



**“Gheorghe Asachi” Technical University of Iasi, Romania**



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## **IMPROVING THE PERFORMANCE OF A SENSOR TO MONITOR THE DYNAMICS OF THE HYDRAULIC CHARACTERISTICS OF SOIL**

**Constantin Victor Stătescu<sup>1</sup>, Florian Stătescu<sup>2\*</sup>, Dorin Cotiusca Zauca<sup>2</sup>**

*<sup>1</sup>Katolieke University Leuven, Belgium*

*<sup>2</sup>„Gheorghe Asachi” Technical University of Iasi, Faculty of Hydrotechnical Engineering, Geodesy and Environmental Engineering, 65 Mangeron Blvd., 700050 Romania*

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### **Abstract**

Soil hydraulic characteristics are variable, being influenced by climate changes. Research conducted until now in this area has been based on field soil sampling; their laboratory analysis using experimental techniques; and the use of models and programs for data processing and interpretation. The present research is based on the idea of incorporating smart sensors on site, each one having its own network address, accessible for any location. They can be programmed to send an alarm signal when the level of soil hydric regime is reached. To achieve this, we are looking for the implementation of new circuits designed for transmission and reception of signals coming from the sensor. They will be incorporated into a special designed chip of the respective sensor. The purpose of this paper is to implement a data and clock recovery circuit, suitable to work in a transmitter or receiver, integrated into a sensor and supporting communication speeds up to 8 Gbps. The circuit will be realized in a 90 nm CMOS (complementary metal-oxide-semiconductor) technology.

*Key words:* circuit information, hydraulic characteristic, sensor, soil

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\* Author to whom all correspondence should be addressed: e-mail: [fstatesc@yahoo.fr](mailto:fstatesc@yahoo.fr)