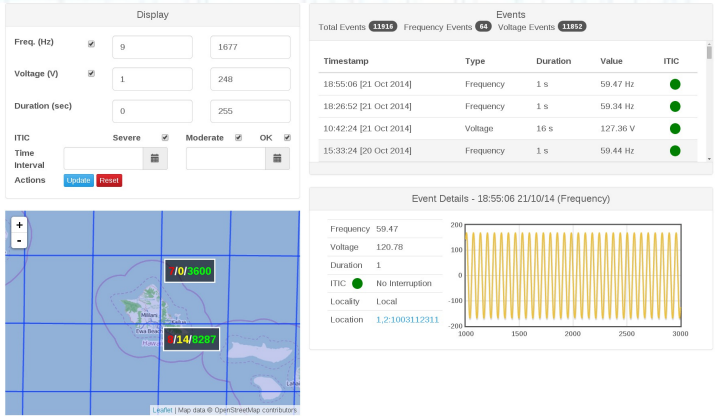
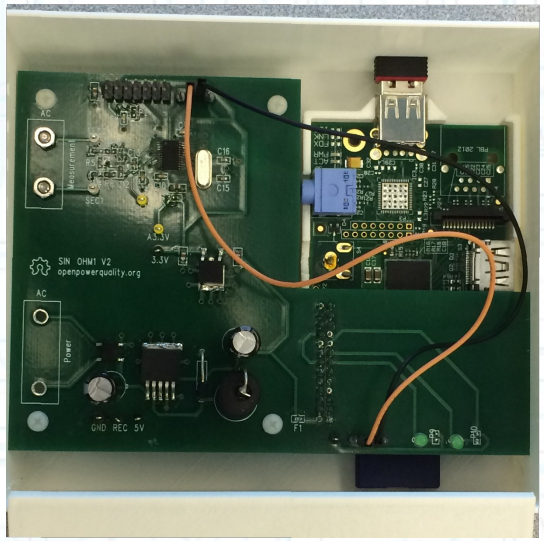
Open Power Quality

A (quick) technical overview.

Goal

- Distributed PQ monitoring
- Analytics and visualization
- Evaluation and prediction
- Safety/measurement standards
- Beyond IEEE for aggregation





Open software. Open hardware. Open data.

Power Quality

Grid connected equipment is designed with narrow margin of safe operating conditions.

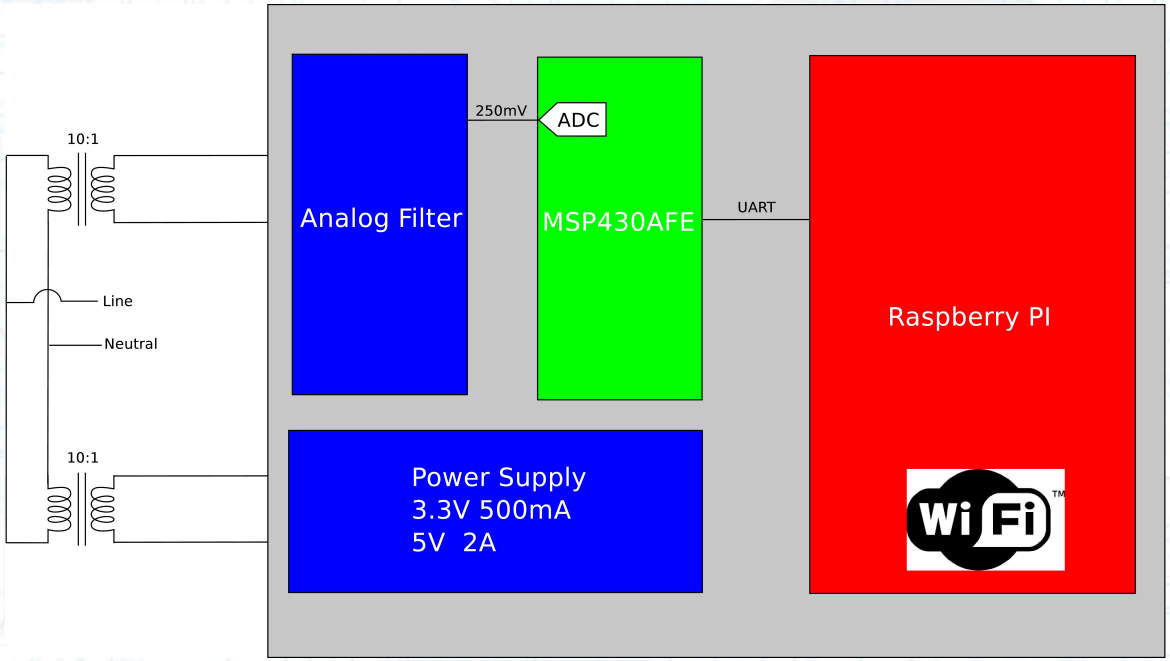
Sources of disruption:

- Sags/Swells
- Harmonic
- Reactive Power
- Line fault/Lightning strikes

What we got so far:

- Cloud aggregation/Visualization
- PQ Meter
- A couple of Masters degrees
- Energy excelertator funding

OPQBox1/2 Meter



Feature	OPQBox1	OPQBox2
Synchronization	NTP/Software sampling	NTP/Hardware sampling
Sampling rate	4kSps	Up to 50kSps Nominal 15.36kSps
Voltage sensing method	Wall Wart transformer	Resistor Divider
Power Fault Handling	NONE	FRAM waveform storage
Communication Capabiliy	UART	UART/SPI/USB/I^2C
On board processing	NONE	ARM CPU with FPU

OPQHub

- Advanced searching/filtering of events
- Detailed PQ event information
- Anonymous distributed PQ view
- User/data management
- API for data analytics