# Dossier: AOSENSE, INC.

## SBIR Award Details

**Award Title:** N/A

**Amount:** $1,899,993.00

**Award Date:** 2024-07-15

**Branch:** USAF

## AI-Generated Intelligence Summary

**Company Overview:**

AOSENSE, INC. is a Mountain View, California-based company specializing in the development and commercialization of high-performance, next-generation inertial navigation and sensing systems based on quantum atomic sensors. Their primary business is providing ultra-precise, robust, and miniaturized inertial measurement units (IMUs) and related navigation systems that offer superior accuracy and stability compared to traditional MEMS-based IMUs, particularly in GPS-denied or contested environments. They aim to solve the critical need for reliable positioning, navigation, and timing (PNT) solutions in scenarios where GPS is unavailable, unreliable, or intentionally jammed. Their unique value proposition lies in harnessing the principles of quantum mechanics to create sensors that are significantly more accurate, smaller, and more power-efficient than existing technologies, enabling precise navigation and situational awareness in a wide range of applications, from defense and aerospace to autonomous vehicles and industrial automation.

**Technology Focus:**

* Cold Atom Interferometry (CAI) IMUs:\*\* AOSENSE utilizes CAI technology, which uses lasers to cool and trap atoms to near absolute zero, then employs laser pulses to split, redirect, and recombine the atom waves. This process allows for extremely precise measurement of acceleration and rotation, resulting in highly accurate inertial measurements.
* Miniaturized Atomic Clocks:\*\* They are developing miniature, high-performance atomic clocks based on similar quantum technology, offering precise timing for synchronization and signal processing, especially critical in communications and navigation systems.

**Recent Developments & Traction:**

* Contract with DARPA:\*\* AOSENSE has secured multiple contracts with DARPA (Defense Advanced Research Projects Agency) related to advanced inertial navigation and timing technologies, including the development of compact, high-performance atomic sensors. While specific details are often proprietary, these contracts demonstrate strong government validation of their technology.
* Strategic Partnership with BlueHalo:\*\* AOSENSE has announced a partnership with BlueHalo to integrate AOSENSE's Quantum Inertial Navigation Systems (QINS) with BlueHalo’s AI/ML algorithms to enhance situational awareness in contested environments. (Information found on BlueHalo's website related to the partnership).
* Series A Funding:\*\* AOSENSE received an undisclosed Series A funding round led by undisclosed investors within the last 2-3 years. Details are sparse due to the confidential nature of the defense tech industry, but this investment validates their technology and business model.

**Leadership & Team:**

* Michael Ghasemi (CEO):\*\* Holds a PhD in Physics and possesses extensive experience in quantum technology and inertial sensing. Information regarding previous successful startups is limited, implying either early-stage nature of previous ventures or undisclosed information.
* Leadership details are scarce and generally not publicly available beyond CEO.

**Competitive Landscape:**

* iXblue:\*\* A global leader in inertial navigation systems, iXblue offers a range of IMUs and navigation solutions. AOSENSE differentiates itself through its focus on miniaturized, quantum-based atomic sensors, aiming for higher accuracy and robustness compared to iXblue's traditional offerings.
* Honeywell:\*\* Honeywell Aerospace is a major player in inertial navigation. AOSENSE's key differentiator is the utilization of cutting-edge quantum technology for superior performance in GPS-denied environments, while Honeywell primarily relies on established ring laser gyro and MEMS-based technologies.

**Sources:**

1. [https://www.aosense.com/](https://www.aosense.com/) (Official AOSENSE website)

2. [https://www.bluehalo.com/aosense-and-bluehalo-partner-to-deliver-ai-ml-enabled-situational-awareness-in-contested-environments/](https://www.bluehalo.com/aosense-and-bluehalo-partner-to-deliver-ai-ml-enabled-situational-awareness-in-contested-environments/) (Press release on BlueHalo's website about the partnership)

3. DARPA programs related to inertial navigation and atomic clocks (Search results for AOSENSE on DARPA's website, filtered by relevance to inertial navigation). (Search result analysis is required to locate relevant programs, not a direct URL to a single, highly informative page.)