



# DEFENSE LOGISTICS AGENCY

## THE NATION'S COMBAT LOGISTICS SUPPORT AGENCY



### SMALL BUSINESS INNOVATION PROGRAMS EXPLORED INNOVATIONS

## SECURING RESOURCES FOR US DEFENSE & COMMERCIAL INDUSTRIES

### SUPPLY CHAIN INNOVATION

## UDRI, ARCTOS and Open Additive Transition AMSENSE®, a Sensor Suite Validating 3D Printed Metal Parts for the U.S. Military

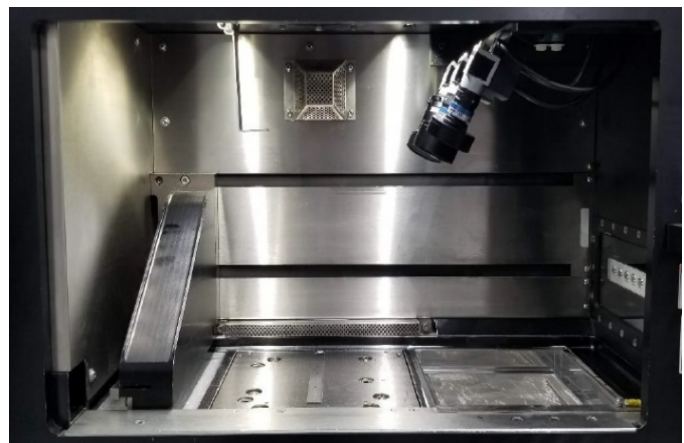
Additive manufacturing (AM) is a rapidly evolving field with widespread implications throughout the Department of Defense (DoD). AM can potentially save the DoD billions of dollars over the next several decades if a means to ensure part quality with performance equal to or better than conventionally forged parts becomes available. The ability to certify and validate AM parts would be a game changing step for the Department, allowing on-demand fulfillment of low volume parts at low cost and with significantly reduced lead times.

Under multiple contracts with DLA, the University of Dayton Research Institute (UDRI), and ARCTOS are pursuing this challenge, collaboratively, with the manufacturing and industry knowledge of

their OEM partner Honeywell Aerospace and policy, institutional expertise of Macy Consulting, and commercialization outlet Open Additive. Together, the team has developed AMSENSE® – an open architecture, third-party multi-modal sensor platform to enable certification of individual Laser Powder Bed Fusion (LPBF) builds, independent of part suppliers, machine manufacturers, and process parameters.

Aligning the technical capabilities of the sensor suite with industry standards and real-world manufacturing line requirements will result in a comprehensive product to accommodate any LPBF operation.

Currently, qualifying individual machines to produce single components is time



*AMSENSE® shown in upper right corner, build chamber.  
Image provided by Open Additive, 2021*

#### TOPIC NUMBER:

Multiple SBIR/STTR  
& RIF

#### TOPIC TITLE:

Universal AM  
Process Monitoring  
for Rapid Part  
Validation

#### CONTRACT NUMBER:

SP4701-18-C-0076  
SP4701-19-C-0049  
SP4701-19-C-0041

#### SBIP COMPANY NAME:

University of Dayton  
Research Institute  
Dayton, OH

#### ARCTOS

Dayton, OH

#### TECHNICAL PROJECT OFFICE:

DLA J68 SBIP

#### PUBLISHED:

2021

Made in the USA





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consuming, costly, and highly dependent on the nuances of each machine and manufacturer. AMSENSE<sup>®</sup> is designed to be a standalone product that is compatible with all commercial LPBF machines with minimal modifications required for installation (reducing consumer risk). The purchase price will be cost effective for manufacturers with multiple machine production lines.

AMSENSE<sup>®</sup> offers an immeasurable impact to the DoD supply chain. The ability to accelerate certification of LPBF AM parts, and by extension, a means to confidently manufacture parts faster and at a lower cost will change the way DLA can flex to support the warfighter and surge for wartime or emergency operations.

AMSENSE<sup>®</sup> is being commercialized and sold by Open Additive, and is currently installed at multiple NASA locations, at research institutes and on the production lines of two OEMs.

For more information, please contact [DLASBIR2@dla.mil](mailto:DLASBIR2@dla.mil)

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