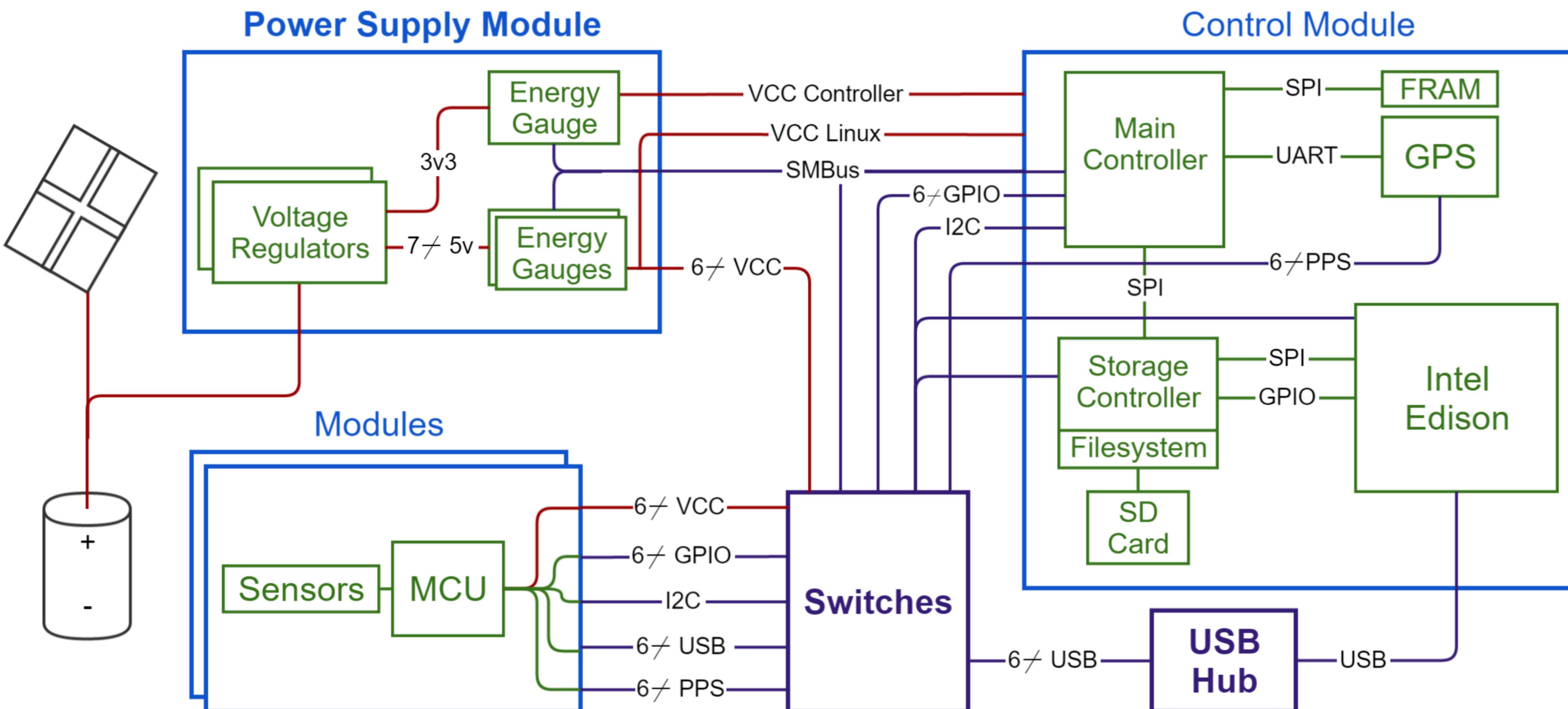




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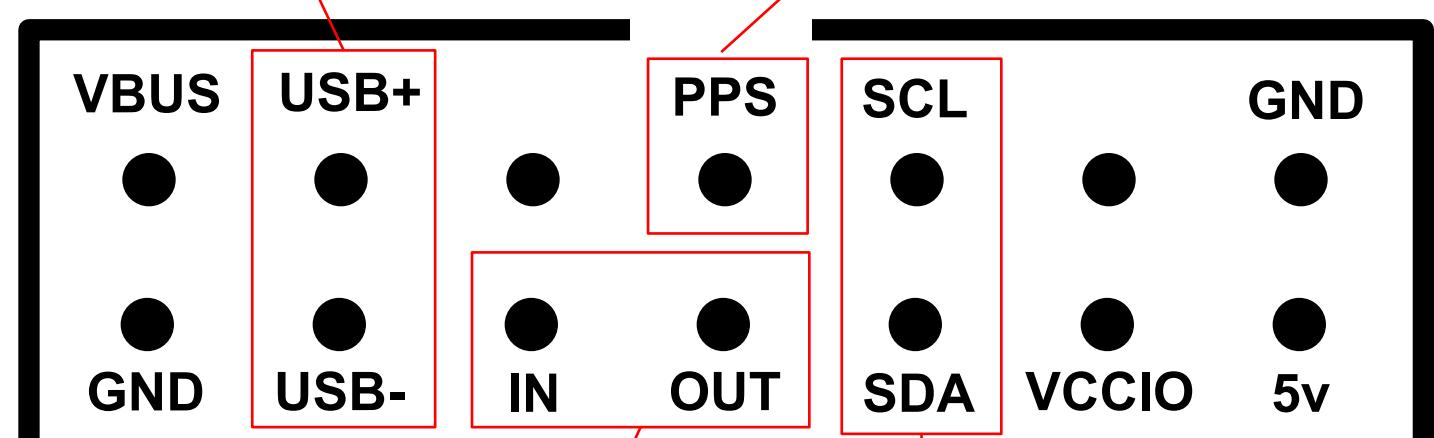
The signpost-based platform provides power, networking, storage, compute, and isolation to sensor modules through a standardized interface.



Interface. Sensor modules are added to the platform through a standard electrical and mechanical interface. The interface is designed to provide the necessary features we envision for modules.

