Wireless Sensor Data Acquisition System

Team 2

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Project Description

• Sensor inputs from the environment are digitized and sent to a microcontroller through a wireless module (using appropriate protocols).
• This design is to be used for CT scan imaging machines in a high speed rotating environment.
• Using the wireless transmitters we would eliminate costly wiring and allow flexibility in the location/placement of these sensors.
Key Requirements

1. Operating Temperature: 15-60°C & Humidity Range: 10-90% rH
2. Battery powered sensor devices that can sense Temperature, Pressure and G-Force of environment
3. AD conversion circuitry with at least 8 bits of resolution
4. Data acquisition at a minimum of 500 Hz
5. Capability of enabling/disabling transmission of data
6. 5W maximum power dissipation
7. Proposed market price: $250 (including receiver hardware)
Block Diagram

Transmission Block

- Button Cell Battery + Switch: +5V / 1.5mA
- Temperature Sensor: Digital Data
- Bluetooth Transceiver

- Button Cell Battery + Switch: +5V / 30mA
- Acceleration Sensor: Digital Data
- Bluetooth Transceiver

- Button Cell Battery + Switch: +5V / 1.5mA
- Pressure Sensor: Digital Data
- Bluetooth Transceiver

Block Color Code
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