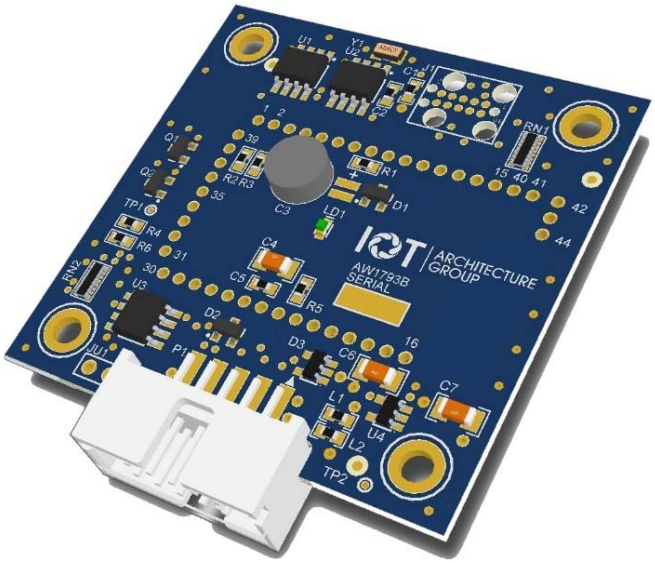
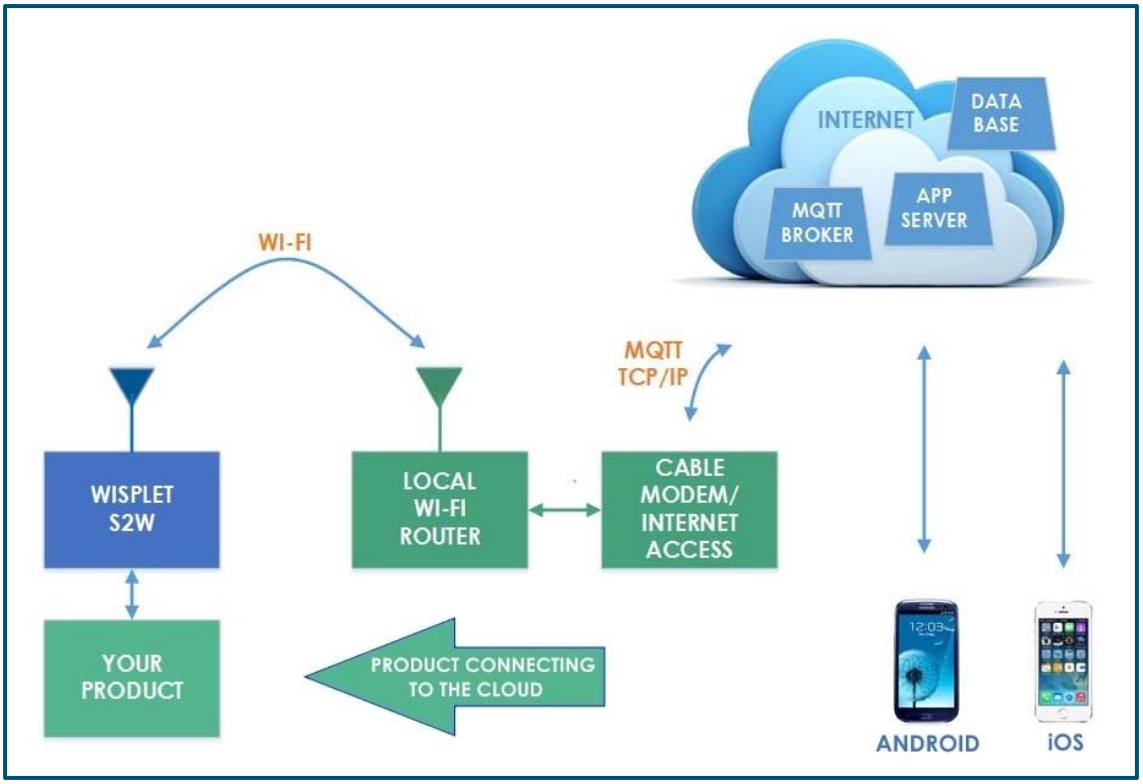
Wisplet™ IOT Engine



The Wisplet S2W IOT Engine—Serial to Wi-Fi—provides a cost-effective way to add cloud connectivity to any low-cost embedded system.

