

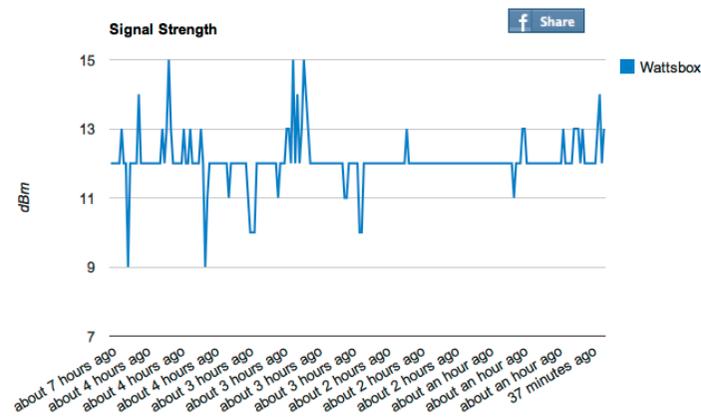
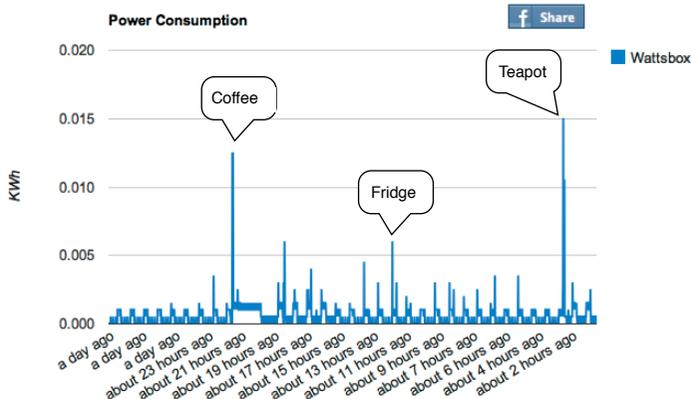
What is WattsApp?



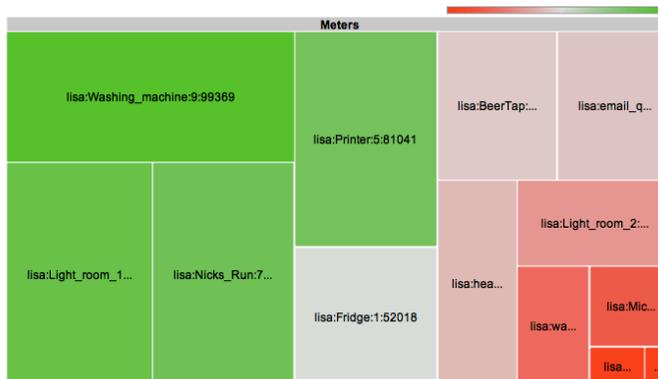
WattsApp is a telemetry platform that demonstrates remote monitoring of sensor readings using our state of the art Contiki SNMP implementation. It consists of a hardware interface to read data from S0 metering interfaces that is connected to an exporter running Contiki SNMP. A data collector is collecting meter readings and interfacing to a cloud server. The cloud server provides user authentication (via Facebook) and interfaces with a web front end and an Android application. All components of the Contiki SNMP telemetry application communicate via IPv6.

The WattsApp telemetry application demonstrates that IPv6 is ready to build and deploy complete state of the art applications. Tunneling solutions like Teredo allow everyone to get easily connected to the IPv6 Internet and to interface with WattsApp.

