INFANT ENGINEERS
PRIVATE LIMITED

DISRUPTIVE TRANSFORMATION

MSME PERSPECTIVE

Presented By

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MANAGING DIRECTOR

INFANT PRODUCTION MANAGEMENT SYSTEM

Phase I - Automation and Digitalization

(2005-2016)

INFANT PRODUCTION MANAGEMENT SYSTEM

OBJECTIVES

Automation of the following

1. Production Plan based on Sales Plan
2. Machine Loading Plan
3. Inspection Process
    - Setup
    - Patrol
4. Tool Monitoring System
5. Calibration Management System

MONTHLY PRODUCTION PLAN :-

1. Monthly production plan is automatically generated (based on Master data) in the ERP system based on Monthly Sales Plan.

2. The relationship between Sales Plan and Production Plan is stored in the Master Data in the ERP System.

3. Formula for infant Production Plan = Sales Plan – (FG stock + Final Firewall + Final Sample + Incoming Sample + Incoming Firewall + Gate Entry + Incoming Stock Verify) for the final stage of the Production Work Order.

4. Work Orders are generated for all items in the Production Plan.

5. Work Order Quantity = Production Plan Quantity.

Daily Shift Wise Machine Loading Plan Based on Work Orders :-

1. Machine loading plan is generated based on the work orders for each shift in the ERP system.
2. Machine Loading Plan enables
   - Part production plan for the shift.
   - Allocation of operators, helpers, setters, inspectors and shift in-charge for the machines in the shop.
   - Job Card.
   - Log Plan – Machine hour rate plan for the shift.
   - Log Plan – Critical operation plan for the shift.
   - Log Plan – IGR plan for the shift.

SETUP INSPECTION :-

1. **Setup Inspection is based on Machine Loading Plan.**
   - New Setup
   - New Setup for parts under Production for 7 days.

2. **Setup Inspection is approved**
   - On completion of setup first 3 parts are submitted to setup inspector.
   - If setup confirms within 30% of the tolerance limit, setup is approved.
   - If setup confirms beyond 30% of the tolerance, re-setup is done and setup is re-inspected.

INPROCESS INSPECTION :-

1. Inprocess inspection is auto generated for all setup inspection approved items.
2. Inprocess inspection is carried out every 1 Hour.
3. A bell is rung to alert the operator for Inprocess Inspection.
4. Last piece produced at the end of each hour is handed over to the Inprocess Inspector for inspection.
5. Inprocess inspection is approved, if the part confirms to
   - Green zone – 60 % of the tolerance limit.
   - Yellow zone – 70 to 100% of the tolerance limit, for the first time.
6. Patrol sample is stored in the Inprocess bay until the shift ends.
7. Inprocess inspection is rejected, if the part confirms to
   - Yellow zone – 70 to 100%, of the tolerance limit, for two consecutive times.
   - Red Zone > 100% of the tolerance limit for the first time.

PRODUCTION OUTPUT

Log entry…

Log entry every 2 hours.

1. A bell is rung to alert the operator to move the produced quantity to Log entry area for counting.

2. Produced quantity is entered in the system after physical verification of the quantity produced.

3. If the quantity produced is less than the planned quantity, downtime entry is entered in the system for the balance quantity.

4. Process scrap is entered in the ERP system and the scrapped parts are moved to Red bin analysis area.

5. Log entry for the shift shall be completed by the end of the shift.

RED BIN ANALYSIS

Rejection Review:

1. Rejected parts are moved to Red bin analysis area at the end of the shift.
2. Rejected parts are placed with red tags with details of rejection is placed in the red bin area for review next day.
3. Red bin analysis report is generated from the ERP system.

FMEA CAR:

1. FMEA CAR is generated by the ERP system if the actual RPN (Occurrence Number > FMEA occurrence number).
2. FMEA CAR has to be analysed by the CAR Team using the specified CAR Format.
3. Corrective action to be arrived for occurrence to reach the FMEA level.
4. Corrective action is updated in the ERP system which reflects in the FMEA report.

