**"Field-testing and demonstration of Digital and Space based technologies with Agro-ecological and Organic practices in systemic innovation"**

# Precision Agricultural Robot for Agriculture 4.0

**agrobot, precision agriculture, agriculture 4.0, robotics**

**Greece**

The EU-funded PestNu project will deliver a precision agricultural robot that can operate in both greenhouses and open fields. The agrobot co-developed by CERTH-IKH will be able to navigate autonomously, avoid obstacles, fit in the tight rows in greenhouses, move on the heating pipes and lift its robotic arm 6 meters high. Its mission is to detect pests and diseases using AI algorithms (such as black aphids, whiteflies (developed by CERTH), botrytis' early detection (co-developed by CERTH-IKH) and spray the affected areas with high precision.

The agrobot addresses the rising needs of Agriculture 4.0, integrating innovations such as precision farming, IoT, big data analysis with AI and robotics in order to achieve greater production efficiency. The agrobots are autonomous machines that are able to carry out different agricultural tasks on the farm – from land preparation to harvesting – without direct human intervention. They are able to operate unsupervised in unstructured environments and can perform numerous activities such as autonomous precision seeding, mowing and pruning, picking and harvesting, monitoring and analysis and, last but not least, spraying and weeding. The PestNu agrobot focuses on the latter, while being modular and adaptable to be able to undertake other activities in the near future.

PestNu's agrobot will boost safety in agriculture, by distancing the farmers from the hazardous chemicals, will ensure reliability and repeatability in its accurate, high-quality work and promote sustainability by reducing the amount of wasted inputs and usage of water.



**Practice abstract n.3**

**PestNu's autonomously navigated precision agricultural robot for greenhouses and the open field**

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