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

Inquiry Mode Broadcasting

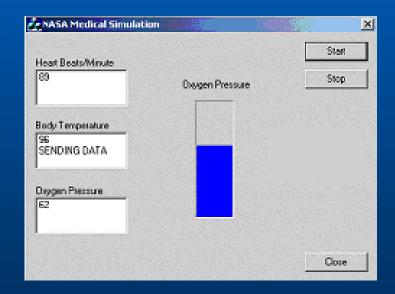
Connection request event is received by master - determines if a connection should be made.

Connection Complete

Software Development

Bluetooth Communication GUI Software Software





Bluetooth Communication Software

Class Design

HCI Class

COMM Class

HCI_CMD Class

HCI_DATA_SEND Class HCI_EVENT 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?