TOOL LIFE MONITORING…

1. New tools are issued when setup is made.
2. Asset code of the tools is entered in the ERP system.
3. Based on the log entry the tool life is counted.
4. System generates tool issue alert, on completion of tool life.
5. New tool is issued on completion of tool life.
6. Tool monitoring report is system generated.

INSTRUMENT CALIBRATION SYSTEM…

1. Calibrated checking instruments are made available at Setup Inspection & Patrol Inspection Screens.
2. Inspector selects the actual instrument code used for inspection in the ERP system.
3. Only calibrated instruments appear in the screen for inspection.
4. Out of calibration & calibration due instruments does not appear in the inspection screen.
5. Calibration due alerts are system generated in the inspection screens in advance of the due date.
6. Based on the system alerts, calibration in-charge calibrates the instruments and re-issues the instruments for the inspection.
7. Calibration history card is ERP generated.

PHASE II - INDUSRTY 4.0 (2016-2018)

- **ACE PMS**
  - ACE PRODUCTION MANAGEMENT SYSTEM
- **ACE QMS**
  - ACE QUALITY MANAGEMENT SYSTEM
- **ACE CMS**
  - ACE CALIBRATION MANAGEMENT SYSTEM

PHASE II - INDUSRTY 4.0 (2016-2018)

