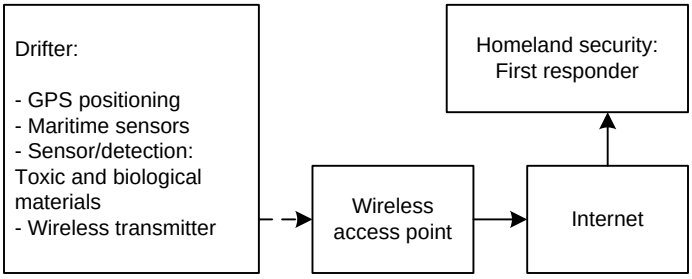
Wireless Drifter for Homeland Security: Harbor Protection

Application scenario



Wireless drifter features

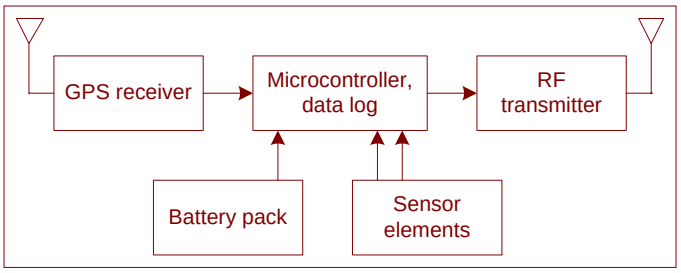
Current capability:

- Sensor (temperature, light)
- Radio transceiver:
  - 900 MHz ISM band
  - Baud rate from 1200 to 38400 bps
  - Indoor/urban range 300 ft.; LOS 1000 ft.
  - Robust performance even at 1mW output power
  - Point-to-point, point-to-multipoint network topology
- Microcontroller
  - 10-bit 100 KSPS ADC
  - 2 KB internal data RAM and 32 KB flash
  - Up to 25 MIPS with 25 MHz clock
  - 8 ports input/output
- GPS
- Web graphical interface

Work in progress:

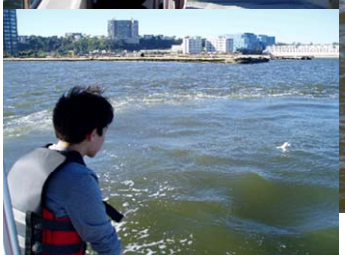
- Solar power
- Hydrophone (audio signal detection)
- Maritime sensors
- Sensor/detection for homeland security: Toxic and biological materials
- WLAN connection; Full duplex RF links
- Satellite connection
- Ad hoc network

System and elements



Prototype and field trial

Prototype



Field trial

Sponsors

- Stevens' Office of Technology Initiatives (2004 – 2005)
- WiNSeC
- Office of Navy Research (ONR) (2005 – 2006)

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