Factory 4.0 Closes Third Shift Knowledge Gaps with AR

Tradeoffs are being made in the transition to Industry 4.0. While automation and live data collection bring a slew of benefits, they are also the harbingers of rapidly increasing complexity. However, when coupled with a practical augmented reality knowledge management platform, the transition to Factory 4.0 is seamless.

Factory 4.0

Modern factories contain increasingly complex equipment which allows for autonomous operations. The addition of numerous sensors has allowed for live data collection to inform equipment condition, preventative maintenance, and general operations. However, the increasingly complex sensor-driven equipment populating industry has provided a new challenge: growing knowledge gaps.

With growing needs for skilled technicians and an aging workforce, many facilities are facing a lack of qualified coverage to keep their operations running smoothly. While live data has driven improvements in preventative maintenance and reduced the number of unscheduled downtime events, the lengths of these downtime events has grown. This is due in large part to knowledge gaps, especially in off hours.

Step-by-Step Procedures

It's 3:00 AM on a Wednesday night. An automated production line jams and triggers an alarm. With all this automation in place, there are only a few workers on the night shift. Sam is one of them. He is the forklift driver, currently working in the warehouse. Relying on SmarTECHS AR solution, Sam receives detailed alerts together with specific step-by-step work and safety guidance to enact a safe restart of the production line.

When John the plant supervisor arrives at the plant on his morning shift, a detailed report tells him what happened and what steps Sam took to restore the equipment, together with photos and video.

Industry

Manufacturing

AR Solution

- SmarTECHS

- Smart Glasses (HMT-1)

Business Cases

- Step-by-Step Procedures

- Live Data

- Training

Results

- 30% increase 1st time fix rate

- Reduce mean time to repair

- JIT & OTJ Training

- Institutionalize know-how

- Improve safety and compliance

- Hands free solution

Training

The skilled blue-collar workforce is aging, turnover is high, and training is expensive and time intensive. While employee training will never go away, the way training is provided is rapidly changing. Traditionally, technical roles have been trained through intensive courses – lasting a few weeks to half a year – followed with supervised on-the-job training. This method results in a lot of information being lost between the classroom and the job site. It's also a very costly way of onboarding rookie techs and keeping current employees up to date. Training incurs costs from staff, material costs, unproductive hours of technicians, and supervision of rookies by senior technicians.

Augmented reality has changed how training can be conducted across industries. Now, with AR, technicians can turn weeks or months in a classroom into mere days. The training value is driven by reinforcing that knowledge in the field and providing easy access to full procedures and documents as needed. This is how augmented reality is allowing technicians to train just in time and on the job significantly faster, cheaper, and with better results.

In the field, AR helps close knowledge gaps missed by training, procedures, and manuals by allowing live remote experts and technicians to connect and provide real time support and instruction.
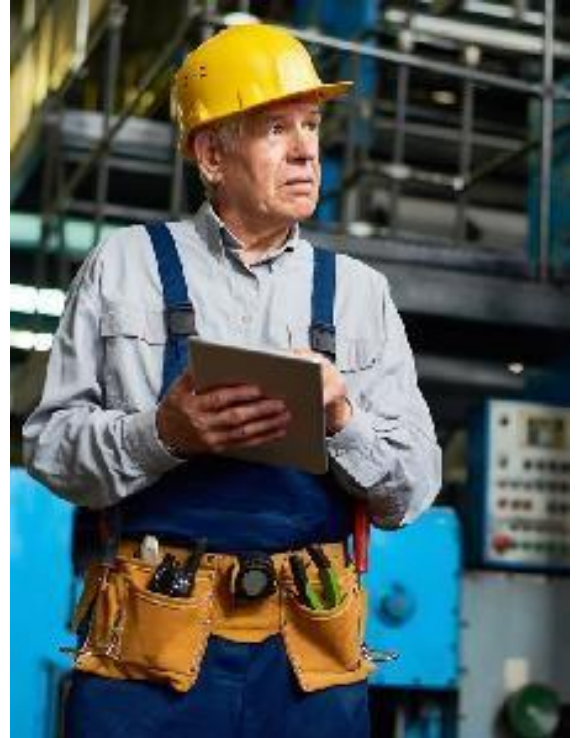
Live Data

Sensors and Internet of Things (IoT) are becoming widespread throughout industry. But the question becomes what to do with big data and how to interact with it from a managerial perspective. With SmarTECHS IoT solution, however, technicians are being empowered with selective reports and alerts based on their role and position. They can access a traffic control view of the overall operation across different buildings, production lines, and equipment from anywhere in the plant. At the same time, they can drill down to only see info for a specific piece of equipment to help them trouble shoot and repair.

Technicians no longer need to move back and forth between machines and a PLC terminal, or from one end of the line back to the PLC. Now the PLC is always visible while fixing equipment. Additionally, typical alert triggers are paired with specific step-by-step instructions, ensuring safe and prompt restart of production lines.

Benefits

Drive workforce performance and flexibility with easy to follow process guidance.

Reduce downtime by providing the tools and knowledge for swift issue resolution.

Reduce training time and cost by reinforcing classroom knowledge with independent and effective, just-in-time and on-the-job training.

Empower technicians with a holistic view of live data for equipment and facilities.

Automate live data alerts to technicians on the job and provide them easy access to machine data.

Increase safety compliance with the ability to instantly create and submit hands free incident reports.

SmarTECHS