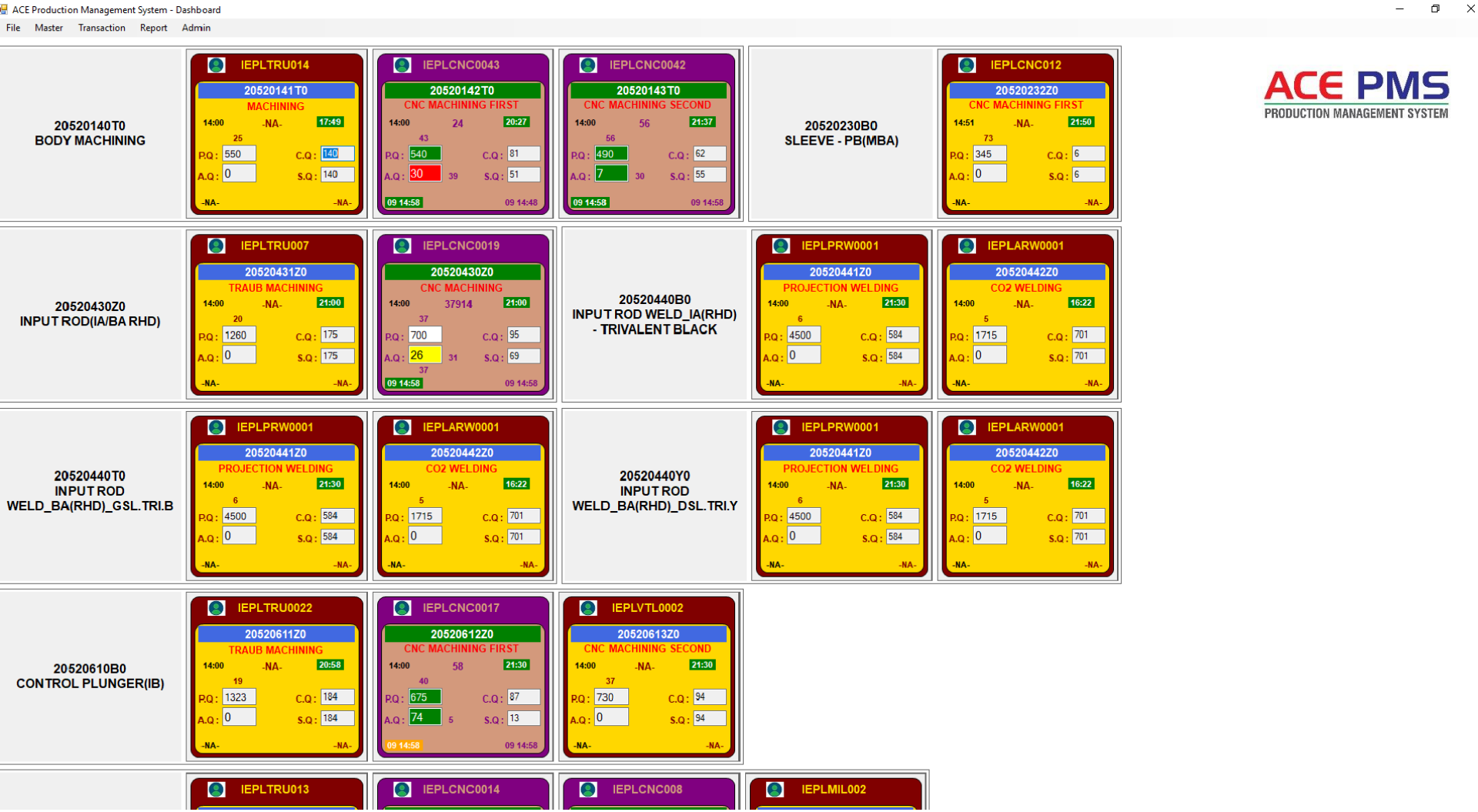
1. ACE PMS

- ACE PRODUCTION MANAGEMENT SYSTEM

SALIENT FEATURES :

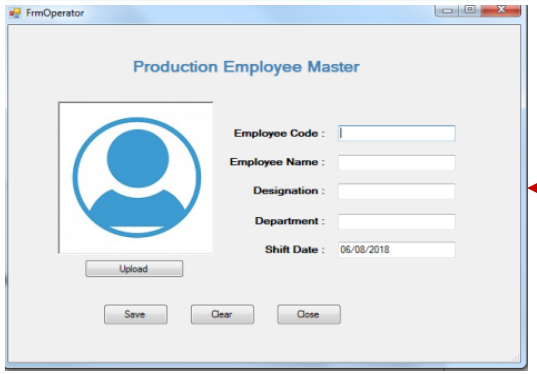
- Direct Machine Connectivity
- Elimination of data entry
- Machine Learning

