

5G[®]

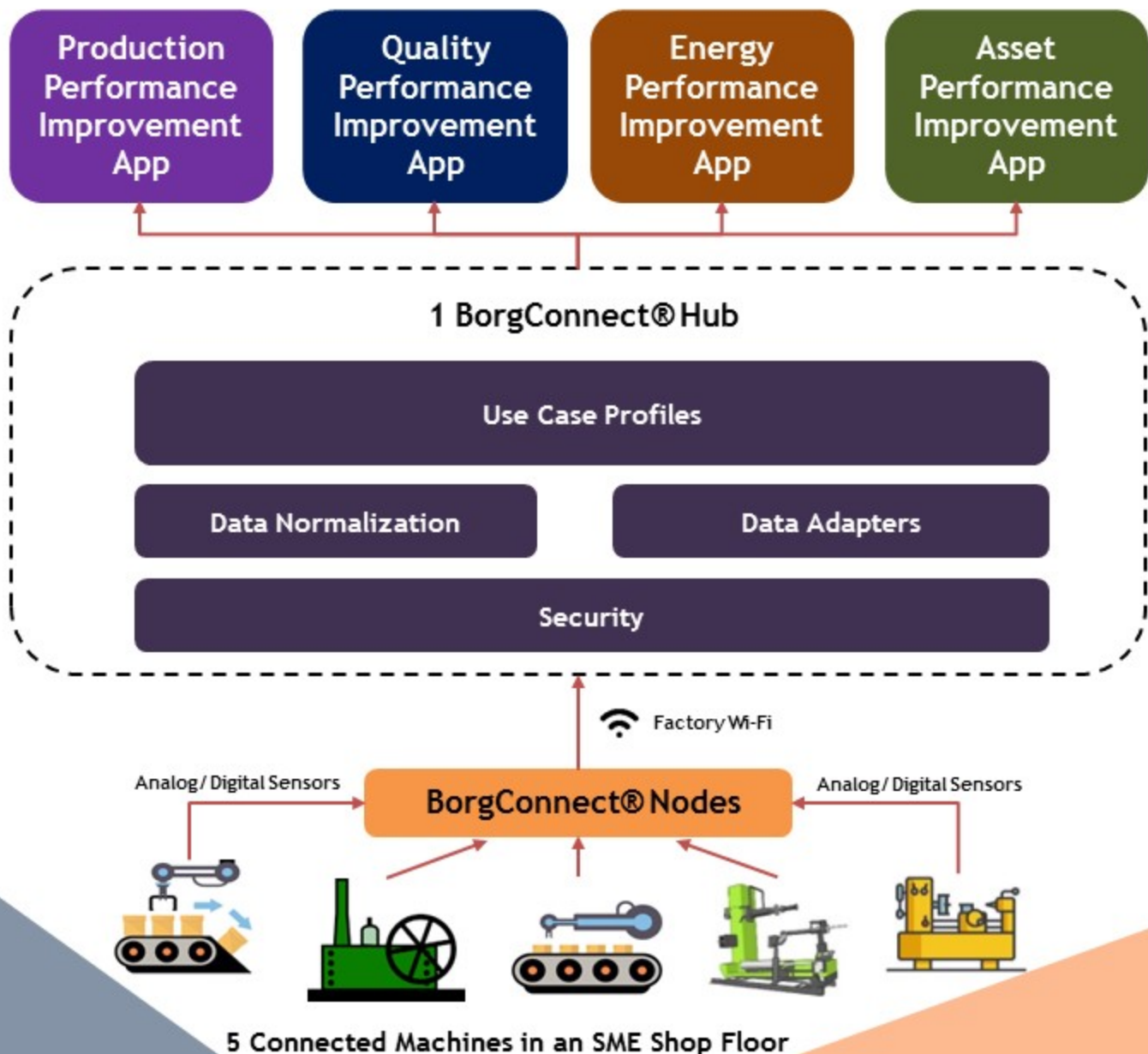
BORG CONNECT[®]

SMART MANUFACTURING BUNDLE FOR SMEs



SMART MANUFACTURING BUNDLE

4 Smart Apps Enabled by BorgConnect® Hub and BorgConnect® Nodes Across 5 machines



IMPROVE PRODUCTION PERFORMANCE



1. Real time Visualization of the Plant

Track Key Performance Metrics such as OEE, Utilization, Wastage, etc., of the 5 connected machines on a smart phone or a tablet.

