

# LRWSN-hardware: The Long-range Wireless Sensor Network hardware

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In our computerized world, collecting years of data can be the key to meaningful scientific research, a thriving business, or even better security. But when the research involves recording data in the subfreezing temperatures of the Arctic or a business requires tracking pasture conditions over an expansive and remote cattle ranch, today's indoor data-collecting sensor networks aren't up to the job because they can't handle harsh outdoor environments. Until now.

The Long-range Wireless Sensor Network developed by researchers at Los Alamos National Laboratory and West Virginia University easily, efficiently, and affordably collects, processes, and transmits data in all kinds of rugged and remote outdoor environments — areas with few roads, little to no infrastructure, no electricity or cellphone service, or extremely cold or hot temperatures. In fact, the researchers have already demonstrated continuous operation of the sensor network in remote areas for up to five years.

This invention grew out of the Laboratory's decades of experience in developing rugged, low-power satellite components for a really remote and harsh environment: space. Now the Lab has applied this expertise to develop these novel long-range wireless sensor networks for harsh environments and low resource situations on earth.

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