ACE PMS - ACE PRODUCTION MANAGEMENT SYSTEM

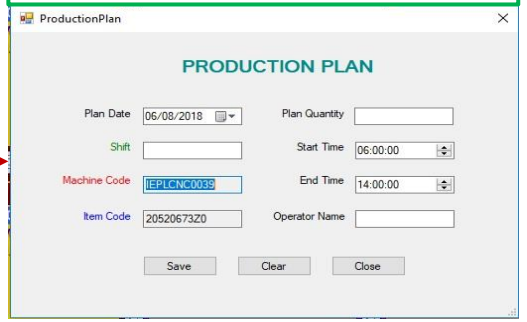


ACE PMS - ACE PRODUCTION MANAGEMENT SYSTEM

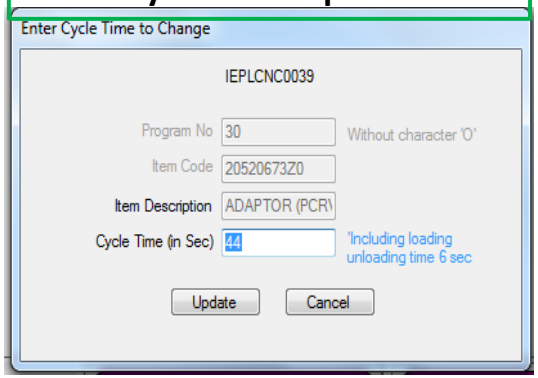
Production Employee Master



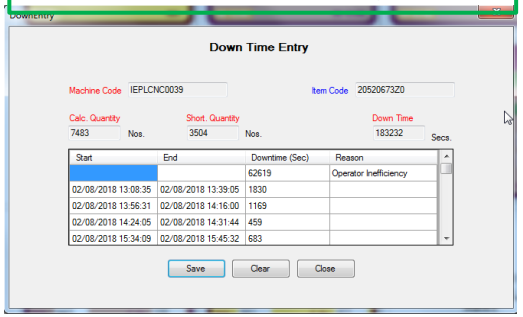
Production Plan



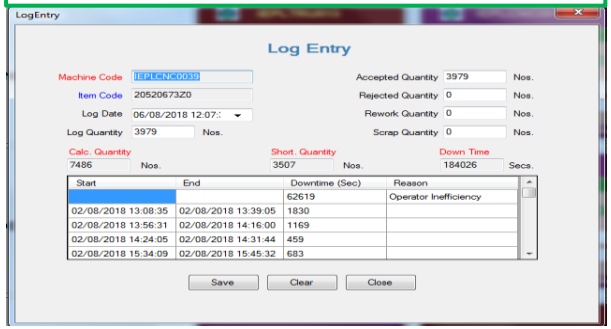
Cycle Time Update



Downtime Entry



Log Entry



PHASE II - INDUSRTY 4.0 (2016-2018)