2. Elimination of Paper Records

Whenever necessary, barcode and/or user entry of data of process, product, material, root causes of failures, etc., via an intuitive user interface to eliminate paper records.

3. Benchmarking

Smart benchmarking of process/production for different dynamic conditions and identification of anomalies and threshold crossings. Alerts of such anomalies delivered in real time!

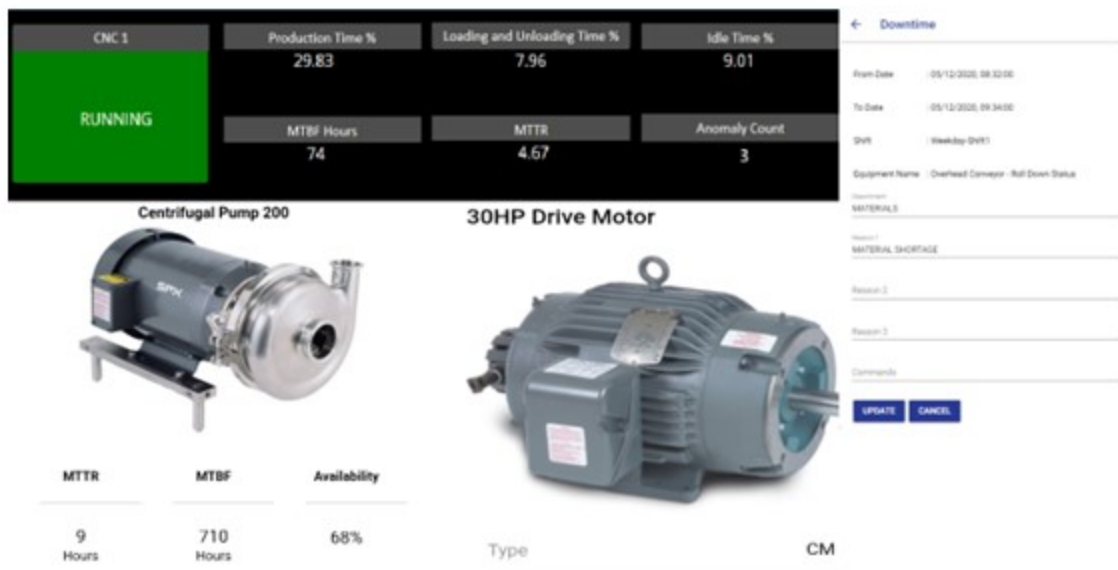
4. Tracking Plan - A Virtual Assistant

Smart tracking of deviation from plan in three dimensions - production time, production volume and materials usage.

5. Elimination of Non-Value-Added Costs

Smart vertical integration of production to corporate/enterprise systems for automated reporting of real-time production performance.

IMPROVE ASSET PERFORMANCE



1. Tracking Availability

Tracking planned and unplanned downtimes, idle times, breaks, product change times, etc., to compute and track Availability against Planned Availability for each of the 5 assets or a combination of assets.

2. Tracking Reliability

Tracking component MTTFs, MTTRs and computing MTBFs of the 5 connected assets. Pareto tracking of the failure rates leading to the tracking of the reliability of the 5 assets.

3. Prediction of the “Next” Failure

Estimating the probable time for the “next failure” of a component across all 5 connected assets - using machine intelligence.

