MANUFACTURING SKILL STANDARDS COUNCIL

Definition of Augmented Reality

The term "augmented reality" covers a broad spectrum of software applications and hardware devices that, when combined, provide users with digital information visually overlaid onto their immediate surroundings. This is accomplished with video-see-through technology (like a tablet or smartphone), or with optical-see-through technology (such as smart glasses or goggles). Using motion and position sensors, AR devices can determine the user's orientation in space and with that data, anchor the information it provides to a specific point in space, feature, or object.

AR is well suited to the factory floor where goggles are the preferred devices. It has emerged as a powerful new tool to bridge the gap between the digital and real worlds for assemblers, operators, and technicians. By adopting AR solutions for employee training and guidance applications, manufacturing organizations empower their factory workers with information that helps to optimize asset and personnel performance, reduce costs, enhance ensure product quality, and increase on-time delivery.

Adoption is shifting into the mainstream, especially for applications in guided manual assembly and maintenance. The capabilities of AR-based work instruction go far beyond those of static, hard-copy instructions. From a functional standpoint, several key elements differentiate AR work instructions:

- AR instructions can be delivered step-by-step in real time and in context.
- AR instructions can be presented as any combination of simple 2D and complex 3D digital assets.
- AR instructions can be viewed without shifting attention away from the workpiece.

Additionally, AR devices can be used to monitor assembly progress, provide real-time feedback and, in more advanced applications, incorporate automated inspection for quality control. Digital work instructions are perfectly preserved; unaffected by harsh factory environments; unaltered by unauthorized personnel; and remotely updated to implement new best practices, accommodate changes in product design, improve consistency across production lines, or address incoming or outgoing quality concerns.

Sources:

The Franklin Institute
ARC Strategies
PTC

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