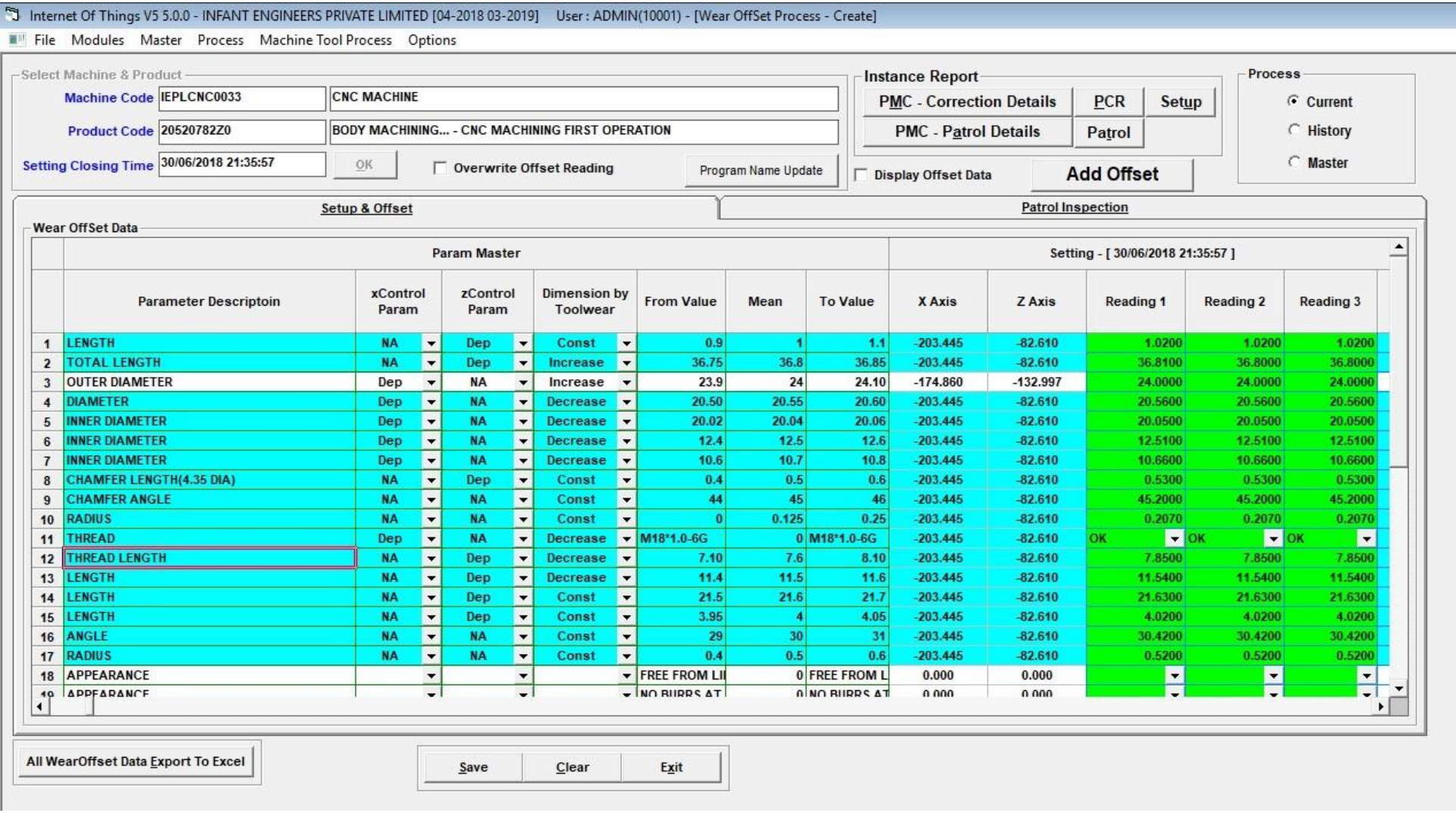
2. ACE QMS

– ACE QUALITY MANAGEMENT