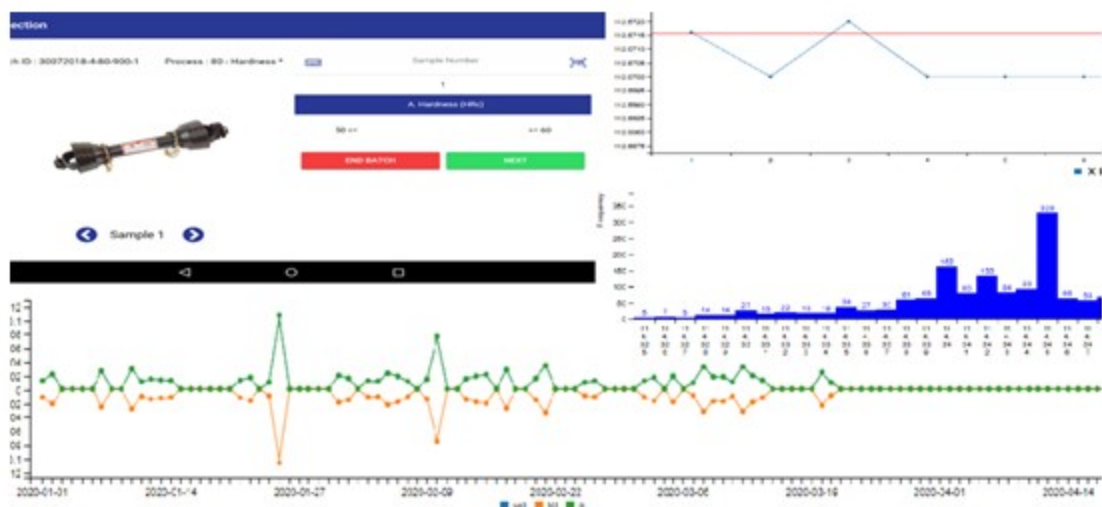
4. Predictive/Preventive Maintenance

Automated generation of predictive maintenance actions to reduce or eliminate unplanned downtimes based on failure predictions. Generate preventive maintenance work orders on the fly from a tablet!

5. Elimination of Non-Value- Added Costs

Automated integration of production equipment to enterprise asset management systems or CMMS for generating predictive, preventive & corrective maintenance work orders.

IMPROVE QUALITY PERFORMANCE



1. Elimination of Errors and Omissions in Quality Inspections

Recording quality measurements directly (objectively) from sensors and measuring instruments against established Quality Plans. Elimination of data input errors and/or omissions.

2. Tracking Process Stability & Process Capability

Automatic generation of X-bar, C_p , C_{pk} reports for tracking process stability and process capability in the manufacturing of each part/product by each of the 5 connected assets.

3. Tracking Reject Causes and Reject/Quality Rates

Recording of reject reasons on a smart phone or tablet for each rejected product - leading to reject analytics and recommended actions for process or operator improvement. Pareto Tracking of reject rates.

4. Tracking Cost of Quality

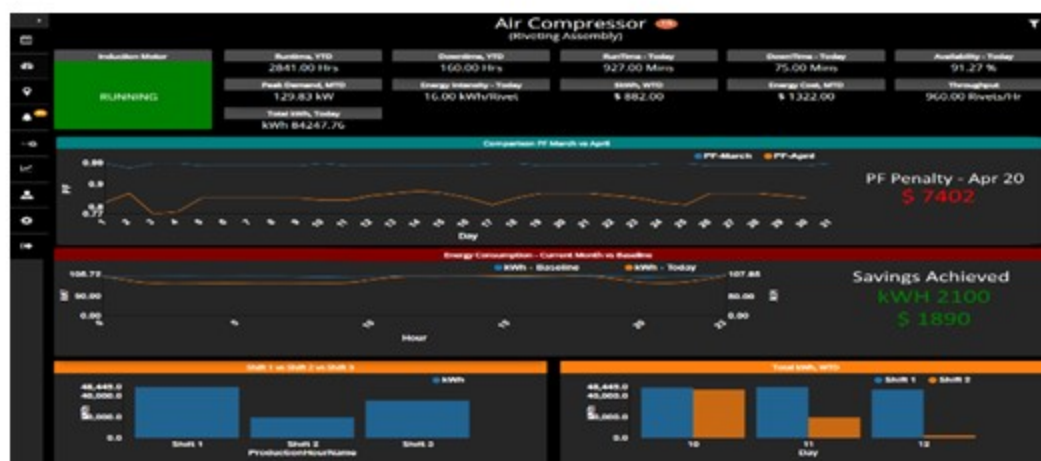
Computation of the cost of quality of 5 critical assets across different time periods and tracking its trend.

