4 Ways Wearable Safety Tech is Transforming Industrial Automation

Going Beyond Safety with Connected Workers

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From our perspective, automation efforts frequently stall because they fail to interact with a plant's most important asset – its people. Connected workers are a massive opportunity to increase the breadth of intelligent sensors throughout a manufacturing facility. Using only a small device worn in an armband, an entire workforce can automatically and continuously capture environmental, motion, observations from the front line, and location/proximity data.

"We need to recognize that there is an interplay between equipment and people. This relationship has a direct impact on product quality, safety, and health," explains Gabe Glynn, MākuSafe's CEO and co-founder. "By integrating workers on the IoT network, we can uncover insights that have powerful implications on long-term safety, productivity, and efficiency."

Connected workers can close the gap on your goals for industrial Internet of Things (IIOT). Employees with industrial wearables generate a rich stream of data that can be mined to uncover new paths to operational efficiency. Our customers are going beyond workplace safety and making tactical improvements to environmental quality, assembly line speed, equipment permissions, and productivity.

ENVIRONMENTAL QUALITY

What if every worker in your building was collecting environmental data no matter their location?

The drawback of most environmental sensors is that they are stationary. Mounted to a wall or ceiling, their measurement radius is limited. But place these instruments on workers and now environmental readings are entirely mobile, and provide real-time visibility into the conditions each individual is experiencing. Metrics are generated throughout your facility wherever employees are positioned. Those findings can then be integrated into a HVAC sequence to automatically regulate temperature, humidity, and ventilation.

For example, temperature and humidity can fluctuate significantly throughout a manufacturing space. IoT-equipped workers can reveal variations that need to be addressed, such as turning on an air handler or closing overhead ventilation. All of this could be done without any active intervention – no manual reports of thermal discomfort or overriding building automation controls.

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ASSEMBLY LINE SPEED
2

What if your feet per minute could intuit when the rate needs to slow down?

There are scenarios when production can't and shouldn't maintain a static speed. But an automatic conveyor runs at a predetermined pace regardless of staffing levels. When there's a mismatch between the rate and crew, it creates an additional work burden on those present. This can lead to stress, decreased efficiency, and increased safety risks. If workers don't feel empowered to speak up, their situation may go unnoticed and unresolved.

With IoT-connected workers, however, manufacturing processes can automatically align with the number of people detected. If someone steps away for a break or is temporarily pulled to another line, the system will know and adjust accordingly. The conveyor can similarly modulate its rate if a team is short staffed for a shift. Conversely, data may prove which specific teams work more productively together. Proximity data could show where workers are, and who they are close to. That could be compared to production/output quantities, and reveal that this team of three people has higher output than most teams of five?

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EQUIPMENT PERMISSIONS

3

What if your manufacturing equipment could verify or decline users?

This is essential for machines that need mandatory training and certifications, such as CNC machines or forklifts. Most already have IoT capabilities for maintenance issues – it's not a stretch to add an authorization step.

For example, a worker approaches a forklift for use. A sensor registers the employee and verifies if their certification is current. If it's not, the machine will remain locked. It's the same concept as an access control badge but applied to equipment clearance.

This application can also be used as a form of intelligent spatial awareness. An approved user is operating a robotic arm, but what happens if an unauthorized person enters this zone? The proximity sensor could detect this new worker and instruct the machine to stop, automatically eliminating a potential injury risk.

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PRODUCTIVITY ANALYSIS 4

What if you could pinpoint the performance of an assembly team?

Quality, efficiency, and output – they are the foundation to any manufacturer's success. However, productivity can vary among different teams. Whether a crew has a stellar or subpar defect rate, the question is always why. Data from IoT-connected workers can reveal if the physical environment is a contributing factor. Incorrect temperature, excessive noise, or improper humidity may be overlooked culprits.

Exertion might also be a factor. MākuSafe's sensor-packed wearable not only detects slips and falls but repetitive motions and worker physicality. Supervisors can correlate this information against productivity metrics. It could lead to a discovery that a focused ergonomics assessment or targeted training is needed. It might even prompt an evaluation of workstation design or process reengineering to avoid the risk of injuries, such as; cumulative stress, strain & exertion, or musculoskeletal disorders (MSD's). Without worker-generated data providing a clue to investigate, these low-cost and simple measures might have been missed.

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WHAT'S NEXT?

The potential to maximize manufacturing operations with connected workers is vast. Companies have an amazing opportunity to implement IoT findings as continuous improvement efforts.

"There are undiscovered elements that impact a worker's safety and health simply because we haven't measured them yet. Remember that there was once a time when asbestos and lead paint weren't a concern," says MākuSafe Co-Founder/CEO, Gabriel Glynn. "Our knowledge is always changing. For example, how can we act on the growing evidence that suggests sound exposure can negatively impact heart health? Or might it be possible to gain leading indicators of worker behavior, movement, that are precursors to fatigue? We need the data from IoT-connected workers to keep probing our understanding of safety, health, and productivity."

"The Connected Worker Market was valued at USD 4.87 billion in 2022. It is projected to reach USD 29.61 billion by 2030, with a compound annual growth rate (CAGR) of 25.3% during the forecast period of 2023-2030." Report by SNS Insider

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Interested in learning more?

We're here to help.

What if you could optimize production AND keep your workers safer? Does that sound like a vision for the future? At MākuSafe, we are helping companies like yours transform their safety program and improve productivity today.

MākuSafe is the leading connected worker technology; combining a safety focus with the ability to digitally connect workers to smart machines, smart buildings and other factory automation technology. Increased safety and improved productivity are the driving forces behind Industry 4.0 and connected worker technologies like MākuSafe.

Let's connect.

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