Learn more at: www.wattsapp.net

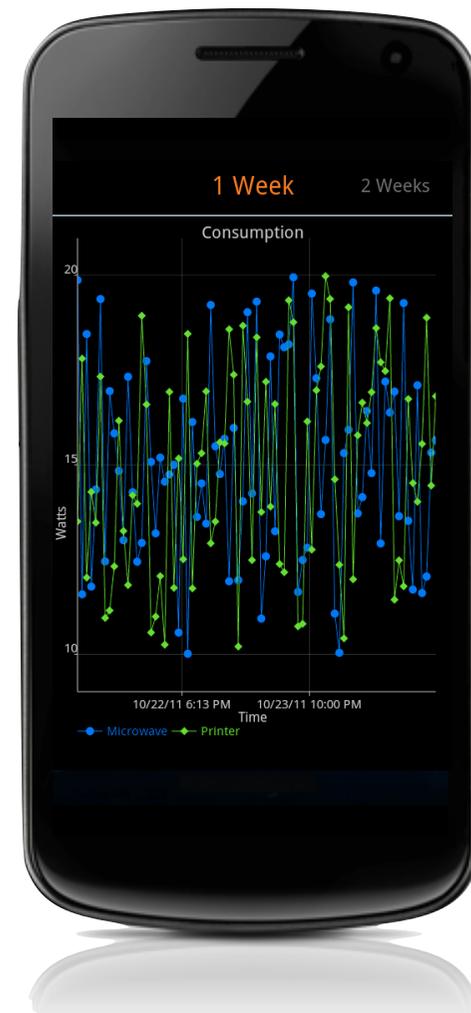
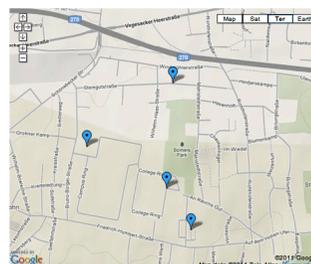


The graph shows the live power consumption (top) of the fridge and the coffee machine connected to our WattsBox through the S0 bus and the signal strength (bottom) of the AVR Raven running our state of the art SNMP engine. The WattsBox reads the S0 pulses and reports them to the AVR Raven running our Contiki SNMP stack, which pushes the data to the collector and is later fetched by the Cloud. The data can be viewed by authorized users on their Android WattsApp app, www.wattsapp.net website or shared through Facebook.

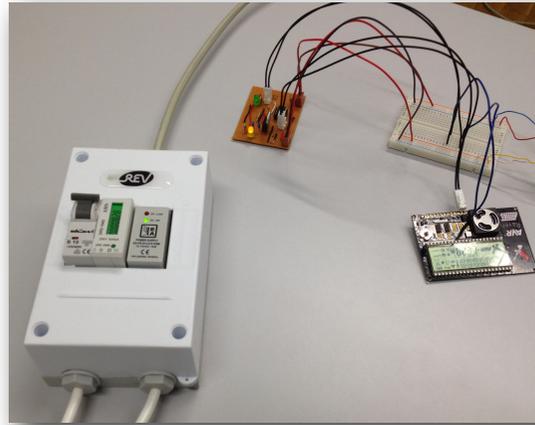


My Meters

Device Name	Category	Status
Wattsbox_wat	ENERGY METER	ACTIVE
Wattsbox	TEMPERATURE SENSOR	ACTIVE
Wattsbox	SIGNAL STRENGTH	ACTIVE
BeerTap	FLUID METER	ACTIVE
Fridge	ENERGY METER	INACTIVE
Microwave	ENERGY METER	INACTIVE
Light_room_1	LUX METER	INACTIVE
Light_room_2	LUX METER	INACTIVE
Printer	COUNTER	INACTIVE
Email_queue	COUNTER	INACTIVE
Nicks_Run	SPEED METER	INACTIVE
Header	ENERGY METER	INACTIVE
Washing_machine	ENERGY METER	INACTIVE



Watts App



The setup shows an S0 device that measures the power consumption of the electrical equipment connected to it. We have designed a custom circuit that pulls measurements from the S0 device and sends them to the AVR Raven. The Raven converts pulses into equivalent kWh of power consumed and transfers this information via IPv6 to the collector that queries for it using SNMP.

