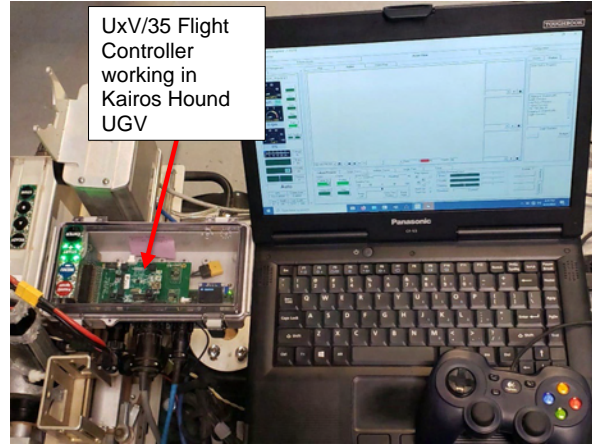


# Universal Vehicle Controller (UVC)



**Kairos Autonomi**  
Sandy, UT

[www.Kairosautonomi.com](http://www.Kairosautonomi.com)



## Contact:

Samantha Lawrence  
Technical Point of Contact  
Kairos Autonomi  
[samantha.r.lawrence.civ@us.navy.mil](mailto:samantha.r.lawrence.civ@us.navy.mil)

**Topic Number:** N201-X01

**SYSCOM:** Office of Naval Research (ONR)

**Program Sponsor:** Office of Naval Research (ONR)

**Other Potential Programs:**  
Federal Emergency Management Agency, DoD, Red Cross

**Current TRL:** 5

**Projected TRL:** 7 / Q3 2023

## Keywords:

American made and sourced, unmanned, universal vehicle controller, commercial-off-the-shelf, HADR, universal

SBIR Innovation Center



2023 Navy Gold Coast | July 26 – 28, 2023

## THE CHALLENGE

Humanitarian Aid and Disaster Relief (HADR) is a worldwide need. The highly dynamic environments resulting from debris and infrastructure destruction create a significant challenge in moving supplies into and survivors out of disaster zones. The Navy is seeking to develop and demonstrate rapid, distributed, on-demand manufacturing of unmanned systems capable of supporting multiple payloads dependent on the situation.

## THE INNOVATION

A modular stackable approach to various components needed for proper UxV capabilities (i.e., Electronic Speed Controls (ESC), Communications, Enclosures & Structures, Power Distribution, Video Systems, Global Orientation, Payload Systems, Local Orientation, and System Test) was created and standardized using the newly developed UxV/35 standard. The UxV/35 standard allows an operator to open a series of packaged modules required for autonomous operation and stack them as required. The operator can configure the software and start missions in a matter of minutes. It is scalable due to the ability to order from a consortium of engaged vendors. The Mean Time Between Failures (MTBF) is increased and the Mean Time To Repair (MTTR) is decreased simply by applying a standard.

## THE NAVY BENEFIT

Unmanned systems can access, and operate in, areas that are hazardous to humans, reducing the risk to human life. Commercial-off-The-Shelf (COTS) UxV solutions, equipped with the Kairos Universal Vehicle Controller (UVC) and the associated robotics kit, reduce the cost per unit and allow for mass production of automated UxV that can be widely distributed to hazardous disaster zones. With such a robotic system, first responders can utilize these UxV in hazardous operational environments, reduce human intervention in logistical movements of supplies, goods, or equipment, and maintain operational status for long periods of time that would stress a normal human operator.

## THE FUTURE

Presently, the world of autonomous UxVs is unregulated, and as such, would not currently be offered to the general public. However, there is a need and a market for defense, FEMA, and other government organizations.