USB enables high bandwidth communication between a module and Linux.

A GPS-based pulse-per-second signal provides global time synchronization.

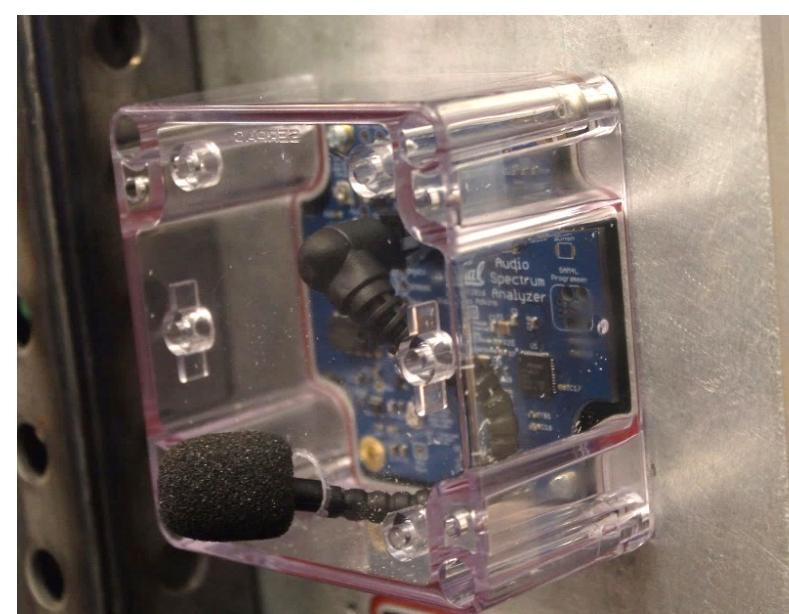


Bi-directional interrupt lines allow both the modules and controller to sleep.

A shared I²C bus provides simple, low-speed communication.



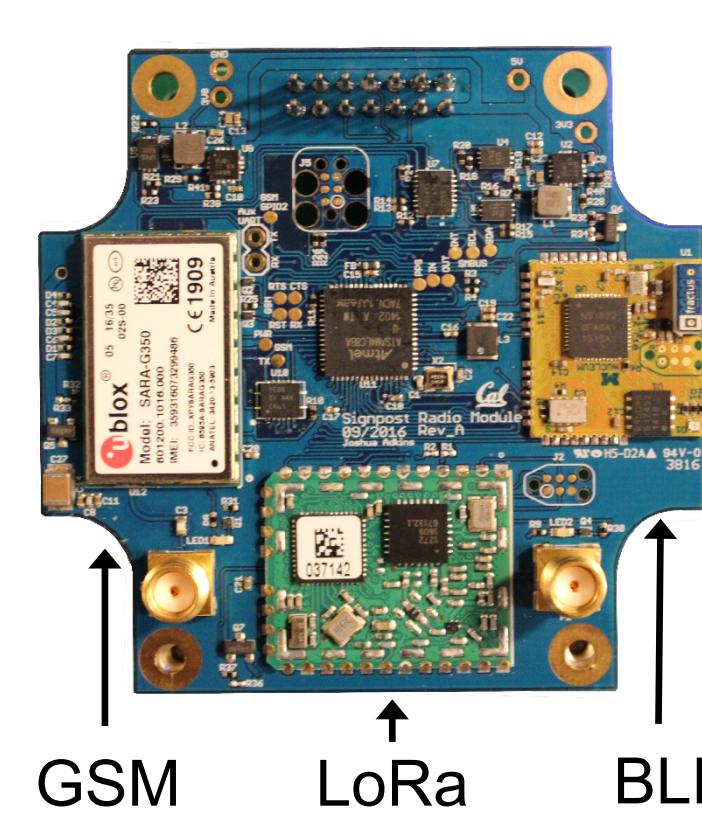
An off-the-shelf case seals modules to the waterproof sensing platform.



