Vehicle Acoustic Warning and Surveillance System

**Features**
- Fully Integrated Acoustic Sensor
- Technology Readiness Level 6
- Industry Leading Noise Cancellation
- On the Move Operation
- NLOS Sensing
- Contact Report Output

**Benefits**
- Increased Tactical Mobility
- 300% increase in detection range
- All functions adapted to ground vehicle

**Mobile Command Center Fuses Data and Localizes the Target**

**Complete Acoustic System**
- Single Node Operation:
  - Noise Cancellation
  - Beamformer
  - Vehicle & Arms Detection
  - Tracker
  - Classifier
  - Microphone Array
  - Reference Sensors
  - Local Contact Display
  - Acoustically Cued PTZ Camera
- Mobile Base Station:
  - Wireless Network to Nodes
  - Data Fusion
  - Localization
  - Graphical Target Tracks

**VAWS Node Electronic Hardware**

**Ruggedized Large Aperture Array**

877 Baltimore-Annapolis Blvd., Suite 210
Severna Park, MD 21146
http://www.signalsystemscorp.com
410-431-7148 (V) 410-431-8884 (F)
Typical VAWS Specifications

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Engine @ Idle</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vehicle Detection Range</td>
<td>100 to &gt;2000m</td>
</tr>
<tr>
<td>Impulse Detection Range</td>
<td>600-3000m</td>
</tr>
<tr>
<td>Platform Noise Reduction</td>
<td>10 to &gt; 40 dB</td>
</tr>
<tr>
<td>Reliable Speech Intercept Range</td>
<td>&gt;5m</td>
</tr>
<tr>
<td>Vehicle Localization</td>
<td>&lt;10degree azimuth error</td>
</tr>
<tr>
<td>Multi-node Localization</td>
<td>&lt;20% range error</td>
</tr>
<tr>
<td>Power</td>
<td>&lt;75 watts</td>
</tr>
<tr>
<td>Processing Electronics</td>
<td>3 3u cards</td>
</tr>
<tr>
<td>Sensor Volume (each)</td>
<td>14 in3</td>
</tr>
<tr>
<td>Number of Sensors</td>
<td>1-16</td>
</tr>
<tr>
<td>Sub-System Mass (w/o cables)</td>
<td>&lt;12 lbs</td>
</tr>
<tr>
<td>Network Protocol</td>
<td>TCP/IP</td>
</tr>
<tr>
<td>Real Time Operating System</td>
<td>Integrity</td>
</tr>
</tbody>
</table>

VAWS Node Display

M113 Platform Noise Present

M113 Platform Noise Removed

VAWS Cancellation Performance Spectrograms

VAWS Node Functional Block Diagram

Impulsive Event Processing

Vehicle Processing