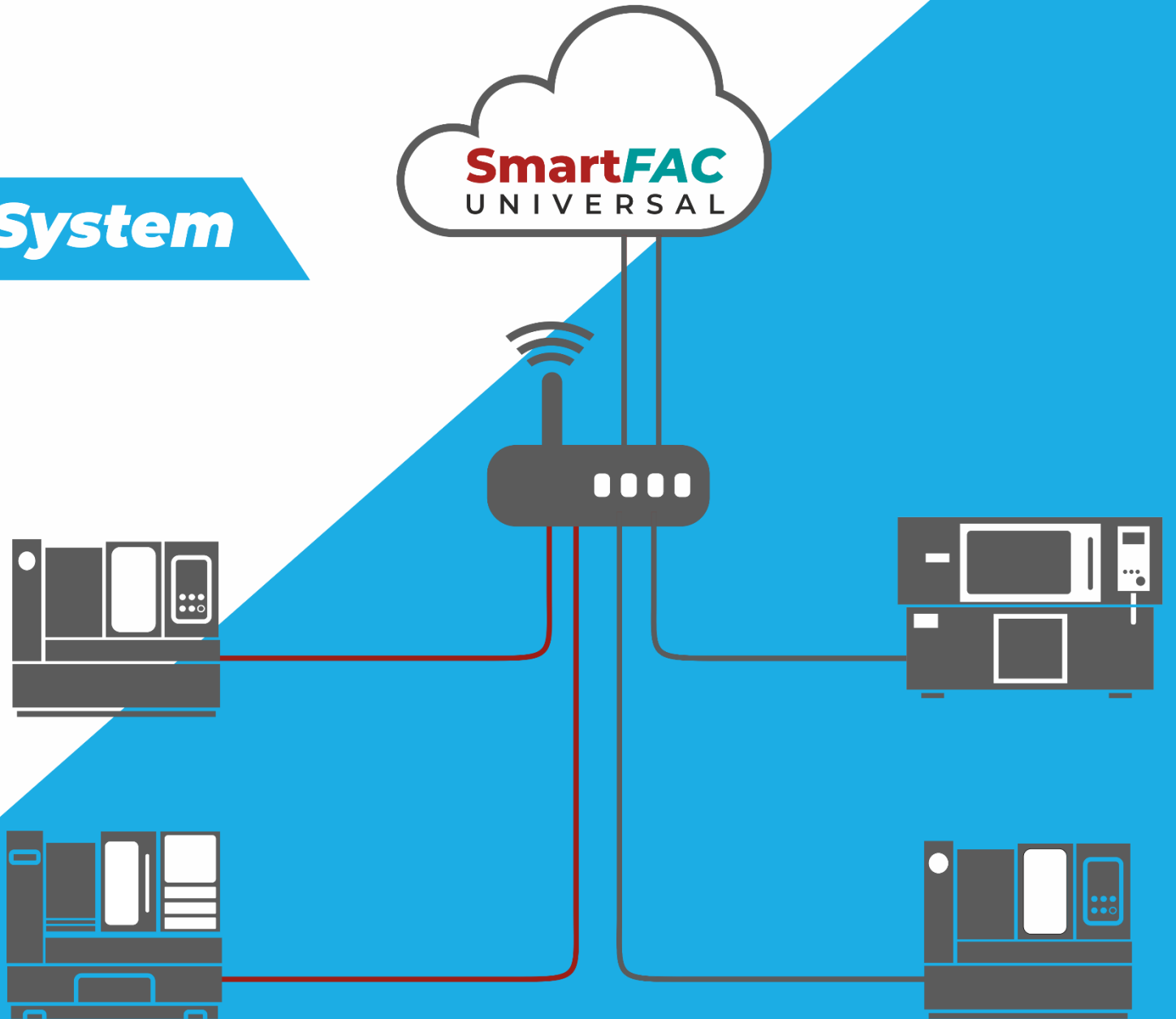


“UNIVERSAL”

MACHINE Monitoring System

SmartFAC
UNIVERSAL





How it works

Shop Floor

Connect any type of machine

CNC Machine



Grinding Machine



Forging press



Bandsaw



IoT Box



Web GUI and Apps

anywhere, anytime...

