Call for 10th Research Project Proposals – 3D mapping of enterprise and industrial environments for AR.

13th October 2021

Industry Context for the Research

In showcases, Augmented Reality can be implemented to provide a highly sensitive, contextually-aware user interface to an enterprise's facilities and assets. In such demonstrations, AR leverages prior investments to create and maintain "digital twins." Having 3D models and maps of infrastructure and environments reduces the cost of AR experience development and discovery, and having AR-assisted devices continuously monitoring the real world permits updating the digital twins. Combining AR and 3D models and "spatially-anchored" or -aligned maps increases the ROI for several information technology stacks and reduces cost of operation and ownership.

Yet, in practice, enterprises seeking to expand their AR deployment in environments that can be captured in 3D are encountering significant obstacles. Even when available, AR experience authoring, publishing and delivery systems rarely connect to enterprise 3D environment maps, therefore, do not leverage existing investments. Developers must author or revise experiences every time there are changes in the environment. Users have to manually select AR experiences or AR-assisted procedures, instead of having a solution that automatically detects and associates procedures or other information with the user's environment.

Practical knowledge about how to leverage existing spatial mapping for AR platforms and other tools/use cases is low. Knowledge of tools and techniques for creating and managing 3D environment maps (offline or in-situ) is also low. As a result, developers and engineers deploying enterprise AR miss valuable opportunities to:

- Choose when/how/with which partners to add 3D mapping to their tool

chains
- Integrate and leverage 3D mapping in their authoring platforms
- Integrate feature detection from 3D maps into AR experiences
- Quickly and accurately capture 3D environments
- Leverage existing standards for rapid/future-proof AR solutions based on 3D mapping

Project Goal

The AREA seeks to provide its members knowledge and deep understanding of the current state of the art of continuous or periodic 3D mapping of enterprise and industrial environments for AR and the available tools to leverage this information for the development of spatially aware applications such as AR. The project will also provide actionable information which members can use to more effectively identify solution providers and partners, and to leverage prior investments made by their own organizations or by their customers and partners, in digital twins and 3D spatial maps.

Fixed Fee Project

The AREA Research Committee budget for this project is $15,000. Organizations interested in conducting this research for the fixed fee are invited to submit proposals.

More information

Full information on the project needs, desired outcomes and required components of a winning proposal, including a submission form, can be found here.

If you have any questions concerning this project and the AREA Research Committee, please send an email to the Research Committee.

AREA Webinar Replay: IDC Analyst Sizes the Enterprise AR Hardware Market

13th October 2021

That's why, in early September, the AREA hosted a webinar entitled *Sizing the Enterprise AR Hardware Market*. The centerpiece of the event was a presentation by Tom Mainelli, VP of Devices at IDC, one of the IT industry's most respected global analyst firms. We recorded the webinar and it's now available here.

During the webinar, Mr. Mainelli explains how IDC sizes the current market and forecasts enterprise AR hardware growth. Along the way, he provides answers to such questions as:

- What are the different approaches IDC uses when estimating enterprise AR hardware market size and growth?
- What factors does IDC forecasting take into account when sizing the adoption of enterprise AR?
- What important developments in 2021 will make this year memorable in the annals of enterprise AR history?

Don't miss this opportunity to get an exclusive presentation of valuable insights about market sizing principles shared by one of the world's leading analysts studying the AR display hardware market. Go here to view this one-hour presentation.

Using Theorem-XR and HoloLens 2 for Engineering Reviews

13th October 2021

You can watch the full webinar on **Using Theorem-XR and HoloLens 2 for Engineering Reviews**.

Key highlights

Theorem has also picked out **5 key benefits of using the Microsoft HoloLens 2 in Engineering** which appear in full detail on their blog.

Visualize your models at full scale.
Work collaboratively with other engineers.
Make better factory planning decisions.
Work with large datasets using Azure Remote Rendering.
You can still work with colleagues that are using other XR technologies, or none at all.

Keen Research Brings the Power of Speech Recognition to AR

13th October 2021

New AR deal to help steel industry protect vital skills and move towards net zero

13th October 2021

The project will initially use Vuforia Studio technology to overlay live data – taken from the ThingWorx® industrial platform – to various points of the facility, so that operators moving around will be able to make informed decisions on changes to casting and melting lines or troubleshoot issues before they happen.

