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Multipurpose IoT network watchdog device with capability of add on sensors for multi instrument field stations.

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Several stations (seismological, geodetical, etc.) suffer from communications problems, such problems create data gaps in real-time data transmission, also excess humidity and temperatures further than manufacturer limits, usually make components and circuitry, of expensive instruments, failure, and results to unaffordable service or unrepairable damage.

We create a low-cost opensource device that will raise the reliability of the stations and secure the instruments from severe damage, such a device installed as prototype at UOA (University of Athens) seismological station KARY (Karistos Greece) for a year and the reliability of the station raised tremendously, since then the device upgraded to provide wireless connection and IoT GUI (mobile app). A local server was built to serve all the devices uninterrupted and provide a secured network.

The software is fully customizable and multiple inputs can provide addon sensors capability, for example, gas sensor, humidity sensor, etc., all the data are collected to a remote database for real-time visualization and archiving for further analysis.

The shell which covers the circuitry is 3D-printed with a high temperature and humidity-resistant material and it's also fully customizable by the user.