An inexpensive networked cosmic-ray detector

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The desktop muon detector designed by Axani et al. combines silicon photomultiplier (SiPM) scintillator readout and relatively inexpensive electronics into a comprehensive hardware project suitable for undergraduates or citizen scientists. We present a modification of the detector design that adds wifi connectivity using an ESP8266 module, allowing the detector to upload event information to a central server for later analysis. This connected design allows for distributed data collection and pooling of data from an arbitrary number of detectors. We demonstrate some of the basic tools for analyzing this data. This work is aimed at furthering physics outreach by building a global web of inexpensive cosmic ray detectors and a community of collaborative data analysis.