IoT and Product Quality

To understand product quality, one must understand the following definitions:

Quality Control (QC): Performing inspection operations AFTER the product is manufactured to ensure that defective product does not reach the customer.

Quality Assurance (QA): Building quality into the manufacturing operation to either PREVENT defective products (Poka Yoke)* from being produced, or to DETECT a defective product (JIDOKA)* and eliminate the possibility from producing a second defect.

The difference between QC and QA is that with QC, you are inspecting the product after the defect has occurred. With QA, you are preventing the defect from ever occurring in the first place. Inspecting in quality is never a 100% proposition. Companies who rely strictly on inspection through QC methods will most certainly pass defects onto their customers.

Many manufacturing processes consist of hundreds, sometimes thousands of variables that need to be controlled in order to ensure a quality product. This is where IoT plays a significant role. Production variables can be monitored in real time and adjusted accordingly when they are out of the required specification. This ensures a quality product every time, resulting in lower production costs and superior customer satisfaction, customer loyalty and profitable revenue growth.

Quality Facts and Statistics

- The 'Cost of Poor Quality" (COPQ) has been estimated to cost a business anywhere from 15% to 25% of their reported revenues.
- 6 Sigma Quality means that there will only be 3.4 defects per million parts produced. If the airlines operated at 6 Sigma quality levels, there would be a commercial airline crash every three days, somewhere on the globe.
- Poor product quality has been cited as the primary root cause for missed delivery commitments, long lead-times to the customer, higher production costs, and loss of customers and related revenue.
- Approximately 35% of surveyed manufacturers expect that product quality will be their greatest priority.

**POKA YOKE and JIDOKA are Japanese terms that originated from the Toyota Production System, which has evolved into Lean Manufacturing.*