POW-R

Power Outlet Wireless Reporter

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Why XBee Radios?

- Small form factor (just larger than U.S. quarter)
- Low power consumption (˜.1 W)
- Talk over ZigBee 802.15.4 standard

ZigBee Specification

- High level communications protocol
- Designed for low power digital radios
- Mesh network topology
- Network can expand on the fly
- 2.4GHz operating spectrum

ZigBee Mesh and POW-R

- One Coordinator per mesh
  - Maintains mesh
  - Receives transmissions from all router XBees
  - Attached to POW-R server via Arduino
- All Satellites have router XBees
- Router XBees "bounce" transmissions to Coordinator

Coordinator Arduino

- Hosts Coordinator XBee
- Powers LCD to display IP address of Server
- Sends Server data readings over serial

Server

- Raspberry Pi
- Small form factor (˜8.5 x 5.6 cm)
- Low power consumption (˜3.5 W)
- Acts as data center and web server for Display

Lessons Learned

How would we do it all over again?

Future plans, potential improvements

Demonstration time!

Check it out!

Questions and Closing

Questions?

Presentation made using LaTeX

Our website: `http://powr.logrit.com/`