It is anticipated that Augmented Reality will make it easier for staff to hae the right information at exactly the right point they need it, whilst the use of HoloLens and RealWear glasses will mean the individual has both hands free to complete tasks.

This project will contribute to the sector's longer-term desire to move towards a net zero steel works by 2050 and is part of the £22m PRISM steel and metals sector research and innovation programme being delivered by the Materials Processing Institute with funding provided through Innovate UK, part of UK Research and Innovation.

"The successful implementation of digital technologies has the potential to save tens of £millions every year," explained Chris Oswin, Group Manager of Digital Technologies at the Materials Processing Institute.

"We are taking responsibility for exploring IIoT platforms and AR and working out how we can get the most out of them in a live steel plant, learning from testing and trials to identify best use cases."

He continued: "This means we absorb a lot of the time and remove the initial expenditure that could act as a barrier to entry for companies in our industry, hopefully encouraging digital adoption as we will have proved it works and how it can be applied to businesses.

“PRISM is guided by a team of industry leaders on our Industrial Advisory Board, including the Aluminium Federation, British Manufacturing Plant Constructors’ Association, British Steel, Celsa Steel, Liberty Steel, Outokumpu Stainless Steel, Sheffield Forgemasters, Swansea University, Tata Steel and the UK Metals Council.”

The Materials Processing Institute has a long-term relationship with PTC, with the latest project following on from the introduction of ThingWorx as part of the £10m programme to explore how digital technologies can be implemented in brownfield manufacturing sites.

In addition to optimising processes and introducing new efficiency improvements, Augmented Reality will also be used to capture some of the traditional skills in the sector that could be lost if the knowledge of older workers is not retained before they retire.

This will be achieved by using PTC’s Vuforia ® software, with Vuforia Expert Capture allowing operators and technicians to film their daily tasks in step-by-step instructions, in situ of when and where they do their work.

This will be uploaded to ‘the Cloud’, which can then be accessed by new starters or people switching roles, using HoloLens or RealWear to get a real hands-on experience, or other devices such as mobiles, tablets or on desktop computers.

Furthermore, for problem resolution and live ‘on the job’ support, there is Vuforia Chalk.
Using mobile devices, digital eyewear or seated at a desk – experts can connect with on and off-site employees and customers and collaborate in real-time. It combines live video, audio and the ability for remote and local participants to annotate their live shared view and mark-up the real-world environment.

“If we don’t act soon, we stand to lose so much knowledge from the industry and AR gives us a cost effective and easy way to retain skills and experience in a virtual library for generations to come,” added Chris.

“Working closely with PTC’s experts, we can tailor how we capture information, footage and skills in what is a very demanding and intense environment. We believe we’ve got the initial framework to start the roll-out and will continue to adapt the processes as we understand more about how digital technologies can play a role.”

David Grammer, general manager for UKI for PTC, went on to add: “Covid-19 has definitely thrust the digital thread into the spotlight, but there is still a resistance to adoption due to a lack of awareness of how it will deliver a genuine business benefit.

“This project with the Materials Processing Institute gives an entire sector the opportunity to explore how AR can be applied and developed in a real live steel plant without the potential disruption and cost of trying it in their own facilities.

“Businesses will be involved in the roll-out and informing some of the test cases and our team will be on hand to support experts at the Institute to get the most out of our technology and software.

“The end goal is that we will have proven business cases on how steel and metals companies can optimise processes using Augmented Reality and live data, not to mention protecting vital skills for the steel workers of the future.”

PTC, which has bases in the UK and Ireland, provides a host of technology solutions to help industrial companies create value for themselves and the rest of the world.

This is achieved through a combination of Augmented Reality, Industrial IoT, Product Lifecycle Management and CAD solutions.

PTC expands spatial computing capabilities with Vuforia Engine area targets

13th October 2021

Through the use of Area Targets, industrial organisations can create AR interfaces within their facilities to enable employees to better engage with machinery and understand how the environment is being utilised.

More information can be found here
https://library.vuforia.com/features/environments/area-targets.html

PTC says that with support from Matterport and Leica 3D scanners, along with NavVis's indoor mobile mapping systems, Area Targets users can generate "photorealistic, survey-grade digital twins, empowering them to create digital canvases of spaces such as factories, malls, or offices for advanced spatial computing applications".