The Wisplet S2W contains a complete set of IOT firmware. It not only handles the Wi-Fi connection—including TCP/IP and SSL/TLS security—it also supports the industry-standard **MQTT** protocol, and a built-in **IOT Rules Engine.** To specify the IOT reporting rules for your system, you enter the rules into a table, using the **IOT Architect** utility. You then load the resulting **IOT Rules** into the Wisplet, and it takes care of alerts, reports, and controls. You just specify the rules, no special firmware needs to be written for the Wisplet IOT Engine.



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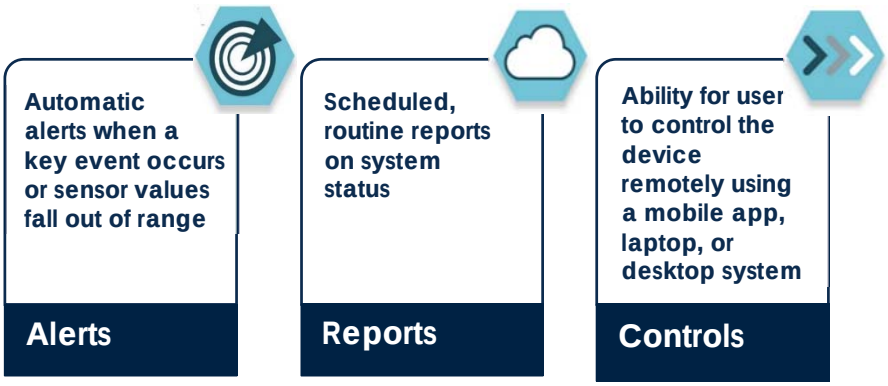
Elements of a practical IOT system

Our challenge: how can we add cloud connectivity to low-cost embedded systems? Without requiring a ton of custom firmware to be added to the target system? At minimal cost for the hardware that connects to the cloud?



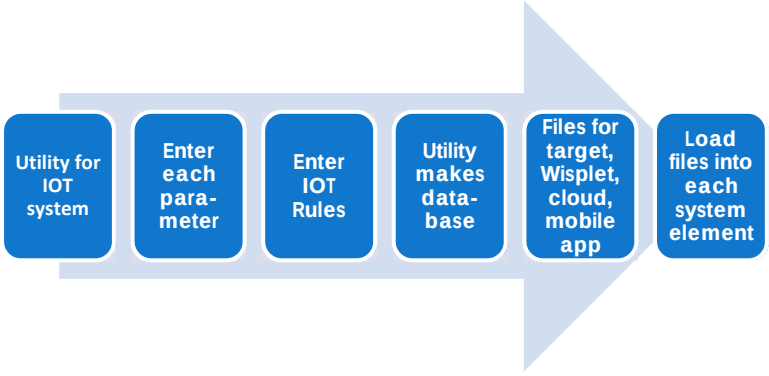
The fundamental task of an IOT system is to handle **alerts**, **reports**, and **controls**. The **IOT Rules Engine,** built into each **Wisplet** module, handles these IOT functions without the need for any custom software.

PARAMETER	TABLE ENTRY
PARAMETER ID	6
PARAMETER NAME	TEMPERATURE
PARAMETER DATA TYPE	SIGNED 16-BIT INT
TARGET POLL INTERVAL	60 SECONDS
ERROR THRESHOLD MIN.	40
ERROR THRESHOLD MAX.	100
ERROR REPORT REPEAT INTERVAL	1 HOUR

IOT Rules are loaded into the **IOT Rules Table,** which is stored in non-volatile memory. This table is simply a list of supported sensors, sensor data types, minimum and maximum values, and routine reporting intervals.

The **Wisplet** module polls the target system periodically. It retrieves sensor values from the target system. The IOT Rules Engine checks these values against the rules in the IOT Rules Table. When sensor values are out of bounds, the IOT Rules Engine automatically generates an **alert**. The **Wisplet** module also handles routine **reports**, and user **controls**.

The **IOT Architect** utility allows the user to set up a system without writing any **Wisplet** firmware. Enter the parameters and design rules, and the utility generates the IOT Rules for the Wisplet, plus parameter tables for other system elements.



