

DIVER PERFORMANCE MONITORING SYSTEM (DPMS)



THE PROBLEM

The Army needs a health- and stress-monitoring system to help eliminate deaths in the Combat Diver Qualification Course.

The Diver Performance Monitoring System (DPMS) topic is the Army's effort to eliminate fatalities and reduce injuries that occur during Combat Diver Qualification Course through precise, real-time monitoring of divers' vitals.

THE OPPORTUNITY

This is a Phase I SPARTN SBIR opportunity. Phase I begins with a concept demonstration to Army stakeholders/problem owners. This establishes technical merit, feasibility, and commercial potential of proposed R&D efforts to determine the company's success potential.

Up to 10 businesses will be selected to receive up to \$150,000 each for a three-month period of performance. Businesses with insights into smart watches, sensor packages, and smart clothing are among those encouraged to apply. This is a partnered and co-funded effort with [Army Applied SBIR](#) to enhance project funding, increase transition likelihood, and ensure front-end Army customer involvement.

The system may include visual- or audio-alert functions to notify safety personnel when diver trainees' vitals approach dangerous levels. It will augment other significant safety measures to ensure trainee safety.

Examples of successful technology features:

- +Tracking vitals in saltwater, chlorinated water, and freshwater
- +Functionality in depths up to 130 feet and in temperatures between 30 to 100 degrees Fahrenheit
- +Wearables with monitoring abilities that do not interfere with training or gear
- +Communicate distress to safety personnel and fellow divers
- +Present real-time physiological data to user on a wearable display
- +On-device memory data storage
- +Compatibility with Human Performance Data Management System (HPDMS)
- +Bluetooth or wifi connectivity for data transfer
- +Modifiable thresholds to determine when alerts should occur
- +24-hour continuous runtime and adequate storage to capture critical data

The DPMS applications open Jan 10 and close Jan 31 at 11am CT. Learn more at aal.army/get-involved/.



This monitoring system must track the blood oxygen levels, heart beats per minute (BPM), and heart rate variability (HRV) of divers. It must remain accurate in saltwater, chlorinated water, and freshwater.



Alerts should be made via an optical or audible notification when a diver's vitals become a concern. Safety personnel can then halt the training and tend to the diver if needed.



The monitoring system should allow adjustable alert limits to account for differences in diver anatomy (e.g., 190 BPM could mean an emergency for one diver but not another).



Background on the SPARTN Program

Created at AAL in FY20, Special Program Awards for Required Technology Needs (SPARTN) blends government and industry best practices to introduce a new whole-of-Army, collaborative approach to solution innovation. The result is a way to solve Army problems faster and to accelerate the process by which successful technology is purchased by the Army.

The AAL Cohort Model + SPARTN Topics

AAL's Cohort Program brings in businesses that don't usually partner with the DoD and focuses them on solving a specific Army problem. They work side by side with Soldiers and with a community of Army experts and stakeholders on a shared learning journey to create something new.

Businesses selected for this topic will be invited to join a focused cohort to gain deeper insight into the problem and direct interaction with Army stakeholders and end users. While joining a cohort isn't required, it can provide more access and information to help refine your solution.

A Different Kind of Cohort

- + Not a conventional cohort or accelerator program
- + Hybrid experience with both virtual and in-person activities
- + Each cohort focuses on solving a specific problem
- + Increased access to key Army leaders and end users
- + Visits to Army posts where you can see the problem firsthand

Visit aal.army/cohortprogram to learn more about the AAL Cohort Program and the benefits of participating.

The 3 Phases of SPARTN



Phase I begins with a concept demonstration to Army stakeholders. The viability of R&D efforts is reviewed to determine the company's success potential prior to granting funding.



In Phase II, companies are selected for a period of performance to advance their technology with higher federal funding and, on certain projects, matched funds from private investment.



In Phase III, companies have the opportunity to access higher-value contracts to further develop their technology with the end goal of transitioning to an Army program of record.

WHAT MAKES SPARTN DIFFERENT?

1. Problems released through SPARTN are tied to the Army's critical needs and other focused modernization efforts
2. Faster contracting speed, with businesses typically notified of award 4x faster than the conventional SBIR process
3. Potential for millions in total value follow-on contract to build a concept or prototype related to the specific problems
4. Acquisition teams included early on, with the goal of easing transition and building new tech into recurring Army budgets
5. Potential for future high-value contracts via SBIR, other government funds, and private investment you secure

All topics released through SPARTN feature challenging and important problem statements from problem owners across the Army. These represent some of our biggest challenges and the ones we want to work closely with industry to solve.

To learn more about SPARTN or how to apply for SPARTN topic, visit aal.army/SPARTN.