SYSTEM

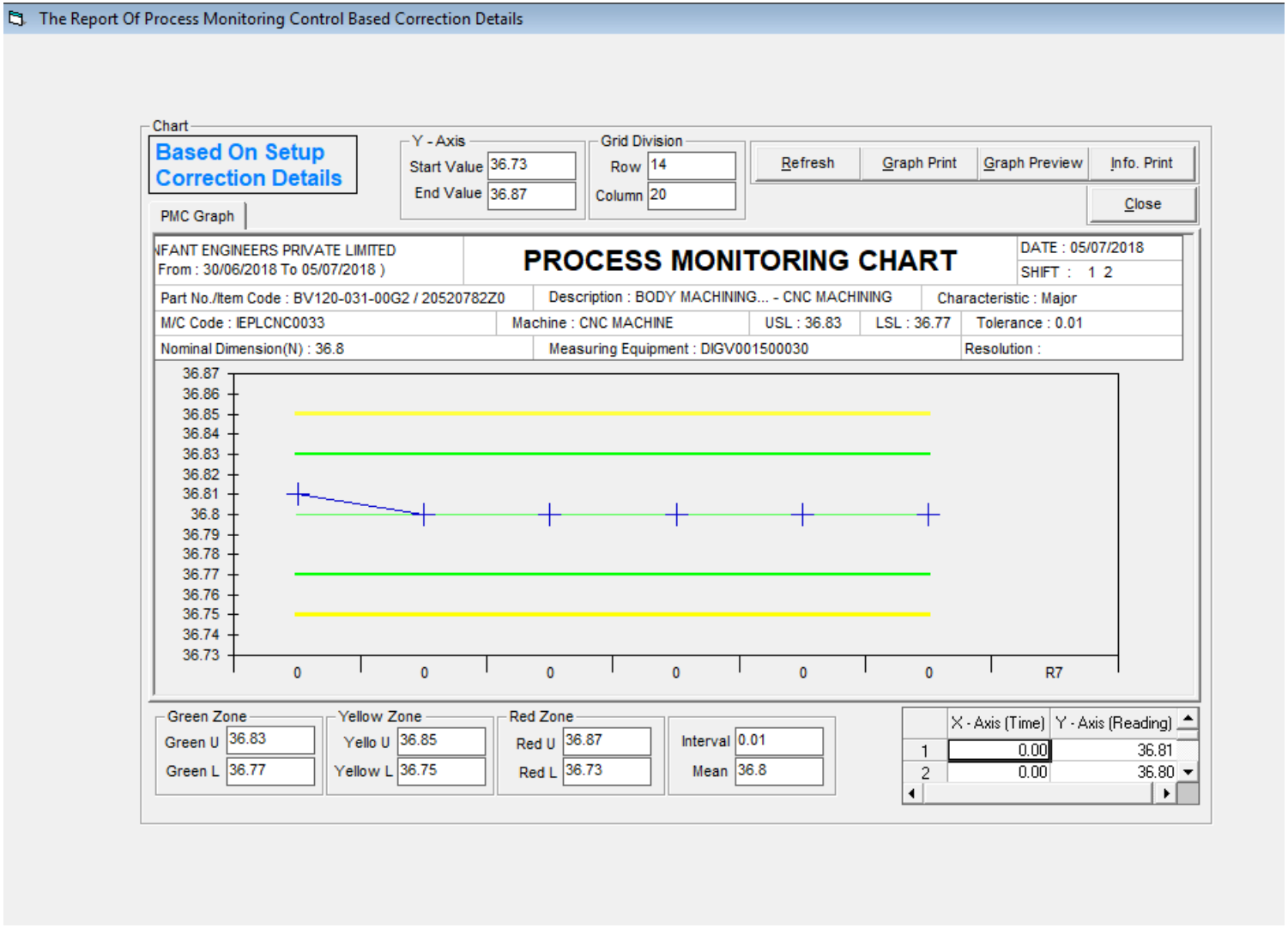
SALIENT FEATURES :

