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A compact muon tracking system for didactic and outreach activities.

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We present a cosmic ray telescope based on the use of plastic scintillator bars coupled to Advansid Silicon Photomultipliers (SiPM) through wavelength shifter fibres. The system is comprised of 200 electronic channels organised into 10 couples of orthogonal planes allowing the 3D reconstruction of crossing muons.

Two monolithic PCB boards have been designed to bias and readout all the SiPMs enclosed in the system, to monitor the working parameters and to remotely connect the detector. To make easier the display of muon tracks to non expert users, two led matrices, triggered by particle interactions, have been implemented.

To improve the usability of the muon telescope, a programmable logic and a USB microcontroller permit to select different levels of trigger and allow data acquisition for refined analyses for the more proficient users.

A first prototype, funded by INFN-Gran Sasso National Laboratory and deployed in collaboration with New York University Abu Dhabi and Age Scientific, is operating at the Toledo Metro station of Naples, while two further detectors will be developed and installed in Abu Dhabi.

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