



Wearable Device Solution Improves Manufacturing Productivity by 20%



Challenge

According to a Manufacturing Vision Study, by 2022 the adoption of Industry 4.0, smart factories and wearable tech will reach 50% among manufacturers, and an estimated 64% (compared to 43% today) will be fully connected. Manufacturing facilities will increasingly witness the usage of radio frequency identification (RFID) wearables, automated systems and other emerging technologies by shop floor workers to monitor plant processes and enable decentralized decision making. Our client, an APAC-based semiconductor foundry, was seeking a solution to increase manufacturing productivity, improve overall equipment utilization and minimize the need for highly skilled operators.

For more information,
please write to us:
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Scope

The scope included the design and development of a wearable device to enable seamless connectivity between equipment operators and the existing manufacturing system.



Solution

Mindteck delivered a customized wearable device to improve both productivity and equipment utilization. The solution, a smart watch, was able to both assign tasks and provide alerts to equipment operators. In addition, we conceived and implemented the bridge application software integrating the smart watch with the existing manufacturing system.

The solution encompassed:

- ➔ Wireless communication over Wi-Fi using 5GHz frequency band,
- ➔ User Interface with an LCD display for messaging, two status LEDs, three push buttons, and incoming message alerts,
- ➔ Easily replaceable and rechargeable batteries, with no additional tools needed.



To bridge the application software, we designed and developed a web application for the integration of the smart watch and the bridge software to.

- Map employees, tools, and devices,
- Register employees by RFIDs and badge IDs, or existing database information,
- Send messages to a specific device or a group of devices,
- Archive messages,
- Resend messages and provide for automatic message retry functionality,
- Enable zone mapping and geographic location to existing wireless router setup,
- Fault Detection:
 - Enable hardware diagnostics
 - Detect communication failures
 - Track user activity
- Backup logs, messages, and usage data.



Outcome

- 20% increase in operator productivity and equipment utilization,
- Reduced need for highly-skilled operators to remediate manual intervention events,
- Easily replicable solution deployable across multiple manufacturing sites.

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About Mindteck

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