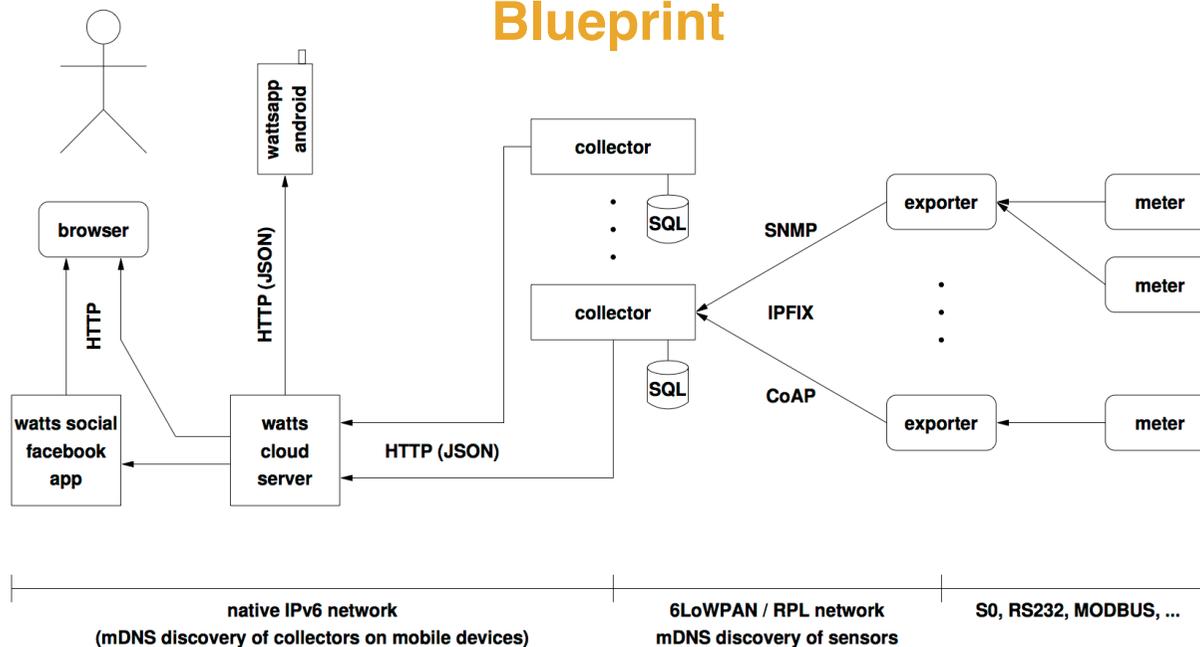
Motivation

Telemetry is an important function of the Internet of Things as it is being developed and deployed today. Of particular interest are energy monitors but also health monitors for elderly people or even monitors for leisure activities such as sports monitors for runners. Remote monitoring has been a prime application domain of the SNMP protocol and there are currently activities underway to standardize energy monitoring data models.

We provide the first production ready open source SNMP stack for Contiki, a popular operating system for constrained devices in IPv6/802.15.4 networks. We have developed basic instrumentation to read network statistics, to export information about the RPL routing protocol and to export sensor readings using existing standardized models. By using an SNMP stack, devices of the Internet of Things easily integrate into existing monitoring solutions. Furthermore, by using SNMP, new Internet of Things applications can easily interface with existing hardware components (e.g., UPS devices or smart power distribution units for data centers that come with Ethernet interfaces and embedded SNMP agents).

Component	Hardware	OS	Language/Tools
WattsExport	AVR Raven	Contiki	C, Contiki SNMP
WattsPoll	PC	Ubuntu	Python, SQLite
WattsCollect	PC	Ubuntu	JavaScript, Node.js, SQLite
WattsCloud	Xen VM	Debian	PHP, MySQL, jQuery, Facebook SDK
WattsApp	Smartphone	Android	Java, Android SDK, Facebook SDK

Blueprint



<https://www.wattsapp.net/>

- Contributors
- Siarhei Kuryla
 - Catalin David, Johannes Schauer
 - Vitali Bashko, Vladislav Perelman
 - Vaibhav Bajpai, Mihaela Rusu,
 - Nikolay Melnikov, Anuj Sehgal
 - Jürgen Schönwälder