- Automated Process Control (Tool Wear Offset)
- Automated Process Monitoring and User Alerts.
- Machine Learning for Tool wear prediction.

ACE QMS - ACE QUALITY MANAGEMENT SYSTEM



ACE QMS - ACE QUALITY MANAGEMENT SYSTEM



PHASE II - INDUSRTY 4.0 (2016-2018)

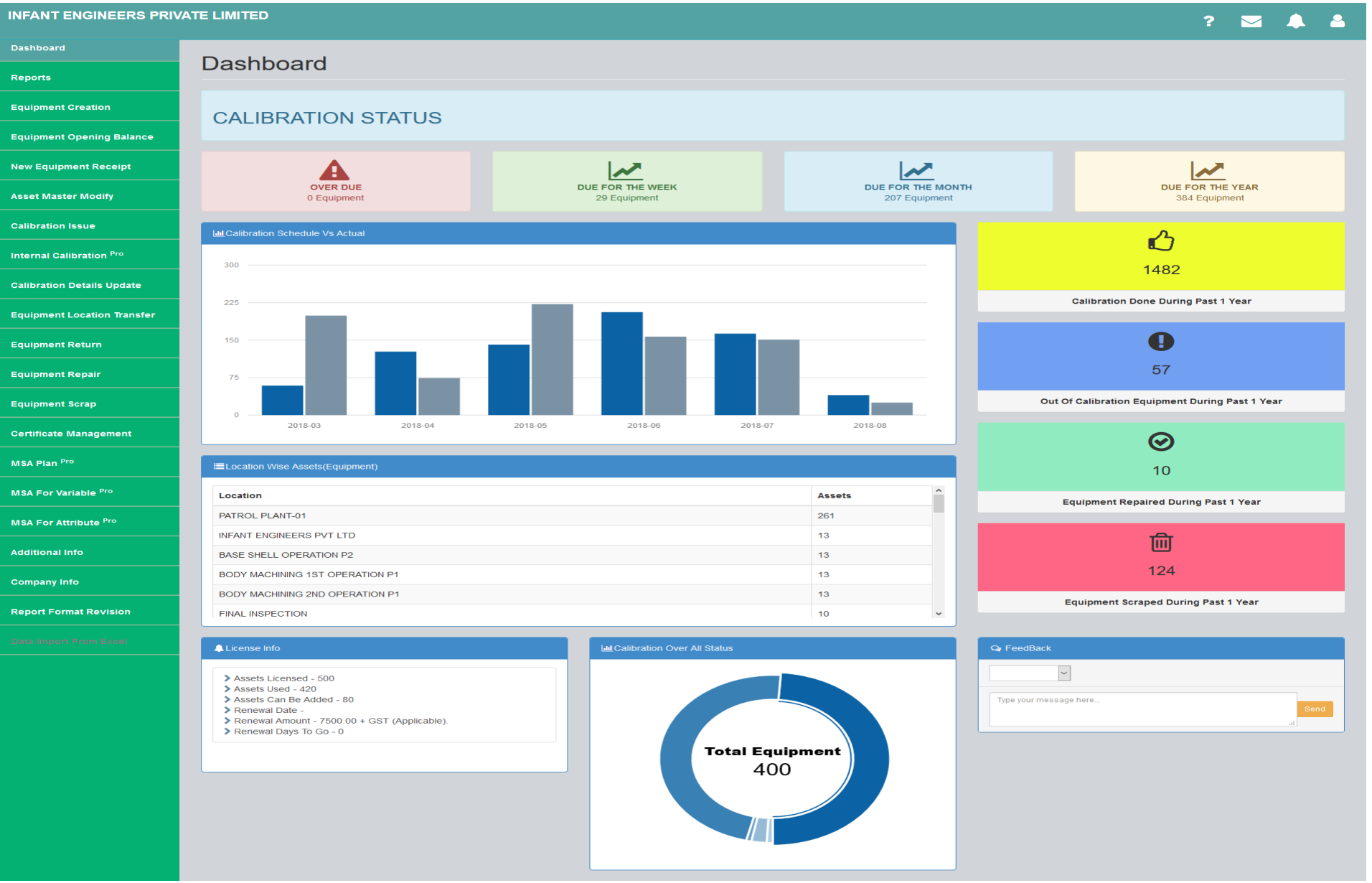
3. ACE CMS

- ACE CALIBRATION MANAGEMENT SYSTEM

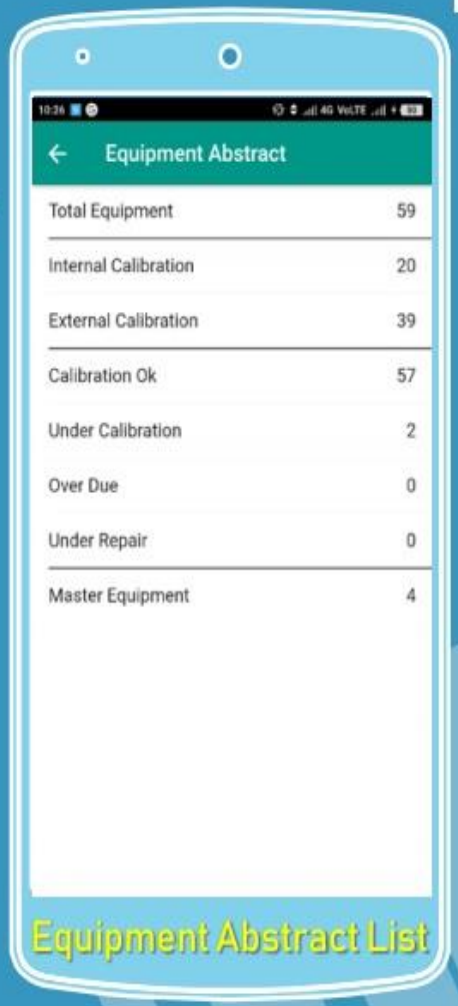
SALIENT FEATURES :

- Live Updates to Calibration Labs (Inhouse and External)
- Calibration status alerts to all Users.

ACE CMS - ACE CALIBRATION MANAGEMENT SYSTEM



ACE CMS - ACE CALIBRATION MANAGEMENT SYSTEM



ACE CMS
Calibration Management System


THANK
YOU