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**Project Title:** Sustainable Instrumentation

**Abstract:**

Though many wireless sensors use power harvesting to avoid troublesome batteries, traditional methods power sensors via cyclic, ambient energy sources (e.g. solar). These energy sources rarely coincide with the sensing source. Sustainable instrumentation combines the sensing and energy sources to power a wireless, water-pressure sensor for “sensing-source-power” and autonomous operation. That is, energy is generated via a mechanical system when relevant events take place and used to power the water-pressure sensor and wireless transmitter. In context, the sensor (called WATTR) must detect pressure spikes, record that data, and transmit it without significant losses upon receiving the data. Significant research has gone into the power harvesting circuit, which must convert intermittent voltage into low, constant current and the mechanical energy conversion system. The WATTR sensor classified 96.7% of water events and has a receiving rate of 70% at 15 feet.