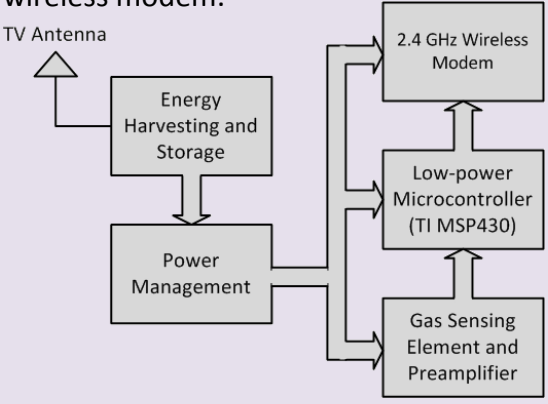


Energy scavenging wireless gas monitoring node

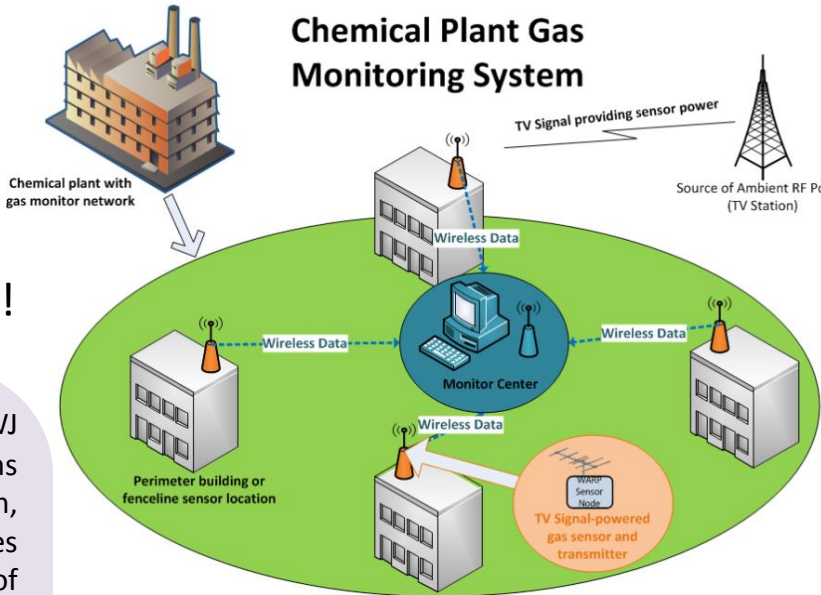
Harvesting power from thin air!

Using technology developed by KWJ Engineering and the Sensor Systems Laboratory at the University of Washington, this wireless gas monitoring node provides battery-free operation in the presence of radio frequency (RF) energy, a nearly ubiquitous energy source. Sensor data is wirelessly transmitted to a computer via a wireless modem.

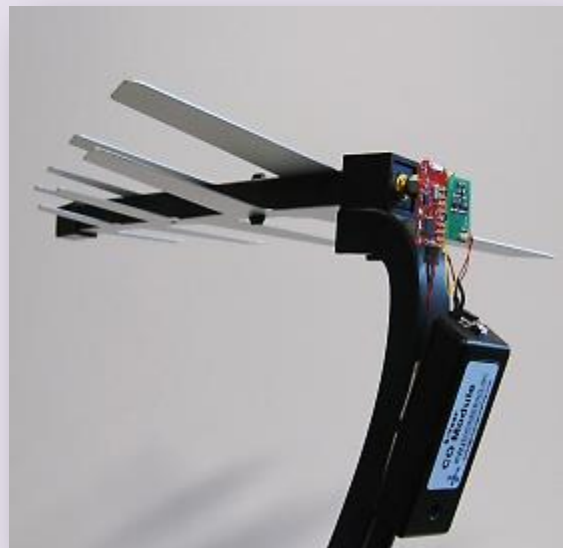


Due to physical constraints, an RF energy harvesting system can produce only around 50 μ W of power at distance of several kilometers from a typical TV transmitter. Because of this constraint on available power, the development of this sensor node required a power efficient sensing element. KWJ Engineering's series of advanced sensors made possible this ultra-low power operation. Additionally, an extremely low-power wireless data transmission modem was adopted to enable reporting of sensor data to a data hub or computer-connected access point.

Chemical Plant Gas Monitoring System



A network of these battery-free sensors could be utilized in a perimeter monitoring application. For instance, in a chemical manufacturing facility, sensing nodes could be placed around the perimeter of the facility, wirelessly transmitting sensor data to a plant monitoring station all while operating on harvested ambient RF energy. This would allow for large-scale deployment of sensor nodes without the need for battery replacement or maintenance.



A prototype of the gas sensing node