AUTOMATIC CONTROL SYSTEM FOR CROP CULTIVATION

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Nowadays, greenhouses are widely used, they permit to exclude the influence of climatic factors and to ensure a stable crop of fresh vegetables. For the large scale in the greenhouses is used the automation, that suppose the continuous controlling of climatic parameters as temperature, humidity etc.

In this paper was done the study about factors that influence the crop process and it was developed an automatic control system for crop cultivation. The designed system is a complex system that contains many logical, mechanical and power control elements. The core of the system is represented by two logical control units: the Raspberry Pi 3 mini-computer (RPi 3) and the Atmega328P microcontroller. The RPi 3 is responsible for implementing the general system control algorithms and for linking the system to the graphical interface. The ATmega328P microcontroller is responsible for driving DC motors. Mechanical construction is a CNC machine that has three movement axes. The motion is provided by „Faulhaber 2342l012CR" DC motors. It was done the synthesis of the proportional controller and the control algorithm was developed using the programming language C and implemented on the microcontroller. In the figure 1 it is presented the graphical representation of the system, with the axes displacement.
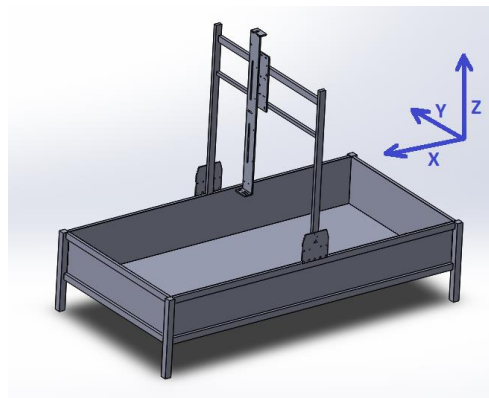

Fig.1 The graphical representation of the system.

Keywords: *crop cultivation, climatic parameters, automatic control system.*

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