Data Accessibility (Virtual servers)

- Machine history
- Real time status
- Productivity reports
- Real time alerts
- Real picture of the shopfloor



SMARTFAC-UNIVERSAL HELPS BY:



Machine Monitoring

on real-time to track plan, target & actual production



Identifying Bottlenecks

To improve process flow on the shop floor



Eliminating Gaps

between shop floor & plant manager with accurate data



Improving Availability

by fast response to downtimes



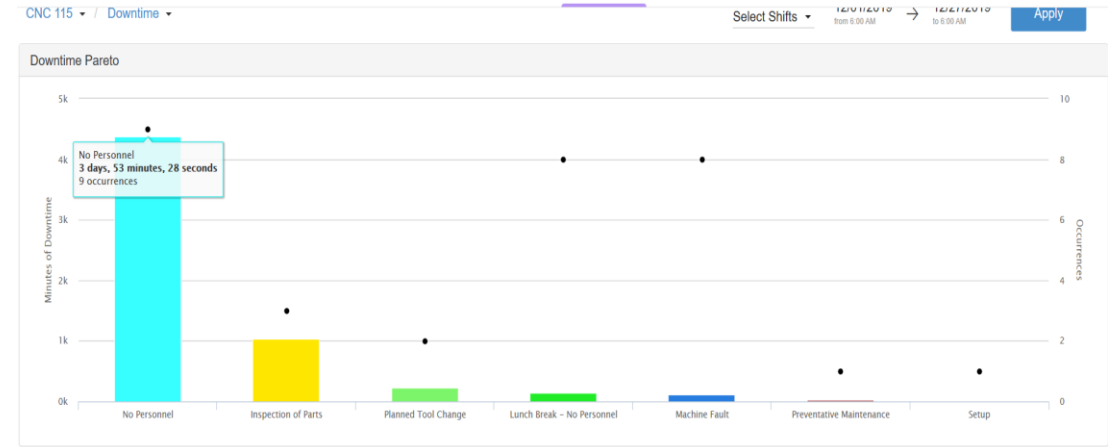
Generating Reports

hourly/weekly/monthly, OEE, Production, Downtime, Rejections



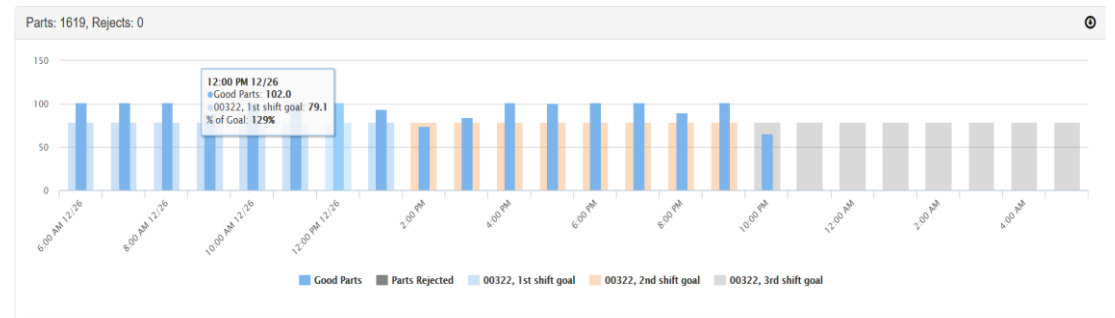
Data Analysis

on data to provide insights & alerts



Downtime Reasons

| Start | Duration | Reason | Message | Planned |
|------------------------|----------|---------------------|---------|-----------|
| Dec 5, 2019 1:13:19 AM | 2h 52m | No Personnel | | Unplanned |
| Dec 6, 2019 2:50:20 AM | 3h 39m | Planned Tool Change | | Planned |





MONITORING SOLUTION HELPS BY::



