

# Acoustic Surveillance Unit (ASU)



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

## Features:

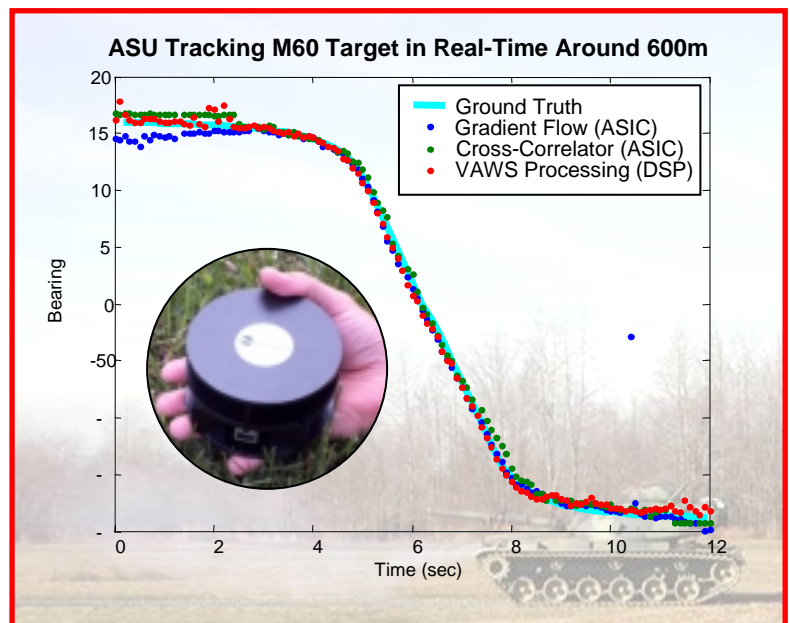
- Integrated acoustic sensing and signal processing
- Custom Application Specific Integrated Circuits (ASIC) for passive acoustic vehicle direction and localization
- Wake-up sub-system for ultra low-power consumption
- Contact reports or analog outputs available
- Acoustic Horn design maximizes aperture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

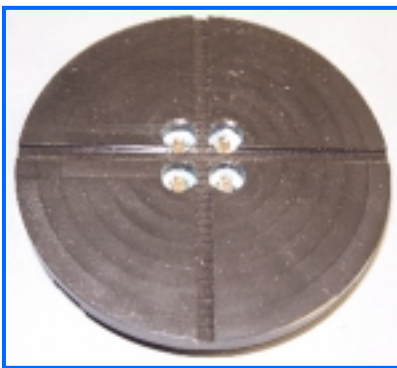
## Benefits:

- 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 (11cm diameter).
- Low Wind Noise

## Power Budget

<u>FUNCTION</u>	<u>COMPONENT</u>
Wake-Up Subsystem	Microphone and Amplifier Wake-up Chip Clock/Microcontroller
<b>TOTAL WAKE-UP POWER</b>	<b>0.35 mW</b>
Bearing Estimator Subsystem	Microphone and Amplifier Microcontroller Bearing Estimator Chip
<b>TOTAL BEARING ESTIMATION POWER</b>	<b>3.24mW</b>
Power Source	4AA Batteries
Life @10% Duty Cycle	1.9 years
Life @ 1% Duty Cycle	3. 2 years





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

### Currently under development :

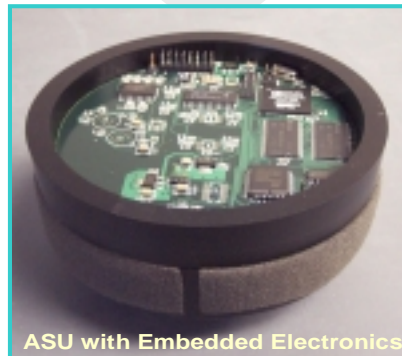
- Compact and ultra-low power design of original ASIC based ASU
- An inexpensive commercial Digital Signal Processing (DSP) based ASU that performs advanced beamforming and self-noise cancellation so that the ASU will function in many environments.
- additional interfaces for magnetic and seismic sensors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

## Next Generation ASU Network



### VAWS Technology Insertion

- Impulsive Event Detection
- Arms Fire Ranging
- Wireless Contact Reports
- GPS & Compass Sensors
- Self-Noise Cancellation
- Deployed on Vehicle or Ground



### VAWS-Like Base Station

- Collects and Fuses Wireless Contact Reports
- Vehicle Contacts and Impulsive Contacts
- Likelihood Ratio Detection and Kinematic Tracking



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