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# London taxi maker uses PLC to cut downtime risk

Andon reporting system helps taxi maker to keep production moving.

Response time to production challenges is reduced by up to 33 percent following installation by The London Taxi Company of an Andon system featuring ABB programmable logic controllers (PLCs) and human-machine interfaces (HMIs).

The manufacturer of the world famous black cab installed the Andon system to allow shop floor workers to report production problems and escalate them until they are solved.

Andon, from the Japanese word lantern, is a system of colour coded lights that signal the status of any production line challenge. The system increases the urgency and efficiency of response, improving productivity and forcing managers to focus on line stopping issues, while also preventing faults moving on down the line.

The system provides every manufacturing station on the production line with a pull cord. When a problem occurs on the line, such as a lack of parts or a machine stoppage, a production line worker pulls the cord and a light comes on. The pull cords are the inputs to the ABB AC500-eCo PLCs, and the light signals are displayed on HMIs located in each production area.

The light summons the relevant team leader to the workstation. The team leader then decides whether it is a simple problem that can be resolved immediately or a more serious challenge requiring help from an external department. If the team leader can solve the problem, this can be done promptly and the call can be cancelled. This system then logs the call automatically in the database.

The team leader can call for external help using the HMI. The HMI displays which area has the problem and a list of departments that are available for help. When a team leader selects maintenance, stores, quality or manufacturing, an alert sounds in that department.

“The ABB HMIs display where the problem is occurring and continues to flash a light and make a tone until the relevant people answer the call,” says Pete Herron, senior control engineer for The London Taxi Company. “Although the problem may not be solvable immediately, the system aims to cut down on the response time from the department, which tends to be where a lot of time is wasted.

“This is not an alert the department can ignore as their response time is now being measured and if they don’t respond then the line will stop.”

Data has already shown improvements in performance. For example, the chassis line had a response time target of one minute. Figures show this being reduced to only 39 seconds, an improvement of around 33 percent.

Using the HMI, the system records the data in an Excel-compatible file. This allows the data to be downloaded easily and opened in a standard spreadsheet, enabling response times to be analysed and the numbers and types of problems experienced by each production station to be assessed.

The data shows where the most call outs have occurred, allowing production managers to investigate the underlying causes of these incidents and find solutions.

London Taxis is also considering extending the connectivity of the system to allow data to be sent to portable devices such as iPads.

The improvement to the production process has come at the right time, as the company plans to extend its business. It currently produces 1,400 black cabs per year from its Coventry factory. However, this number is set to increase when a new plant comes into operation in 2017.

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**Caption:** An ABB PLC lies at the heart of The London Taxi Company's Andon reporting system which has cut response time for production challenges by up to a third.

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