

# Free Your Hands for Productivity

## How the Industrial Worker Will Stay Relevant in the Age of Automation

Manufacturing is getting smarter. A lot smarter. Leading aerospace companies are using advanced manufacturing methods to enhance productivity and enable the realization of designs not otherwise producible with conventional methods. Automation, robotics, and additive manufacturing are displacing labor-intensive jobs in many industries. Beyond the gains enjoyed from improved quality and productivity, increasingly inexpensive access to improved sensors, machine learning and artificial intelligence (AI) will create opportunities to create new savings through not-yet-invented systems.

But make no mistake, highly skilled technicians will be needed more than ever. Decades of institutional knowledge are being lost due to retirements and there is a shortage of younger employees to replace them. Boeing Flight Services

projects that 679,000 new commercial airline maintenance technicians will be needed over the next 20 years alone.

Less experienced workers need to become more capable and productive faster. They need to collaborate with experts, access documentation and information when and where it is needed, and begin to do that more effectively using augmented reality (AR).

According to TechTarget, "AR" was originally coined by Boeing researcher Thomas Caudell in 1990. Simply stated, AR integrates and overlays digital information with the user's environment. We see this digital overlay every Sunday as the Seahawks play football and commentators telestrate scrimmages and first down lines onto the screen. Many Washington tech companies are working on developing software in this space from tech titans like Microsoft, to start ups like 8ninths in Seattle and Gravity Jack in Spokane.



Four things are increasing industrial interest in AR: first, ubiquitous high speed wireless internet; second, emerging access to massive data made possible by connecting edge devices to the Industrial Internet of Things (IIoT); third, the wider availability of software applications; and fourth, the digitization of work instructions, drawings and documentation.

Industrial use of AR has lagged the consumer world due to a lack of standards and low-friction tools that increase productivity. High value technicians must continue to work with their hands while interacting with any device. That means voice control is imperative. Just as we transitioned from key strokes and command lines to graphical user interfaces with mice, followed by touch screen and gestures, we are now seeing the widespread introduction of natural language processing as the next wave of computer interfaces. Amazon's Alexa? Microsoft's Cortana? Google Voice? Each enables hands-free information access in context whether you are cooking, watching TV or maintaining a jet engine.


What has been missing for industry is a ruggedized hardware tool that can be operated without impeding worker productivity. Smart Phones and Tablets can be ruggedized, but require the operator to stop what they are doing to use them. Their screens can be hard to read in some environments and may compromise safety if gloves or other personal protective equipment must be removed to operate them.

Washington start-up RealWear\* has produced an industrial-quality, wearable voice-controlled Android tablet that avoids all of the challenges of working with a smart device while enabling three critical categories of applications:

1. Remote Mentoring
2. Read/Write Access to Real-Time Documents
3. Contextual Data Visualization

It is compatible with hardhats and other PPE. It's lightweight and doesn't interfere with vision thanks to a readable screen mounted on 6-axis boom. It works even in loud environments thanks to effective noise cancellation technologies.

Using only your voice you can use the HMT-1 to collaborate remotely, read a blue print, follow a work instruction, see data elements related to your physical location or proximity to equipment, or fill out a checklist.

The future of industrial work will consist of highly trained, connected workers collaborating and accessing information in real time using their voice and wearable tech. It's time to get ready. 

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**COMPLETELY HANDS-FREE**

Local speech recognition in loud industrial areas - no buttons, swiping or gestures



**CONNECTED**

Wi-Fi Bluetooth LE. Tether to smart phones, portable hotspots or plug-in USB dongles for LTE access.



**POWERFUL**

Self-contained Android 6.0 Qualcomm Snapdragon 625 platform. 2GB RAM / 16GB Flash



**INTRINSICALLY SAFE**

HMT-1Z1 model for potentially explosive environments in oil & gas, etc. FMC1/D1 & ATEX Zone 1



**DISPLAY**

High-resolution micro-display recreates the equivalent view of a 7-inch tablet held 20-inches away from your eyes.

