Introducing Andon 3D Error-proofing User interface

Andon 3D is designed as a modern twist on assembly line operator user interfaces. It is not your traditional HMI or SCADA; it is an error-proofing solution overseeing manufacturing operations and the actions of the line operator. It operates above or next to HMI and SCADA, and unlike those traditional systems, Andon 3D serves as a modern plant floor communication, product tracking, and manufacturing reporting system essential for improving manufacturing efficiencies.

At the foundation of the andon technology is a Manufacturing Execution System (MES) that is a website based configurable plant floor management solution. Andon 3D includes many of the features found in an MES system, which makes it an entry for manufacturers to develop their future manufacturing execution system strategy. It includes all the manufacturing optimization software applications needed in a turn-key paperless manufacturing solution, including a feature called *SmartBuild* which users can access by opening a website to visualize and configure your assembly line in real-time from any computer, tablet or Smartphone.

Line operators interact with their own touch displays at each work station. It provides the line worker information she/he needs to complete assembly process steps, and the timing. It also presents the line worker with andon help buttons for when issues arise, as when time is running out, in order to call for help to avoid a line stoppage. Please see Figure 1 for additional line operator touch screen features:

![Figure 1. Line operator touch screen user interface example.](image)

The first order of error-proofing at any station is the verification of ‘who’ is working there (*logged in*), or not. Immediately the system can determine whether that operator is even qualified to do the tasks at hand; if they are, the system allows them to proceed and provides work instructions. If we dig deeper we can extract even more details about the efficiency of the work station and
line operator. For example, if an operator is not logged in at their work station when a product is available to be worked on, would you not want to know why? Alternatively, if an operator is logged in at their station, and no product is available to be worked on, then why or how did that happen? Andon 3D gives users the insight required to identify the second-by-second details of station cycle time losses that ultimately accumulate and cause over-cycle events.

All the data or interactions of the line operator with the touch screen user interface are monitored and recorded, and can be reported on using another included feature called Production Analytics. It is the manufacturing intelligence afforded by the system that leads to the implementation of effective continuous improvement initiatives. All plant floor communications and product data are captured into a ‘Cube’ or multi-dimensional database, which is manipulated in a web browser or by using Microsoft Excel with Production Analytics to report on a multitude of manufacturing operations specifics, right down to cycle-time losses.

Production Analytics gives insight into where it is cycle time is going, how it is being allocated, and how it can be improved. It allows the user to find out exactly where it is on the assembly line bottlenecks in time are occurring, and what caused them. This information allows the manufacturer to take decisive actions to remedy the issue, be it re-allocating cycle time elsewhere, or process steps to another station.

ANDON SOFTWARE

PINpoint Information System’s software is designed and tested to ‘Information Technology Infrastructure Library’ (ITIL) standards before any official version release. PINpoint’s andon and manufacturing execution system (MES) software have been developed since 1997 and continue to be evolved and pushed-forward by leading manufacturers. Thoroughly proven the software is in use daily around the World in multiple languages by leading automotive, aerospace, heavy machinery, agricultural, power sports vehicle manufacturers and more.

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About the Author

Anthony Borges offers over a decade of manufacturing optimization knowledge, with an aptitude for solving problems which increase manufacturing efficiency. He has successfully provided solutions to various multinational manufacturers involving the latest technology in sensors, laser (detection, measurement, welding, cutting, and marking systems), PLC, machine vision, microscope, and software solutions.