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DEVELOPMENT OF A TRANSPORT SUBSYSTEM FOR AUTONOMOUS ROBOTS FOR PLANT PROTECTION SYSTEM

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Annotation. It is necessary to improve the efficiency of plant monitoring and protection processes to reduce pesticide inputs and reduce the chemical burden on the environment while maintaining the required level of food production. The task of designing, developing, testing and evaluating automated and robotic systems for effective weed and pest control aimed at reducing the use of chemicals, improving crop quality and improving the health and safety of industry workers is relevant. To effectively perform the task of monitoring the state of crops, it is necessary to develop a transport subsystem for an agricultural robot with a navigation and orientation system that provides autonomous movement across the field without the risk of damaging the plantings.

This article presents a block diagram of the transport platform of an autonomous agricultural robot, consisting of a set of sensors and effectors that provide orientation and navigation of the robot among the crops. A three-dimensional model of the location of sensors and effectors is also presented. A model of the transport platform control system based on the invariant of the neurocognitive multi-agent architecture is described. A program for the transport platform control system has been developed. It provides data collection and aggregation, messaging between the platform and the server, as well as displaying data on the user's screen. The proposed architecture of the transport subsystem will allow autonomous movement of robots in a partially observed non-deterministic environment over sufficiently long distances without the need for human control.

Keywords: robot, agricultural monitoring, autonomous navigation, transport platform

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