

Mobile maintenance alerting on the plant floor – semiconductor manufacturing case study

Derdack's solution links machines, sensors and manufacturing control systems with appropriate and available factory staff, and automatically send incidents alerts, quality issues and maintenance jobs via text, IM or voice directly to worker's smartphones.



Overview

Derdack's client is a large semiconductor manufacturer with production facilities in Europe, Asia and the US. Derdack's software supports a special unit responsible for maintaining different systems spread out across the whole factory floor ("fab"). The teams operate in 24/7 shifts to supervise and maintain systems like OHVs ("Overhead Hoist Vehicle") that automatically transport pods containing wafers from point to point within the production process.

Situation

Previously, an operator had to stay in the control room watching monitors for failed OHVs that block the transport system and hence the overall manufacturing process. Using radio the operator used to inform and dispatch the team members for OHV repairs. However, he was entirely swamped by control room work.

Solution

The introduction of Derdack's solution solved this situation by sending OHV failure notifications directly to the team's mobile phones instead of a display on a control room screen. Derdack's software is directly linked to manufacturing control and execution systems and automatically distributes OHV and other system's alerts to maintenance staff on duty. Intelligence is built into the system to decide which team is available and who is on the plant floor to take

care of issues. Alert messages contain complete information on which OHV or system is affected, how severe the incident is and where the failed system is located ("bay"). Derdack's software tracks delivery of alert messages and acknowledgement in real-time and can escalate automatically to other team members and managers. Consequently, the team no longer needs to have a worker based solely in the control room and frees this team member up for maintenance work. The solution's mobile app provides incident information sharing, responsibility overview and additional collaboration features.

"We are firefighters. This system keeps us going."

Client's maintenance team lead

Impact

As a result, Derdack's client is enjoying a) a much shorter meantime-to-repair (MTTR) in high-output scenarios as the right workers are alerted quickly and reliably and there is extra headcount on the floor (the worker who was previously confined to the control room) and b) lower staff deployment and HR costs due to more efficient use of their current headcount. Assuming a team of four in each shift for each semiconductor fab, the overall result in this instance is a cost reduction of one quarter for each maintenance unit. The faster MTTR in high-load scenarios has an even greater financial impact.

Benefits

- Accelerated response to failed and process-blocking factory transport systems (OHVs)
- Minimized interruptions of the manufacturing process
- Flexible, automated and efficient dispatching of incidents and work orders to service resources
- Reduction of manual dispatching and control room work
- Additional HR available for maintenance work on the plant floor

Industry

Semiconductor Manufacturing

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