All that's needed in the target device is a simple serial interface. We provide C source code examples for the serial handler firmware.

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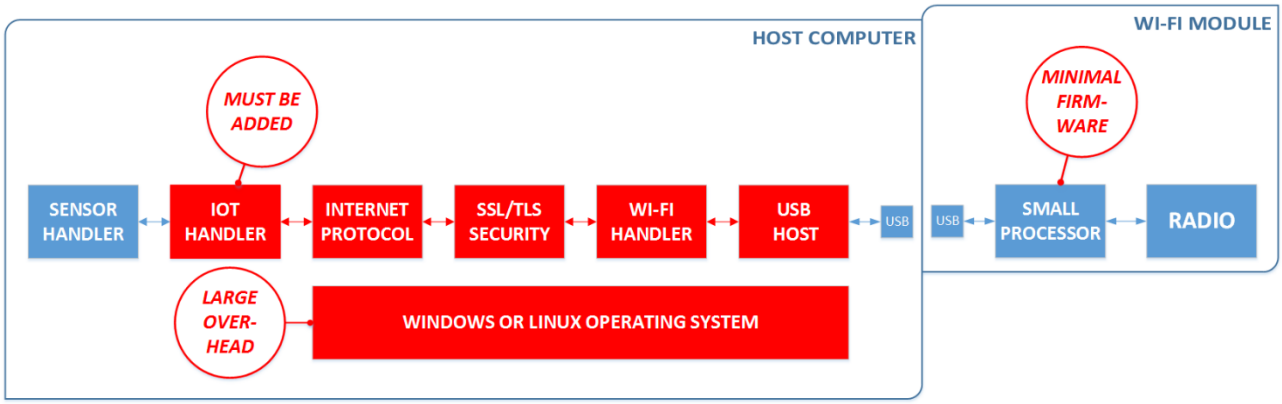
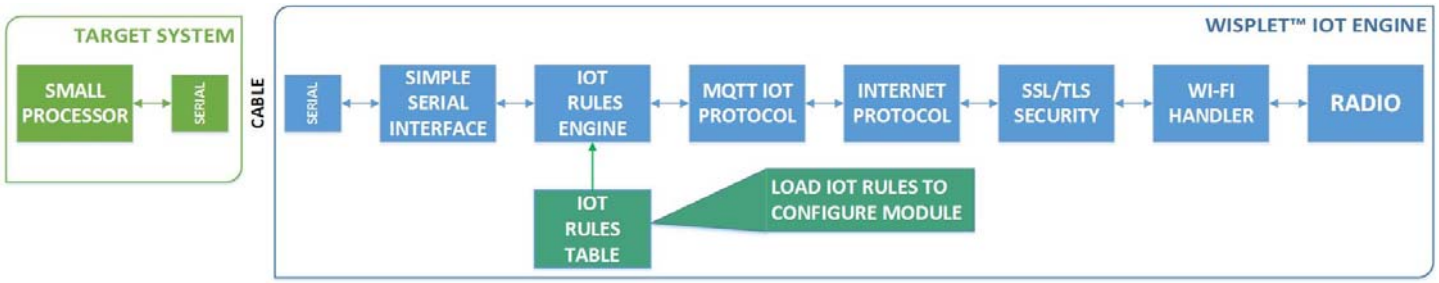
Not just a Wi-Fi module

A conventional Wi-Fi module relies on a powerful host computer for most of its software. IOT software is not included.



The **Wisplet IOT Engine** handles over 90% of the connectivity process—all by itself, using its integral **IOT Rules Engine**. The target system needs only a simple serial interface—typically supported even by low-cost microcontrollers.



