Immersive Technologies and Smart Buildings Reduce Costs and Create More Accessible, Innovative Learning Environments

By Emil Alon

Higher education facilities managers continue to stress that their biggest industry challenge is caused by aging facilities and the lack of financial resources to deal with them effectively. The impact of COVID-19 makes it even more critical for managers to reduce costs and increase efficiencies while ensuring that their facilities support the latest innovative learning experiences.

New technologies like augmented reality (AR) and artificial intelligence (AI) can help facilities managers automate processes and access data for greater efficiency.

Automating maintenance and repairs can rapidly increase maintenance productivity, provide a faster flow of information among technicians, and reduce the need for hiring more staff. Once smart maintenance is implemented, educational facilities are transformed into intelligent digital environments. This approach makes it easier to leverage additional AR applications that address more critical issues, such as managing equipment and devices, facilitating employee onboarding and training, and extending physical spaces by creating new digital real estate.

AI is also powering a new era of robotics in facilities management. With the right system of sensors and processors, robots are helping to automate activities such as cleaning and maintaining buildings, from windows and floors to HVAC ducts. They can help supplement human employees during tasks where safety may be a concern. Advanced AI enables robots to work alongside skilled human workers and even communicate with them in real time. This makes the jobs of a greater number of skilled workers easier and safer.

AI applications can also collect aggregate data analytics and deliver invaluable insights for making ongoing decisions to increase efficiencies, optimize strategic planning, and inform regulatory compliance.

SMART MAINTENANCE AND OPERATIONS

Facilities managers may choose to leverage smart maintenance and navigation applications. With this type of application, anyone in a building can point their mobile device at any object that needs repair. The object's precise location is automatically noted, and a repair ticket is created. Existing maintenance data and other relevant information can then be integrated before sending the ticket to the repair technician, along with AR navigation instructions.

Technicians may also receive easy access to relevant AR content, such as tutorials or instructions that furnish step-by-step information for addressing maintenance tasks. This type of application can greatly increase technician productivity, decrease hiring needs, and lower the cost of maintenance and repairs.

IOT CONTROLS

As more and more Internet of Things (IoT) devices are used in buildings, there is also an explosion of services and applications for controlling each device. This increase in complexity can become unwieldy and create added maintenance costs. A mobile AI/AR application can offer an efficient way to address this problem—consider the advantage of having one app that automatically recognizes all smart devices in a building, including lights, thermostats, monitors, and many others. Such an app can identify a device, sensor, or piece of equipment, pull up the appropriate interface, and allow anyone to easily manage and control it.

AR TRAINING AND TUTORIALS

Immersive AR training and tutorials offer much

more engaging, interactive experiences as compared to videos and manuals, making it easier to understand how to operate complex equipment. AR can provide the right training at the right time so content can be automatically accessible on a mobile device when technicians or staff navigate buildings. Once implemented, AR content can be managed and updated remotely—which not only helps keep content fresh and relevant but also lowers the cost of providing new content.

CREATING THE LEARNING SPACES OF TOMORROW

Once a facility has been analyzed and converted into an intelligent digital environment, there are endless possibilities to leverage the AR cloud for new use cases that can transform today's outdated buildings into innovative learning spaces.

Facilities managers can leverage the same platform, giving staff the ability to create engaging AR content without having to provide them with new hardware or costly equipment. AR is increasingly used for education across multiple subjects, to make lessons come to life, enhancing interactivity with the material, and enable students to practice more without the need to purchase new models or materials.

It's clear that COVID-19 is going to change our society in many ways, some of which may be more permanent than we think. Even as shelter-in-place orders are lifted, facilities will need to maintain some level of social distancing and provide much more information to end users in their buildings.

Particularly in education, AR can help facilities managers prepare for new realities. These technologies enable more intelligent digital environments that run with greater efficiency and offer the ability to reimagine educational spaces.

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