areola

AREOLA | e-Newsletter #1 November 2022

AR/VR for Aerospace PFB-LB Operators

AR/VR: Augmented Reality/Virtual Reality

PBF LB: Powder Bed Fusion, Laser Beam

Project Number: 2021-1-PT01-KA220-VET-000034876

Introduce AREOLA

AREOLA is an ERASMUS+ funded project in the umbrella of Cooperation Partnerships in Vocational Educational and Training (VET), with a consortium that gathers a diversity of institutions in the education and training, additive manufacturing field and technologies.

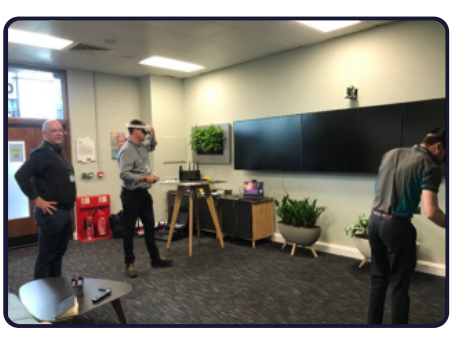
>> Continue Reading

>> Kick-off Meeting

Connecting VR/AR to Additive Manufacturing

An essential part of the project is for the Additive Manufacturing (AM) experts in the partnership to understand more about the capability of AR/VR enabled training tools and also for the AR/VR experts to be familiarized with the Powder Bed Fusion – Laser Beam (PBF-LB) metal AM process. With this in mind, on the 30th June 2022 Ben Dykes from MakeReal (developers of AR/VR training software tools) visited the Manufacturing Technology Centre (MTC) headquarters in Ansty, Coventry to meet with Iain Cant, Alex Hardacre and David Wimpenny. The visit commenced with a demonstration of MakeReal's AR/VR enabled training tools.

Then the team from the MTC was given the chance to perform some practical training scenarios, already developed by MakeReal. In addition to fully immersive headsets (e.g Oculus Quest), the opportunity to deploy the solution on hand held devices (iPad) was also explored. After MakeReal's demonstration Ben was given a tour of the UKs National Centre for Additive Manufacturing, allowing him to see a range of AM machines including the EOS M400-4 thus helping him to appreciate the nature of the practical training which needs to be performed.



What Aerospace Stakeholders Thinks?

Technology is changing rapidly, and industry is constantly lacking skilled additive manufacturing professionals. A desk research in the field of VR/AR assessing the implementation in PBF-LB Operator training was implemented. With the aim to help understand how best to align AREOLA project to the needs of the aerospace sector representatives from several leading aerospace companies and VET providers were interviewed:

Cameron Ross , Group Manufacturing Engineering & Technology Director, Parker Meggitt:

Our business is in progress with setting up an AS9100 approved AM facility in the Ansty Park Factory (close to the MTC) to make Aerospace grade Heat exchangers. Meggitt first used AR/VR training for the **"Ventilator Challenge UK"** project where the consortium undertook manufacture of ventilators to support the UKs National Health Service through the rapid supply of ventilators to treat Covid-19 patients. The activity was a dramatic change from the normal business and was rolled out across several sites at great speed. AR/VR tools were instrumental in ensuring good communication and a consistent approach used to train staff and validate process compliance.

Following this very positive experience and a suite of HoloLens2 units were purchased by Meggitt to support communication across manufacturing sites. Three use cases have been prominent in their use; **Training**, (for experienced staff in one location training a team in another location to perform a new operation or use a new piece of equipment); **Root Cause & Corrective Action** (for cases where the expert is away from site); **Quality Validation** (where conformity of product and process is required by someone away from site, for example an aerospace customer).

Daniel Naylor, Senior Manufacturing Engineer, Thales Group:

Has a background in AM (responsible for the polymer AM facility) before moving to a new initiative around digital manufacturing, thus making him ideally placed to address questions about the use of VR/VR tools in AM training.

Within Thales, AR/VR tools have largely been used in product and management training, however, more recently they have been used in manufacturing training, particularly for complex, low volume production processes which are performed infrequently or for practicing operations performed in challenging working environments. Using AR/VR tools attendees really focus the user 100% on training. However, technical support is required and it is vital that all attendees are comfortable with the approach before training commences, particularly as common tasks such as changing notes and group discussions change considerably in a VR environment.

FOLLOW OUR SOCIAL MEDIA BELOW!

Get updated with our recent activity.

Co-funded by the Erasmus+ Programme of the European Union

Funded by the European Union. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or the European Education and Culture Executive Agency (EACEA). Neither the European Union nor EACEA can be held responsible for them.

Project Number: 2021-1-PT01-KA220-VET-000034876