**Acoustic Surveillance Unit (ASU)**

**Features:**
- Integrated acoustic sensing and signal processing
- Custom Application Specific Integrated Circuits (ASIC) for passive acoustic vehicle direction and localization
- Wake-up sub-system for ultra low-power consumption
- Contact reports or analog outputs available
- Acoustic Horn design maximizes aperture and reduces wind noise
- Waterproof sensor capabilities

**Benefits:**
- Covert, long endurance UGS with no moving parts for increased reliability
- Ready for vehicle-mounted or ground application
- Affordable
- Bearing accuracy capability to within 5° at frequencies above 100 Hz.
- Rugged for vehicle and/or ground applications
- Compact size (11 cm diameter).
- Low Wind Noise

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**Power Budget**

<table>
<thead>
<tr>
<th>FUNCTION</th>
<th>COMPONENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wake-Up Subsystem</td>
<td>Microphone and Amplifier</td>
</tr>
<tr>
<td></td>
<td>Wake-up Chip</td>
</tr>
<tr>
<td></td>
<td>Clock/Microcontroller</td>
</tr>
<tr>
<td>TOTAL WAKE-UP POWER</td>
<td>0.35 mW</td>
</tr>
<tr>
<td>Bearing Estimator Subsystem</td>
<td>Microphone and Amplifier</td>
</tr>
<tr>
<td></td>
<td>Microcontroller</td>
</tr>
<tr>
<td></td>
<td>Bearing Estimator Chip</td>
</tr>
<tr>
<td>TOTAL BEARING ESTIMATION POWER</td>
<td>3.24 mW</td>
</tr>
<tr>
<td>Power Source</td>
<td>4AA Batteries</td>
</tr>
</tbody>
</table>

**ASU Tracking M60 Target in Real-Time Around 600m**

- Ground Truth
- Gradient Flow (ASIC)
- Cross-Correlator (ASIC)
- VAWS Processing (DSP)

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**The versatile and affordable design of SSC’s compact acoustic sensor may be adapted to meet multiple customer specifications, including FPGA and DSP implementations.**

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**Signal Systems Corporation**

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Phone: 410-431-7148
FAX: 410-431-8884
Currently under development:

- Compact and ultra-low power design of original ASIC based ASU
- An inexpensive commercial Digital Signal Processing (DSP) based ASU that performs advanced beamforming and self-noise cancellation so that the ASU will function in many environments.
- additional interfaces for magnetic and seismic sensors
- air deployable capability

Next Generation ASU Network

- Microphones mounted near the center of the ASU provide maximum wind noise reduction while preserving acoustic aperture.

Signal Systems Corporation

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