

Moldova

Technical University of Moldova

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Title

Smart System for Planting Agricultural Crops

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The Smart system for planting agricultural crops is composed of the Electro-Mechanical system (Figure 1) and the Hardware-Software system (Figure 2), and is part of the field of Intelligent and Digital Agriculture.

The Electro-Mechanical System (Figure 1) consists of the Metallic Case on which all the basic components are fixed, the Delta Arm that positions the System for Planting Agricultural Crops, the System for moving the robot consisting of four wheels and four DC motors that, when rotating, determine the speed and its direction of moving, the Intelligent Control System, the Video Camera and the autonomous Power Supply.

Description

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The Hardware System (Figure 2) consists of the set of Control Buttons that allow the selection of the system's operating mode, the Smart Control Unit based on the Jetson Nano Single-Board Computer and the Drivers board for controlling the motors of the Delta Arm device, and Driver - for controlling the system's movement motors in the activity space.

The Software part of the system performs an algorithm based on Artificial Intelligence models (Neural Networks, Fuzzy Logic and Evolutionary Computing) which provides for the acquisition of the image from the Video Camera, the processing and identification of the position of the agricultural crop planting system, the formation of command signals with the driving the Delta Arm device and moving the system in the activity space.