-moving robot or autonomous vehicle. As part of the service, the equipment and control systems will be verified for the maintenance of operational safety rules by analysing the correctness of stopping in front of obstacles. For this purpose, an advanced testing methodology based on the provisions of ISO 18497 will be used. During the tests, specialised equipment will be used to control the maintenance of the linearity of vehicle travel. Support will be tailored to the customer's needs in terms of providing the required control equipment and elements necessary for proper testing, such as model obstacles. These activities lead to increased automation efficiency and precision of controlled objects in agricultural applications.

How can the service help you

Our service provides the contractor with support to obtain an assessment of the maintenance of safety procedures for the operation of self-driving robots and autonomous vehicles owned by the contractor. The service is mainly aimed at customers who own robotic, autonomous devices for fieldwork, technological processes, or other applications in agriculture and agri-food domains. The service will verify the robot's ability to detect and stop in front of an obstacle. The tests will be carried out in accordance with the methodology prepared based on the requirements of the ISO 18497 standard. The customer, because of the service, will obtain a qualitative assessment indicating whether or not the current safety standards of its vehicle for avoiding and stopping in front of obstacles have been maintained. Preservation of these requirements will allow autonomous operation (driving) of the vehicle, the robot. If the requirements are not met, he will obtain information on the probable reasons for this and the possibility of adjusting, leading to the fulfilment of the assumptions by the tested vehicle.

How the service will be delivered

As part of the service, we offer the development of a methodology for the test course of autonomous vehicles in accordance with the guidelines derived from the provisions of the ISO 18497 standard for agricultural robotics/AI. As part of the service, we offer support for the testing of autonomous vehicles in terms of maintaining safety rules for stopping autonomously in front of obstacles. The testing will validate the performance of the control systems responsible for maintaining the autonomous operation of the tested devices.

An assessment of the tested self-driving autonomous object's compliance with normative safety rules for the behaviour of vehicles in the event of encountering an off-road obstacle is being developed.

Service customisation

Our service provides support for testing the safe movement of autonomous vehicles under the conditions in which they perform certain agrotechnical work.

The stages of its implementation are as follows:

- The recipient provides a description of the vehicle (test object), the technical and operational parameters of its operation, and its equipment in the form of the machinery or tools it uses in order to be able to determine the scope of the tests and the size of the test areas needed to carry them out.

The description should also include the relevant parameters, indicators, and limit ranges so that the range of input data and their configuration can be unified.- A comprehensive analysis of the problem is carried out, taking into account specific guidelines and expectations. This allows us to jointly determine the methodology for the appropriate activities of the service of defining the scope of the support process.

- A detailed plan is developed defining the scope, methodology, and schedule of activities. This plan is discussed with the client and approved prior to testing.