As one of the leading emerging technologies, spatial computing powers digital twin renderings to support the activities of machines and people, as well as environments in which they operate.

When deployed across the industrial enterprise, spatial computing enables seamless interactions between employees through AR, enabling companies to close the loop on performance management, improve machine learning capabilities with spatial analytics, and optimise design and

factory floor operations," notes PTC.

"Vuforia Engine Area Targets is a one-of-a-kind solution for large, persistent AR experiences," said Mike Campbell, Executive Vice President and General Manager of Augmented Reality, PTC.

"Whether users are looking to add navigation to their office building or view in-context data on a factory floor, Area Targets is the answer. We're pleased to be expanding such a key capability and component of PTC's spatial computing vision."

The release of Vuforia Engine Area Targets marks the second Vuforia offering to deploy spatial computing in the form of area targets within the industrial setting, the first being the Vuforia Spatial Toolbox platform.

Combined with the Vuforia Chalk, Vuforia Expert Capture, and Vuforia Studio AR products, the Vuforia AR Enterprise Platform provides what PTC says is a "robust set of offerings that enables users to increase workforce safety and efficiency, improve customer experiences, and reduce costs".

AREA podcast features PwC's Jeremy Dalton's new book, Reality Check

13th October 2021

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Is AR Emerging as a Key to Resilience and Business Continuity?

13th October 2021

The coronavirus pandemic has forced many organizations to reconsider how well-equipped they are to deal with business disruptions that require more remote work. That's especially true for industrial companies that succeeded pre-COVID through optimized supply chains and manufacturing processes and specialized employee skill sets.

AREA Executive Director Mark Sage recently spoke with Umar Arshad, Head of Growth for AR Products at PTC, to discuss how more organizations will now leverage AR to maintain business continuity and build resiliency.

Watch the discussion in the Video below:

AREA Research Committee Issues Call for Proposals to Study AR and 5G in the Enterprise

13th October 2021

The AREA seeks to receive proposals for a funded research project that will examine and capture in a report the current status of 5G in enterprise environments, assessments of the risks and opportunities of using 5G technologies for AR use cases, and areas for future research and potential investment for AREA members. The project will also deliver tables containing objective, vendor-neutral information about current component costs, product and service offerings, past and current trials, proof of concept projects and guidelines for AREA members.

Organizations with relevant expertise in the research topic may respond to the invitation on or before 12 PM Eastern Daylight Time on February 10th.

Industry Context for the Research

Investments in 5G are fueled by the potential for new low-latency, high-throughput network technologies to reduce or remove barriers to implementation of new and powerful use cases. By providing connected devices and machines access to high performance computing and other limited and costly resources, 5G networks will significantly expand and lower the cost of use of powerful computing hardware and software, data sets and other services (e.g., privacy, security, localization and other artificial intelligence-based platforms).

Telecommunications companies around the world are heavily promoting 5G technology for delivering AR for entertainment and other consumer-facing services. The 5G-based services will be provided by network operators, some of whom are partnering with AR device and software providers to offer solutions to enterprise customers.

Managers of large enterprise IT organizations are aware of the emerging 5G networks and components, including 5G-ready wearable and mobile devices, but many questions remain to be answered prior to the introduction of these in an enterprise infrastructure. Before AREA customer segment members begin testing AR over 5G in their facilities, they need deeper understanding of key concepts of 5G, and the requirements, opportunities or benefits 5G could bring.

Before AREA provider segment members begin evaluating and planning for 5G-enabled product or services to offer to their customers, they must build out 5G expertise internally or partner with companies that have 5G offerings.

Project Goal

The AREA seeks to provide its members with knowledge about the current status of AR and 5G for enterprise, and actionable information which members can use when planning their AR and 5G strategies.

Fixed Fee Project

The AREA Research Committee budget for this project is $15,000. Organizations interested in conducting this research for the fixed fee are invited to submit proposals.

More information

Full information on the project needs, desired outcomes and required components of a winning proposal, including a submission form, can be found here.

If you have any questions concerning this project and the AREA Research Committee, please send an email to the Research Committee.

Podcast – Getting Started in Enterprise Augmented Reality – Insights from Theorem Solutions

13th October 2021

One of the biggest challenges of successfully implementing Enterprise Augmented Reality – and the wider scope of eXtended Reality – is getting started. How do you start the conversation within your company and, more importantly, who should own XR within an organization?