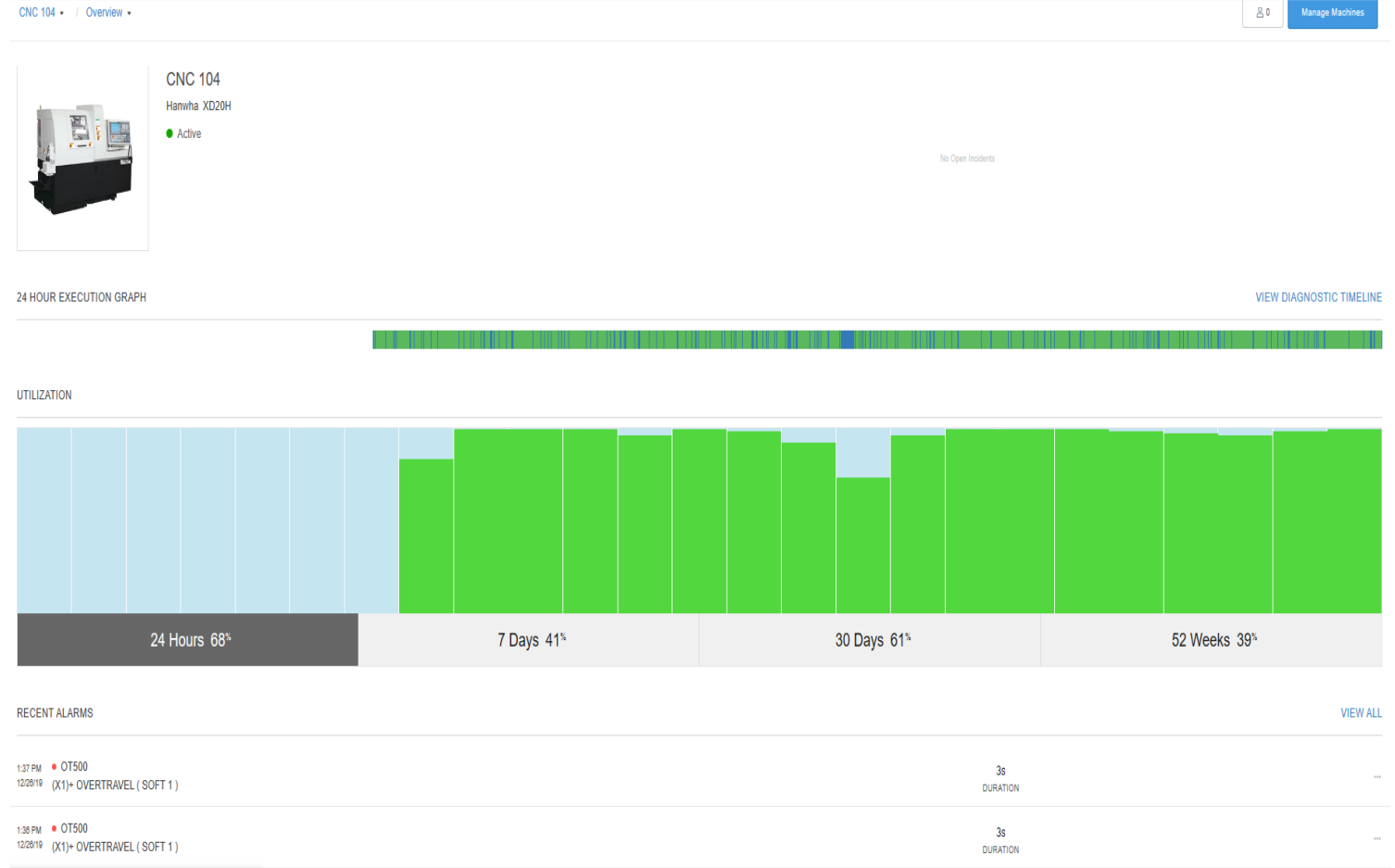
Machine Monitoring and Alerts

- Alerts/ Alarms for downtime
- Availability / Performance/Quality
- Condition based monitoring



Preventive Maintenance

- Maintenance Check Lists
- Triggers for time & condition-based maintenance
- Asset health monitoring



DASHBOARDS



Instant real time status of the machine in one look.

