Quick Intro to ZigBee

Accessible technology for creating DIY wireless sensor networks

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What is a ZigBee?

- Small Wireless Radios costing about $30 each
- Low power with sleep mode available
- Can route data from one node to the next
- Can cover a lot of ground with multiple radios
- Does not require micro-controller to read sensors
- Uses serial communication, FTDI USB adapters common (you can even use Arduino as an adapter)

Potential Projects

Using ZigBee you can:

- Sense levels of light and moisture in multiple gardens
- Lock doors when no occupants in building
- View real time temperature data of your home brew kettles in the garage while running upstairs
- Create bear detector/early warning system for your neighbor (sensors?)

Endless possibilities – especially when you can create a gateway between your ZigBee network and the Internet...

A simple setup for two radios

1) Place ZigBee in explorer
   - This is a circuit board you connect to your computer via USB cable
2) Install ZigBee firmware
   - Use XCTU software, which costs no money.
3) Pair Radios
   - Type commands into serial terminal to “pair” the radios on the same network
4) Move ZigBees to breadboard adapter and wire for serial communication. Now your Arduinos can talk.

ZigBee API Mode

- Routing between radios
  - Send a packet with a destination, ZigBee will find a path
- Sensor nodes without a microcontroller
  - Save power and money

Recommended Reading & Demo

- Building Wireless Sensor Networks by Robert Faludi (O'Reilly)
- Demo modified from book example “Romantic Lighting Sensor”