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AUTOMATIC SWITCHING MULTI-ELECTRODE ELECTRICAL RESISTIVITY PROFILING SYSTEM

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ABSTRACT

Electrical resistivity method is one of the most useful technique for groundwater exploration and shallow subsurface studies. Conventional DC resistivity sounding and profiling method is successful in resistivity survey but is weak in respect of spatial exposure. The multi-electrode resistivity technique is now fairly well established with respect to theory and practical applications. This paper presents laboratory model automatic switching multi-electrode electrical resistivity profiling system designed using PIC18F452 Microcontroller, 24bit ADC and analog multiplexers. Analog multiplexers are used for switching the electrodes. This model is designed based on the resistivity principle to acquire the resistivity data for groundwater exploration and shallow sub-surface studies in the lab. Data acquired is sent to the computer through serial port/USB.

KEYWORDS: Automatic Switching, Groundwater, Pic18f452 Microcontroller, Resistivity