- Green means doing well
- Orange means average performance
- Red means goal for the shift not achieved and poor performance

Different dashboards available according to what you want to monitor

- OEE
- Parts per hour
- Utilization
- Downtime
- Performance comparison

| | Jun 21 | Jun 20 | Jun 19 | Jun 18 | Jun 17 |
|----------------------------------|--------|--------|--------|--------|--------|
| All Machines | 42% | 39% | 70% | 70% | 79% |
| CNC 104 00593 4h 5m - Idle | 0% | 0% | 29% | 53% | 59% |
| CNC 105 00194 4h 5m - Idle | 41% | 13% | 78% | 81% | 83% |



ROLE BASED REPORTS

Operator



- Real time performance
- Job related information
- Shift wise downtime break up
- Performance since shift start

Supervisor



- Real time performance of all machines under him
- Downtime analysis
- Performance comparison of last few days
- Utilization and OEE reports in real time

Manager

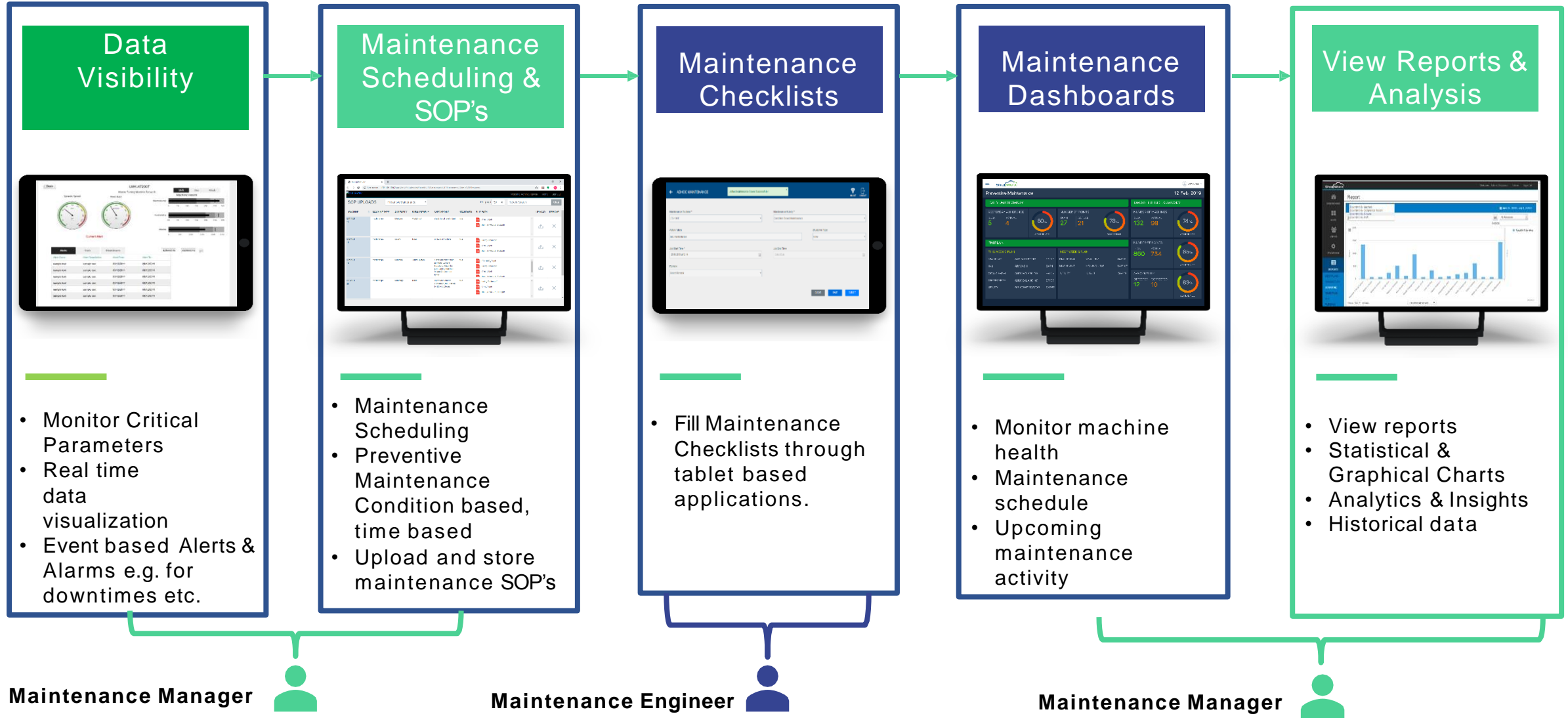


- Real time performance of all connected machines
- Production reports (OEE, Downtime, Utilization, setup changeover etc)
- Trends of production
- Plant performance reports

Condition and role based real time alerts in the form of SMS and Emails.



MAINTENANCE RELATED FUNCTIONS





REAL-TIME SHOP FLOOR DASHBOARD

Machine Status

- Running / Down
- Details of part running on the machine
- Tile colour indicates performance

Breakdown

- Machine Down since
- Machine total downtime
- Reason of breakdown

Performance measure

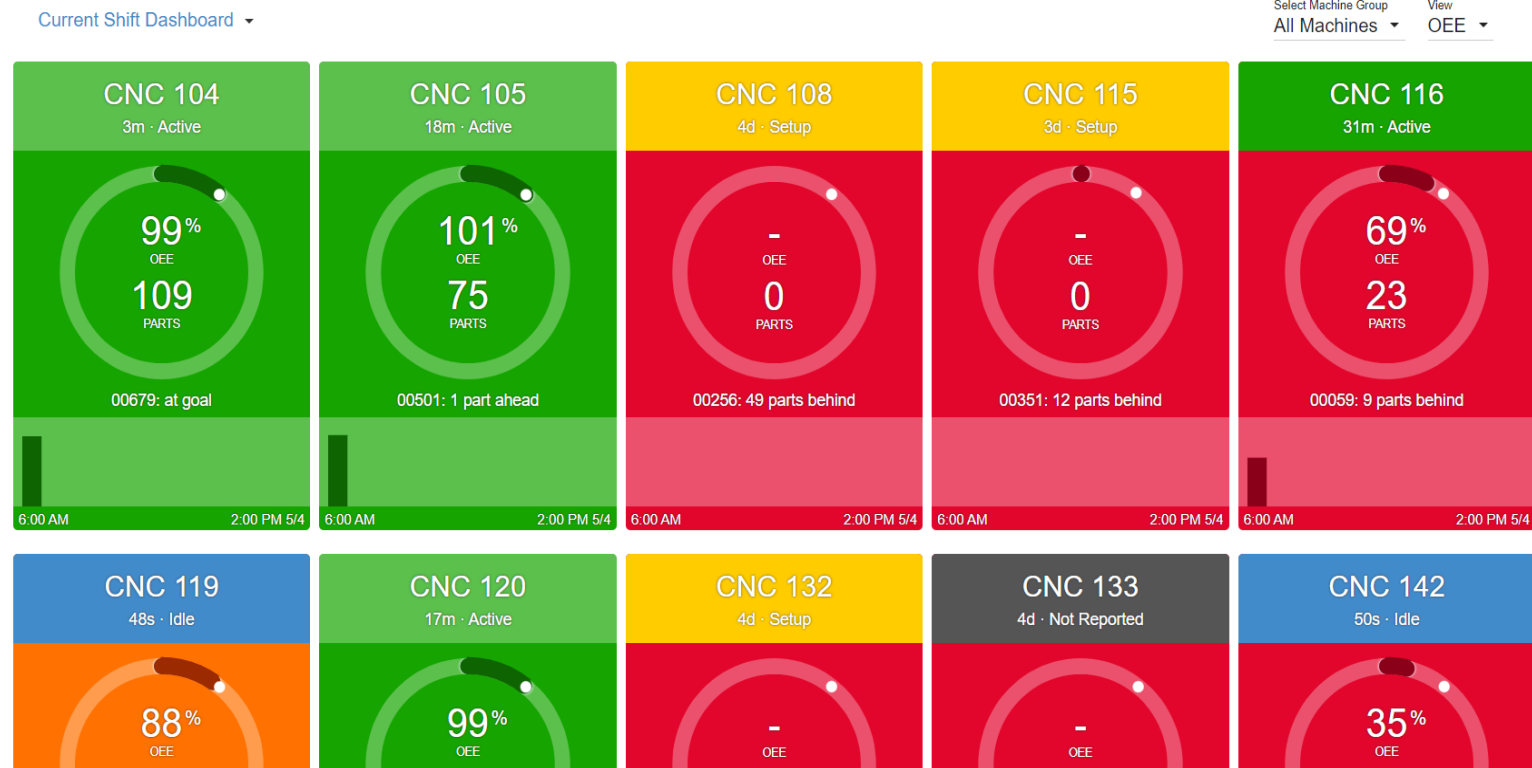
- OEE
- Parts per hour
- Downtime
- Utilization