MQTT IOT Protocol

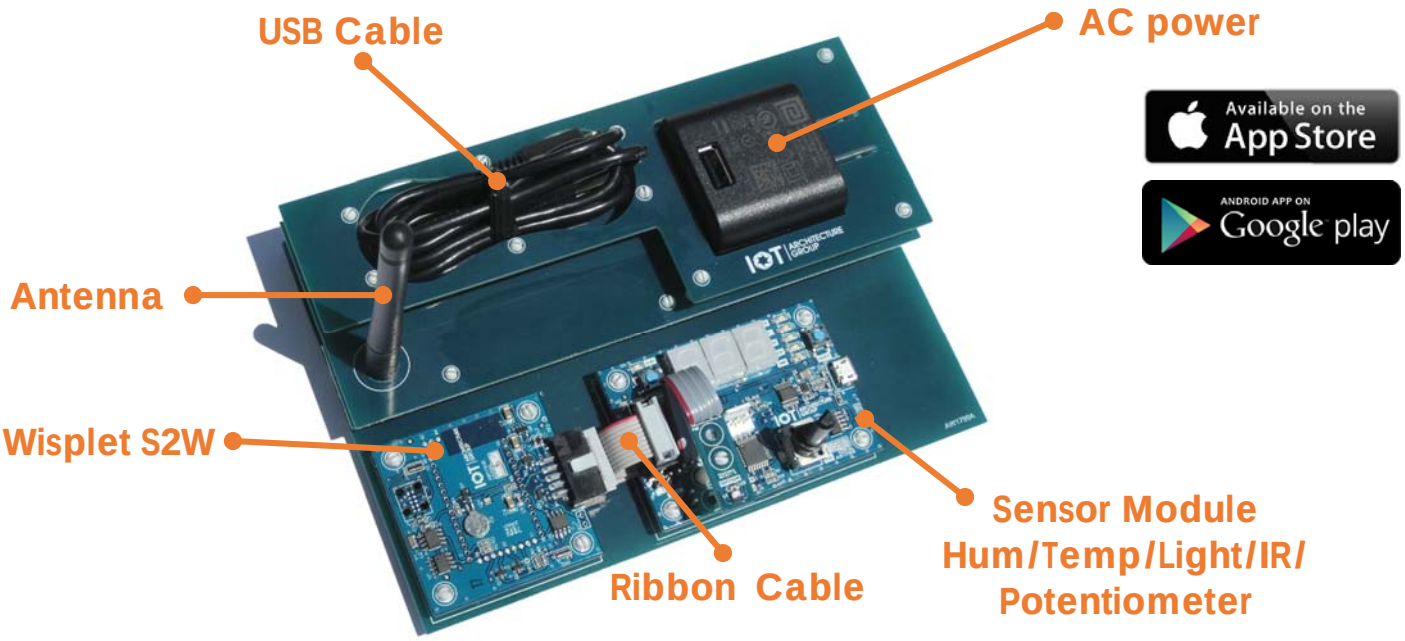
MQTT is a royalty-free IOT protocol adopted by OASIS in 2014 as an international standard for IOT systems.

The Wisplet **publishes** sensor data. A user **subscribes** to that data. The MQTT broker in the cloud automatically routes messages from publishers to subscribers based on a table of subscriptions. MQTT efficiently handles **alerts**, **reports**, and **controls**. MQTT is ideal for cost-sensitive IOT systems.

MQTT is supported by IBM, Amazon Web Services, ThingWorx, TempoIQ, Eurotech, and many other cloud services. Wisplet users have a wide choice of cloud service providers. IOT Architecture Group can assist with cloud service deployment.

Wisplet S2W Evaluation Kit

The Wisplet S2W Evaluation Kit provides a working system ready to run.



Available on the App Store

ANDROID APP ON Google play

Comes with a free MQTT sandbox trial account. **Alerts**, **reports**, and **controls** supported on a phone or tablet. Links to download free **iOS** and **Android** apps.

Wisplet S2W Specifications

- STM32 ARM Cortex M3 micro
- Broadcom 802.11 radio
- FCC approved
- Wireless Access Point set-up
- TCP/IP Internet protocol
- SSL/TLS security
- MQTT IOT protocol
- IOT Rules Engine
- IOT Rules in non-volatile memory
- Real-time clock for time-stamps
- Super-cap for RTC backup
- Serial flash for firmware updates
- 3.3V serial UART interface
- TXD, RXD, CTS, RTS, 38.4 KB
- 10-pin ribbon cable to target
- Powered by target system
- 3.3V, 350 mA peak
- Power enable pin
- Pins for red/green Wi-Fi LEDs
- 50 x 50 millimeters
- Antenna with U.FL cable

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