Healthnet

Design and Architecture

John Bauman
Kyunghwan Choi
Adam Goldhammer
Eugene Marinelli
Status Update

• Idea: On-body network which monitors and analyzes personal activities.

• Parts ordered. Waiting for them to arrive.

• Considering cell-phone instead of gumstix for sensor server.

• May use mica2dots instead of custom sensor nodes.
Architecture Overview
Architecture Specifics

Healthnet

Sensor Server
- Screen
- GPS
- Zigbee / Bluetooth

Gumstix / cell phone
- Bluetooth
- Flash storage

Battery

Personal Computer
- Bluetooth
- GUI
- Data manager
- Database

Sensor Node
- Zigbee / Bluetooth
- ECG patch

AVR
- Battery
Use Cases

• Device initialization and pairing of sensor nodes with cell phone or Gumstix.

• Streaming data from sensor nodes to cell phone or Gumstix while engaging in activity.

• Uploading data to computer for analysis.

• Displaying data to user via graphical interface.
Risks and Mitigation

- **Risks**
  - Problems with sensors and nodes.
  - Inability to support data rates between devices.
  - Bluetooth.
  - Data integrity.

- **Mitigation**
  - Alternative node hardware: mica2dots.
  - Compression and less frequent transmission.
  - USB.
  - Error detection. Variety of sensors.