



Soluții moderne de control și comandă cu ajutorul tehnicii laser pentru organele de lucru ale utilajelor terasiere

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The laser leveling technology has a series of important advantages over the classic technology: high precision, substantial diminution of the tracing effort, reduced on site implementation effort of the leveling project, reduced number of crosses which has significant implications in the time, fuel and labor effort consumption and the soil subsidence grade. In principle, control and actuation of the operating parts are achieved through the following components: the laser equipment (emitter and receiver sensor), electronic tracing and actuation module and the proportional electro hydraulic system. The results of our research consist in: setting a configuration for the laser control system on two groups of components: basic, which is valid for all hydraulic drive leveling machines and specific, which differs according to the mobility of the operating parts (scoops and blades); making an option for a leveling machine, in order to mount on this one the specific laser control system; making the hydraulic drive system of this machine compatible with the specific laser control system. Research activities will be carried on as follows: mounting the laser control equipment on a tractor grader; laying out the project for leveling the agricultural land which on tests will be carried; indoor tests on the laser equipment, under conditions of simulating the real behaviour on a machine; outdoor tests, under real operating conditions, on the leveling machine equipped with the laser system; quality analysis on the leveling work performed and functionality of the system. Research will not be directed towards designing and developing laser components, electronic or hydraulic ones, and specific to all leveling machines, which already have their top providers on a world level. It will aim to integrate these components within a modular system designed for use in agriculture and meant to raise efficiency of water consumption on agricultural lands.