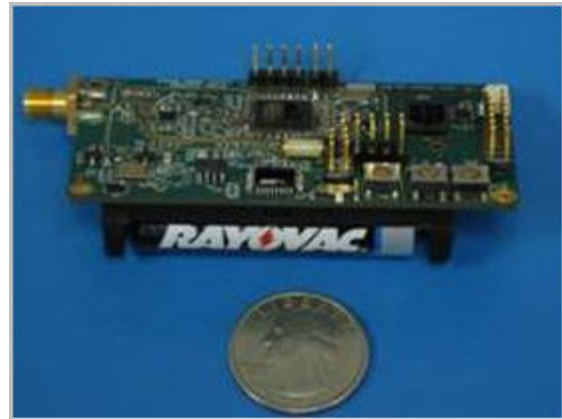
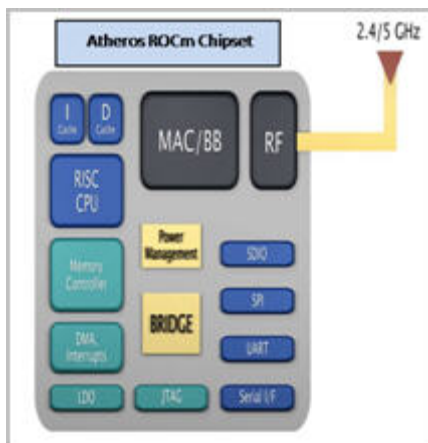


Smart Sense

Arada Systems' Smart Sensor over Wi-Fi Technology

Product Brief

Arada Systems' SmartSensor technology works over Wi-Fi and can leverage existing WLAN infrastructure. These active tags cater to multiple applications like RFID, sensor networks, security devices and consumer electronics. The Arada SmartSensor technology is the only solution in the market that has the longest battery life (up to 10 years) and supports various features including temperature sensor, accelerometer, vibration meter and GPS. A key advantage of Arada solution is its ability to support 802.11 a/b/g networks that helps eliminate any network performance degradation that current active tags in the market exhibit because of their support for 802.11b networks only. Arada active tags are based on Atheros' ROCm family of chipsets and utilize state-of-the-art Wireless LAN software from Arada Systems.



Key Features

Leverages existing WLAN infrastructure.
Supports 802.11 a/b/g networks.

Multiple Features including:

- GPS
- Temperature Sensor
- Accelerometer (tri-axis)
- Vibration Sensor

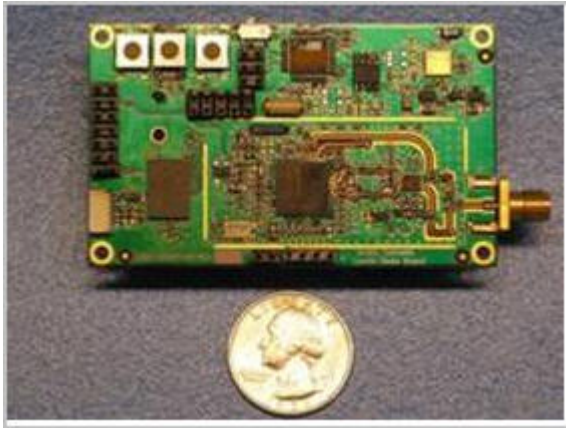
Extended battery life of up-to **10 years**.

Addresses needs of various markets including Enterprise and SMB and verticals including Automotive tolling, medical and security.

Advantages of Arada Systems' Solution on Atheros' high class ROCm chipset.

- Uses highly integrated and low cost ROCm chipset from Atheros.
- Very low power consumption both at the chip-level as well as the system level.
- Compact form factor for unique applications
- Multiple interface support

Value Proposition



- Industry's ONLY 802.11 a/b/g active tag.
- Supports full 802.11 a/b/g networks including licensed bands including automotive (5.9GHz) as well as public safety (4.9 GHz).
- Supports 802.11p and 1609 protocols.
- Extended battery life of over 10 years.
- The only active tag available in the market based on ROCm chipset of Atheros.
- Uses lowest cost and highest integrated chipset from Atheros.
- Uses highly specialized WLAN software stack from Arada Systems with many features.
- Works on a single "Double-AA" battery.

RFID in Hospitals



- Transmitting recorded pulse rate
- Transmitting recorded temperature
- Transmitting recorded heartbeat

Electronic Toll Collection (ETC)



- Car speeds past tollgate
- Reader at tollgate identifies vehicle
- Backend system debits car owner's account

TECHNICAL SPECIFICATIONS													
WLAN Chipset	<ul style="list-style-type: none"> • Atheros Low Power AR6000 WLAN Chipset • 150 MHz MIPS R4KEm CPU • 802.11a/b/g MAC/BB/RF • Ultra low power and energy profile • Compact form factor • Multiple expansion interfaces (memory, serial, I²S) 												
<ul style="list-style-type: none"> • Low Power microcontroller(LPM) for controlling power to WLAN • Support for Active Tag programming • Programmable cycle time for transmitting a RFID Packet encapsulated using WLAN protocol. • Support for co-existence of RFID and WLAN with external flash configuration • Over the air firmware upgrade option. • Support for embedded LWIP stack in WLAN mode. • Support for simple configuration for devices without input/output mode. 													
Power	Passive drain - 0.1micro amps. Active drain - 100 milli amps												
Power Consumption	<table border="1"> <thead> <tr> <th>Operating Mode</th> <th>Test Result</th> </tr> </thead> <tbody> <tr> <td>Sleep</td> <td>0.3 mA</td> </tr> <tr> <td>Listening (Rx)</td> <td>278 mA</td> </tr> <tr> <td>Tx with PA @15dBm</td> <td>340 mA</td> </tr> <tr> <td>Optimized full operation</td> <td>260 mA</td> </tr> <tr> <td>Full operation with APSD</td> <td>100 mA</td> </tr> </tbody> </table>	Operating Mode	Test Result	Sleep	0.3 mA	Listening (Rx)	278 mA	Tx with PA @15dBm	340 mA	Optimized full operation	260 mA	Full operation with APSD	100 mA
Operating Mode	Test Result												
Sleep	0.3 mA												
Listening (Rx)	278 mA												
Tx with PA @15dBm	340 mA												
Optimized full operation	260 mA												
Full operation with APSD	100 mA												
Range & Sensitivity	<table border="1"> <thead> <tr> <th>Data Range (11g)</th> <th>Sensitivity</th> </tr> </thead> <tbody> <tr> <td>1 mbps</td> <td>-97 dBm</td> </tr> <tr> <td>6 mbps</td> <td>-93 dBm</td> </tr> <tr> <td>11 mbps</td> <td>-89 dBm</td> </tr> <tr> <td>54 mbps</td> <td>-76 dBm</td> </tr> </tbody> </table>	Data Range (11g)	Sensitivity	1 mbps	-97 dBm	6 mbps	-93 dBm	11 mbps	-89 dBm	54 mbps	-76 dBm		
Data Range (11g)	Sensitivity												
1 mbps	-97 dBm												
6 mbps	-93 dBm												
11 mbps	-89 dBm												
54 mbps	-76 dBm												
Dimensions	7.5 cm x 5 cm												
Weight	100 g (approx)												

SOFTWARE SUPPORT

- Board support package for eCos operating system
- Optimized version of eCos OS kernel
- Flash database manager appropriate for small embedded systems
- Flash write driver for the flash device
- Wireless LAN driver
- Dual mode operation (with and without association)
- Over the air firmware upgrade
- Optional Lightweight IP stack