Wireless Data Acquisition System

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Bradley University Electrical Engineering Senior Design Project
Outline

- Project Goals
- Background Information
- Overall System Block Diagram
- The Subsystems
- Software Flowchart
- Current Work
- Schedule
- Questions
Project Goals

- Wireless Data Acquisition for BU Formula SAE car
  - Car velocity
  - Engine Speed
  - Acceleration
  - Coolant and Air Temperatures
  - Oil Pressure
- 2006 – µController Driven Display
- 2007 – Wireless Data Acquisition
Background

- Formula SAE Car
- 2007 – Wireless Data Acquisition
- 2006 – µController Driven Display
The Subsystems
The Subsystems
Hardware Components

- Aerocomm AC4790 Transcievers
  - MC1488 – TTL to RS232 conversion IC
  - MC1489 – RS232 to TTL conversion IC

- Amulet Technologies LCD Touchscreen
  - Touch screen Starter Kit IC board
    - Serial Flash
    - RAM
    - RS232 driver
    - Touch screen decoder
    - Graphical OS chip
Current Work

- Research & Review
  - 2006 – μController Driven Display
  - 2007 – Wireless Data Acquisition
- Matlab & Simulink
  - Data recording and display
  - Simulink Gauges Blockset
Automotive Gauges
Schedule

<table>
<thead>
<tr>
<th>Week 1</th>
<th>Return Amulet LCD to Operational Status and Test on Formula Car</th>
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<tr>
<td>Week 2</td>
<td>Read Serial Port in Matlab and Simulink</td>
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<td>Week 3</td>
<td>Implement Matlab/Simulink Data Recording and Display</td>
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<td>Week 4</td>
<td>Establish Communication between RF Receiver and Matlab</td>
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<td>Week 5</td>
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<td>Week 6</td>
<td>Finalize Matlab data recording and Simulink Data Display</td>
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<td>Week 7</td>
<td>Integrate Both Systems on Single MicroController</td>
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<td>Week 9</td>
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<td>Week 10</td>
<td>Test/Troubleshoot Entire System in Lab</td>
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<td>Week 12</td>
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<td>Test System on Formula Car</td>
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<td>Week 14</td>
<td>Test System on Formula Car</td>
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<td>Week 15</td>
<td>Final Report</td>
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<td>Week 16</td>
<td>Final Presentation</td>
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Questions