Eaton Innovation Center

EATON

Eaton Applications for Ultra Low Power – Low Rate WPAN

A quick overview of our application scenarios

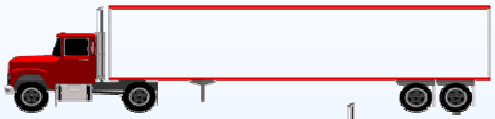
Aeroquip

Eaton VORAD

Fleet Advisor

Cutler-Hammer

VICKERS



E·A·T·N

Industrial Diversified Company

> 40,000 products
> $10B
> 70,000 employees

GLOBAL

Our Focus

- Industrial Applications
  - Power Distribution & Protection
  - Control & Automation
  - Industrial sensors
- Vehicular Applications
  - Automotive
  - Trucks
  - Off-Road Vehicles
- Residential/Commercial Applications
  - Home Automation & Control

Past Present Future

Twisted pair

Bus + wireless gateways

We are here

Ultra Low Power Wireless Network

Low Cost
Low Power
Self Configuring

Use Scenarios

- Stick-On Sensor Network
  - Monitoring
  - Diagnostic
  - Control
- Wireless Hub for a network of sensors
  - Sensor parameters programming (IEEE 1451)
  - Diagnostic/Monitoring

Our applications do NOT require:

- High data Rates (more than 20kbps)
- High duty cycle or quick response time
- High Level of security
- Connection handling: Hand-off
- Real-Time Operation
- Long range (30 ft is more than enough)

Our applications DO require:

- Very Low Power Consumption
  - Disposable wireless sensors
  - Should last at least five years for automotive applications and from a few months to 10 years in Industrial applications
- Low Cost (mostly for automotive applications)
- Robustness to handle industrial/vehicular environments (temperature, vibration, humidity, etc)

Scenario Topologies

- Piconet
- Scatternet
- Point to point
- Multihop
- Peer to peer
- Unidirectional/bi-directional

Our requirements vs. Existing Solutions

	WLAN	Bluetooth	Ultra Low Cost Ultra Low Power WPAN
Range	~100 mts	~10 - 100 mts	10 mts
Data Throughput	~2-11 MBPS	1 MBPS	< 0.1 MBPS
Power Consumption	2 x BT	BT	**< BT / 10**
Size	Larger	Smaller	Smallest
Cost	20 x BT	1 x BT	0.2 x BT