The case can be easily modified to accommodate different sensors.

Shared Resources. Providing power, networking, storage, location, and higher-performance computation **lowers the bar** to building and deploying a module.

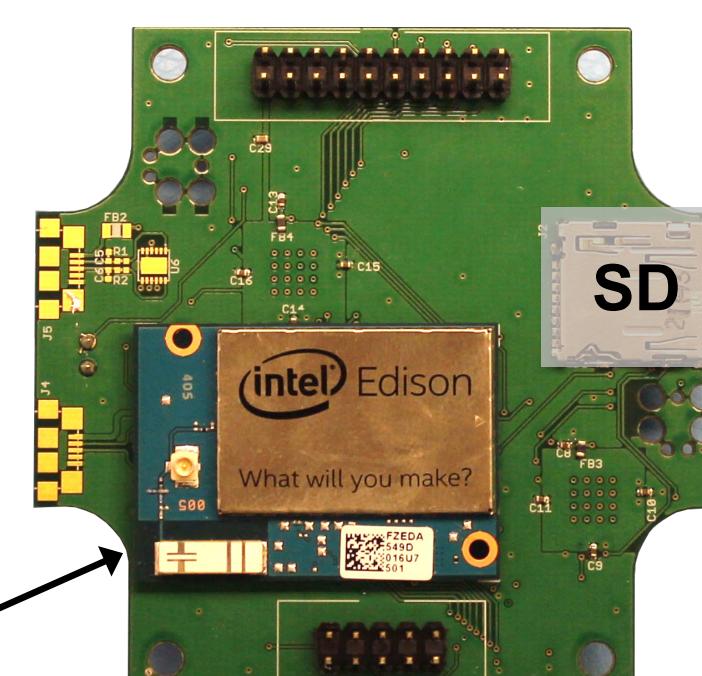
A radio module provides cellular (GSM), long range 915mHz (LoRa), and Bluetooth Low Energy (BLE) networking.



The controller provides non-volatile storage on an SD card and FRAM. It uses a GPS module to provide location and time data. The controller also manages and arbitrates power provided by the solar panel.

Modules will be able to access the general, higher performance computation of the Intel Edison through an in development RPC interface.

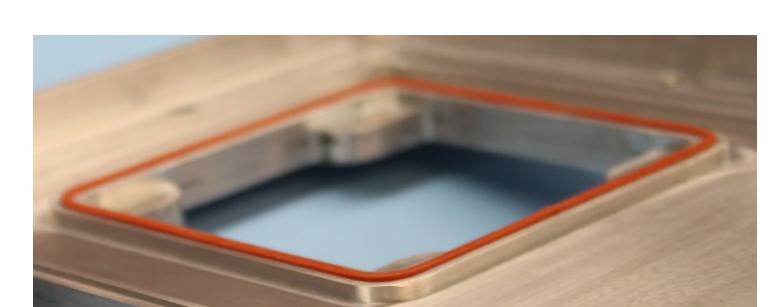
Intel Edison embedded Linux computer.



These components are the most technically difficult parts of designing a sensor system. The signpost platform does them for you.

Isolation. Integrated mechanisms for physical isolation, electrical isolation, and fair distribution of resources ensure reliability and security.

An internal o-ring attempts to isolate water damage to a single sensor module if a leak occurs.



The platform backplane allows the controller to completely electrically isolate a module.



This prevents faulty, malicious, or greedy modules from negatively impacting the entire signpost platform. It also allows a module to share private information (such as a key) on the shared bus.

