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Monitoring particle accelerators with wireless IoT

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Although wireless IoT devices are omnipresent in our homes and workplaces, their use in particle accelerators is still uncommon. Although the advantages of movable sensors communicating over wireless networks are obvious, the harsh radiation environment of a particle accelerator has been an obstacle to the use of such sensitive devices. Recently, though, CERN has developed a radiation-hard LoRaWAN based platform that can be adapted to support multiple sensors.

We report here on this platform, the deployment of an LPWAN network based on LoRaWAN technology in the underground areas at CERN, the infrastructure and tools developed to support device integration and data collection, and, finally, on some of the positive benefits that have been delivered through the use of these sensors in CERN's accelerator complex.

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