Cornell Ranger Wireless Module

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4/18/07
## Current and Future Wireless Modules – Key Specs

<table>
<thead>
<tr>
<th></th>
<th>Radiotronix WI232DTS</th>
<th>MaxStream XBeePro</th>
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</thead>
<tbody>
<tr>
<td><strong>Tx Frequency</strong></td>
<td>902-928 MHz</td>
<td>2.4 GHz</td>
</tr>
<tr>
<td><strong>Line-of-Sight Range</strong></td>
<td>1500 ft.</td>
<td>1 mile</td>
</tr>
<tr>
<td><strong>Max. RF Data Rate</strong></td>
<td>152.34 kbps</td>
<td>250 kbps</td>
</tr>
<tr>
<td><strong>Rx Sensitivity</strong></td>
<td>-104 dBm</td>
<td>-100 dBm</td>
</tr>
<tr>
<td><strong>Transmit Current</strong></td>
<td>57 mA</td>
<td>215 mA</td>
</tr>
<tr>
<td><strong>Idle/Receive Current</strong></td>
<td>20 mA</td>
<td>55 mA</td>
</tr>
<tr>
<td><strong>Tx Output Power</strong></td>
<td>12 dBm</td>
<td>18 dBm</td>
</tr>
</tbody>
</table>
Data Transmission Block Diagram

DI – Data In
DO – Data Out

LabView

XBeePro #1

Wireless Transmission

XBeePro #2

Ranger Microcontroller
How Data Is Sent

- XBeePro modules operate in transparent mode
- Data received through DI pin is kept in a queue and will only be sent out the DO pin if:
  - The queue becomes full (100 characters)
  - No data is sent for a specified period (timeout)
  - The command sequence GT+CC+GT is received
Progress

- So Far:
  - Established connection to USB XBeePro
  - Currently trying to send data between the USB XBeePro and the board XBeePro

- To Do:
  - Send data between the USB XBeePro and the board XBeePro
  - Connect the board XBeePro to the daughterboard