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## and electromagnetic sensor array in several configurations for monitoring active volcanoes in Ecuador

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The scope of the prototype presented in this work was to create a compact and flexible sensor array, reliable enough to be used in volcanic monitoring. In order to achieve this objective, we used an Spartan-6 L X 45 FPGA as the base of the embedded system, getting the capability of continuous acquisition at a configurable velocity up to 50 kbps. In addition, the equipment has some features as 12 24-bit ADC channels available and expandable to 24 channels, USB and SD-card data storage, Ethernet communication port, LCD display for basic information and time synchronizing via external GPS. As a direct application of this prototype, a mathematical model based on the solution of Maxwell's equations was implemented to obtain a comparison pattern that was verified with the results obtained by field tests in the Chiles and Cerro Negro volcanoes and the processing of signals by software specialized in arrays.

### Promotional text

It is a new technique that is being applied in volcanic monitoring, in Latin America it has not been applied yet and Ecuador is a pioneer in applying it and compared to other techniques, good results are being obtained.

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