Green means machine is currently running

Blue means machine is currently idle

Yellow means machine is currently in setup change mode

Red means machine is currently in Alarm state





Reports & Graphs

Detailed Reports

- Detailed reports
- Save reports in csv, xls, pdf formats
- Filter options such as date, parameter, field types etc.

Graphical Charts

- Statistical reports
- Bar Charts and Graphical views
- Toggle between parameters

Analytics & Insights

- Detailed analysis
- Create monitors for performance
- Create incidents
- Machine Maintenance history

Production Report - Filter Shifts - All Machine Groups - Group By Job then Machine 12/26/2019 12/26/2019

| Job | Machine | Utilization Rate | Time In Cycle | Total Time | Total Downtime | Planned Dow... | Unplanned Do... | OEE | OEE |
|-------|------------|------------------|---------------|------------|----------------|----------------|-----------------|------|------|
| 00045 | CNC 162 | 43.2 | 6h 55m | 16h | 8h 55m | 30m | 8h 4m | 44.2 | 44.2 |
| 00073 | CNC 132 | 56.8 | 4h 49m | 8h 28m | 3h 40m | 9m 40s | 3h 24m | 52.5 | 52.5 |
| 00090 | CNC 161 | 83 | 13h 16m | 16h | 2h 44m | 35m 20s | 0s | 86.3 | 86.3 |
| 00140 | CNC 177 | 95.2 | 15h 14m | 16h | 46m 9s | 0s | 0s | 93.4 | 93.4 |
| 00165 | CNC 142 | 16.6 | 2h 40m | 16h | 13h 11m | 0s | 0s | 33.9 | 33.9 |
| 00169 | 3 Machines | 95.9 | 1d 22h | 2d | 1h 57m | 0s | 0s | 117 | 117 |
| 00236 | CNC 160 | 92.2 | 6h 51m | 7h 26m | 34m 57s | 0s | 31m 8s | 109 | 109 |
| 00296 | CNC 176 | 6.6 | 4m 10s | 1h 3m | 58m 56s | 0s | 0s | 8.4 | 8.4 |
| 00300 | CNC 176 | 91.5 | 13h 38m | 14h 54m | 1h 16m | 0s | 0s | 126 | 126 |
| 00321 | CNC 108 | 88 | 14h 5m | 16h | 1h 55m | 35m 27s | 0s | 118 | 118 |



IMMEDIATE EFFECT

- Visibility of data on the shop floor
- Real time data reporting
- Real time performance monitoring
- Alerts and notifications

NEXT 2 WEEKS

- Improvement in efficiency
- Automatic reporting through the software
- Corrective and preventive actions
- People get used to the software

AFTER 4 WEEKS

- Continuous weekly improvement in efficiency
- Bottlenecks eliminated and new ones identified
- Trend analysis for key performance parameters