5. Traceability

Traceability of part/product produced by the 5 assets from two different points of view:

- Journey Trace - that continuously records and traces the quality attributes, and measurements made on the part/product across the 5 assets; and
- Production Trace - that records and traces the measurement of production/process parameters that are critical to maintaining quality.

IMPROVE ENERGY PERFORMANCE



1. Establishing Last Mile Connectivity

Establishing the last mile connectivity to major energy guzzlers in the plant using a non-intrusive sensor.

2. Automated Baseline

Automatic computation of “business as usual” profiles of energy consumption of a machine/process for every product type.

3. Production-Energy Optimization

Smart computation of energy consumption for every product (energy intensity) produced.

4. Comparison of Energy Usage

Comparison of the energy performances of identical machines to understand why one machine is behaving better than the others!

5. Implementation of Energy Saving Strategies

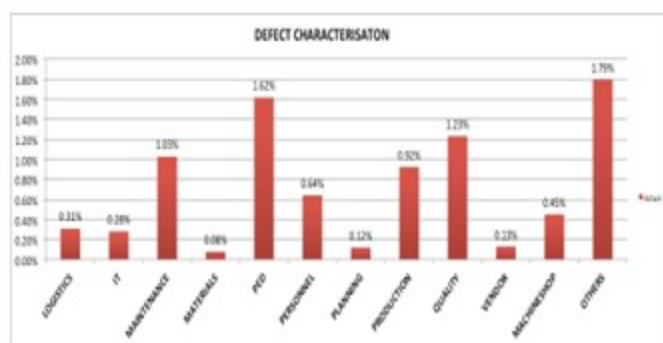
Smart computation of the expected savings & implementation of energy savings strategies to reduce energy consumption.



INDUSTRY USE CASES

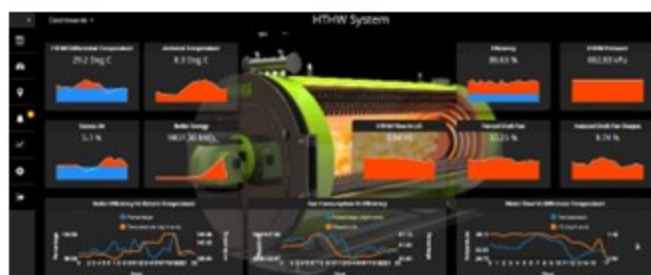
PRODUCTION PERFORMANCE MANAGEMENT

A Tier 2 SME tracks performance of CNC Machines in order to make incremental changes to improve performance within a shift.



An SME generates a report of root causes of line stoppages as a percentage of “available time” within a shift for performing analysis and improvement.

ASSET PERFORMANCE IMPROVEMENT



A boiler plant (utility) of an SME is monitored for KPIs & early warnings of anomalies in its operating performance that can lead to predictive maintenance.

