MAMS Project

Medical Astronaut Monitoring System

- What is the MAMS Application?
- Bluetooth Specifics
- Software Development
- Bluetooth and the MAMS Application
- Future of Bluetooth

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What is the MAMS Application?

- Data Link to Communicate Vital Signs and Equipment Status
- Full Duplex Voice Communication
- Simulates the Collection of Data and Voice
Bluetooth Specifics

How did Bluetooth come about?
- Need for Low Power/ Low Cost Wireless Solution

What Advantages Does Bluetooth Provide?
- Expansion of the PAN
- Benefits Over IEEE 802.11
Bluetooth Specifics...

- **Hardware Capabilities**
  - Range is from 10m – 100m

- **On board error correction**

- **Frequency band between 2.4 – 2.48GHz**

- **Frequency Hopping Spread Spectrum**
More on Bluetooth Specifics

The Master/Slave Concept – How do the Boards Connect?

Paging/Scanning Mode
Listening

Slave hears a Master

Sends identification information along with a connection request

Connection request event is received by master - determines if a connection should be made.

Connection Complete
Software Development

- Bluetooth Communication
- GUI Software
Bluetooth Communication Software

Class Design

- COMM Class
- HCI_CMD Class
- HCI_DATA_SEND Class
- HCI_EVENT Class

HCI Class
GUI Software

- MFC Design
- Master Application (MAMS)
  - Single thread that polls and blocks for data
- Slave Application (NASA Simulation)
  - Three threads, reading data generated by a file to simulate the vital signs
Bluetooth and the MAMS Application

- NASA Simulators represent the vast PAN that Bluetooth technology will support
- MAMS Application will be used to monitor astronauts while in space
Future of Bluetooth

- Space Applications
- Target Price for a Bluetooth Chip ~ $1.50
  - Embedded Application (Networking)
  - Handheld Solutions
  - Endless Possibilities
QUESTIONS?