INDUSTRY USE CASES

QUALITY PERFORMANCE MANAGEMENT

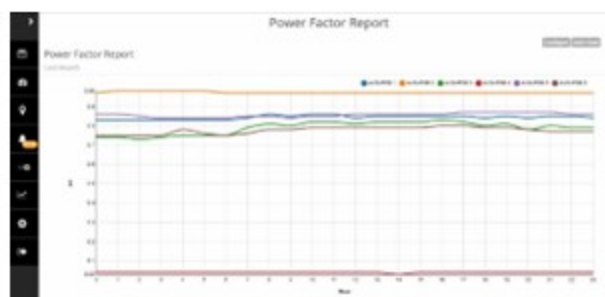


An Auto Parts SME objectively records In-Process & End-of-Line QC measurements via Bluetooth enabled measuring devices.

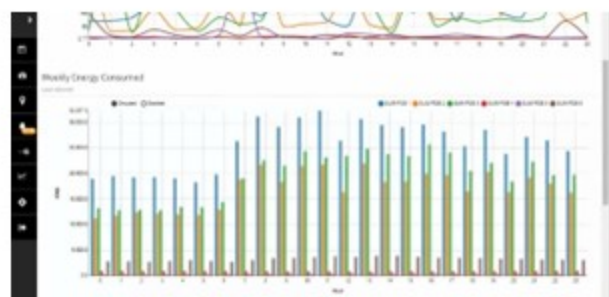


An SME tracks Process Capability of their manufactured parts.

ENERGY PERFORMANCE MANAGEMENT



An SME Food Processor tracks, logs & is notified of Power Quality events to curb utility penalties.



A Paint Shop monitors & reduces weekly energy consumption of a Paint Line across different types of parts.

The screenshot shows a 'Saving Plan Details' form. It includes fields for 'Strategy' (Load Cycling), 'Level' (Empire de L'U), 'Unit' (Kwh), 'Start Plan' (20190511), 'End Plan' (20190931), and 'No End'. There are also checkboxes for 'Day' (Sunday, Tuesday) and 'Hours' (4). Buttons for 'Save' and 'Cancel' are at the bottom.

A Printing Plant implements energy savings strategies (e.g. Load Shedding) during specific shift periods.

BorgConnect® HUB SPECIFICATIONS

Quad core Cortex-A72 (ARM v8)
64-bit SoC @ 1.5GHz;
Wi-Fi; Bluetooth;
Gigabit Ethernet;
0 - 3.5 A, 5V USB type-C Power Input;
Operating temperature: 0 - 50°C ambient.

PROTOCOLS SUPPORTED

MODBUS RTU, MODBUS TCP, UART, MQTT

STANDARD INTERFACES

I2C, SPI, RS232, RS485, UART, Relay
Control, HMI, Analog (4-20mA, 0-5V,
0-10V), Digital Sensors, Industrial LAN, AV,
USB, Bluetooth, Wi-Fi.

DATA ADAPTERS

PLC, SCADA, Historian, OPC®, MTConnect,
Maximo®, Oracle® EAM, SQL® Server, SAP®.

BorgConnect® NODE SPECIFICATIONS

0 - 50 mA - 3 Inputs
0 - 5 V - 3 Inputs
0 to 1.5 A, 5 V USB-Mini Power Input
Wired & WiFi Ethernet
Operating temperature: 0 - 50°C ambient

SERVER SPECIFICATIONS

1. On-premise server model PHYSICAL SERVER (optional)

Octa-core Processor;
12 GB of RAM; 100 GB of HDD.

OPERATING SYSTEM

Linux.

DATABASE TECHNOLOGY

MySQL.

2. Cloud Service Model (optional)

AWS, Azure.
Offered as a service.

CONTACT US:

CANADA:

203 Colonnade Road, Suite
202, Ottawa, ON K2E 7K3.
+1-613-368-4809

INDIA:

Suite 311, Workafella,
High Street, Mount Road,
Chennai, TN 600 018.
+91-44-2435-1778

MEXICO:

Ibsen 116, Polanco,
11550 México, D.F.
+52-555-280-4986

U.S.A.:

98 Cuttermill Road, Suite 466,
Great Neck, NY 11021.
+1-613-368-4809

www.fifthgentech.com | info@fifthgentech.com

