

Kimberly-Clark Automated Maintenance System Proposal

31 May 2023

Objective:

To develop an automated preventive maintenance system that will replace the current manual TPM planning on our machines.

Categories:

- A. Corrective Maintenance – for expensive parts that needs to implement a run to failure strategy for cost saving drives (conveyor belts, motors). Approx. Less than 5%
- B. Preventive Maintenance - cleaning, inspection, lubrication, adjustment or parts replacement based on historical data (time based/ usage based). Approx. around 25%
- C. Predictive Maintenance – parts replacements based on trends monitoring (e.g. panel bonder module heater fluctuations)

and also based on issues recorded on our process log that's need to be settled before it creates a bigger problem or items seen during routine inspections (e.g. gearbox oil leak) approx. around 70%

Production Line User Interface (Sample only)

Sec 0

Sec 1

Sec 2

Sec 3

Sec 4

Sec 5

Sec 6

Sec 7

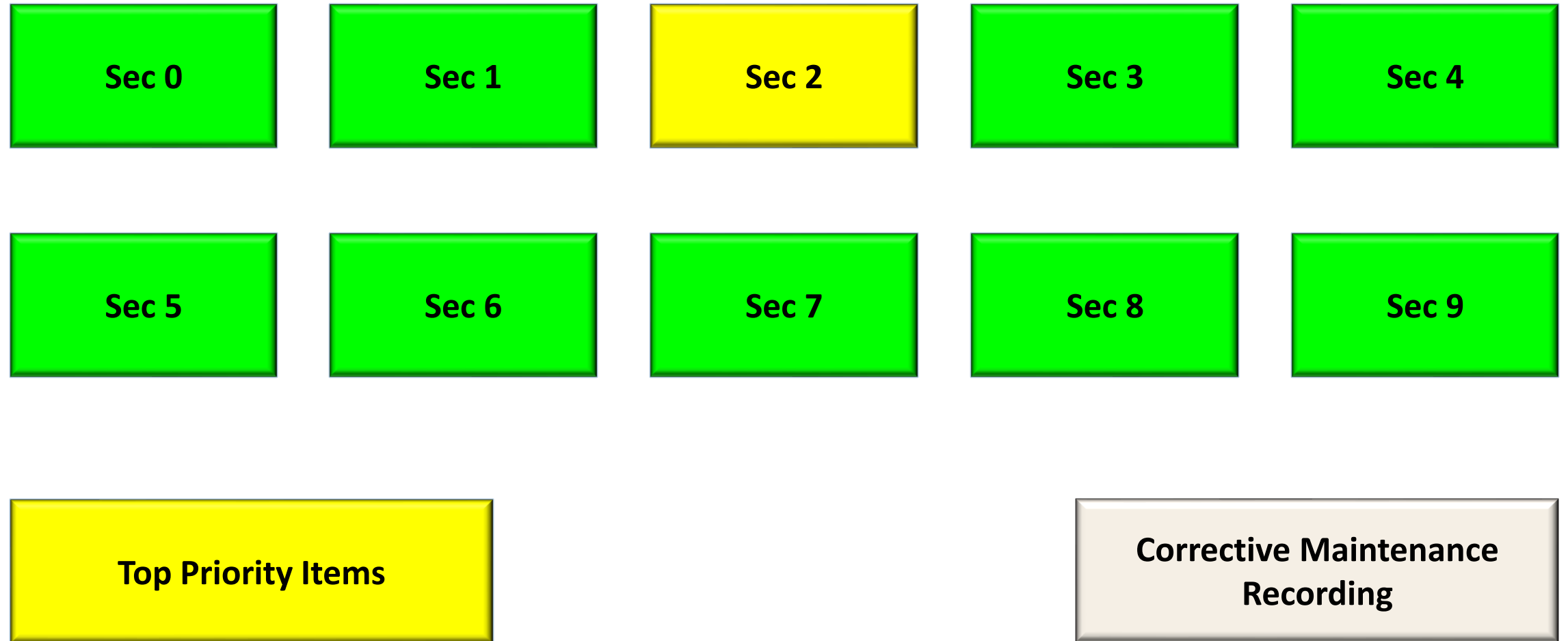
Sec 8

Sec 9

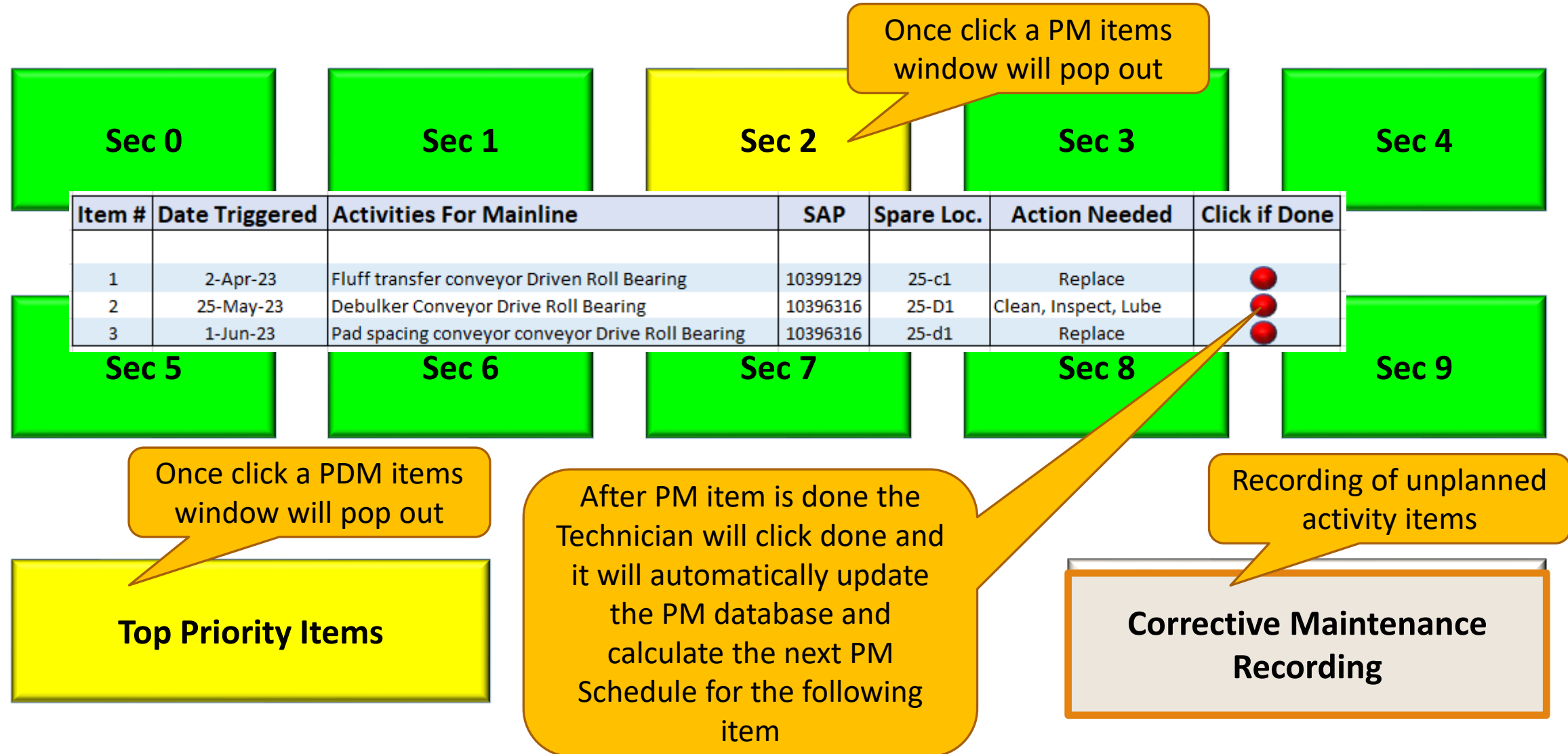
Top Priority Items

**Corrective Maintenance
Recording**

Production Line User Interface (with PM Alarms highlighted in yellow)



Production Line User Interface (with user interaction)

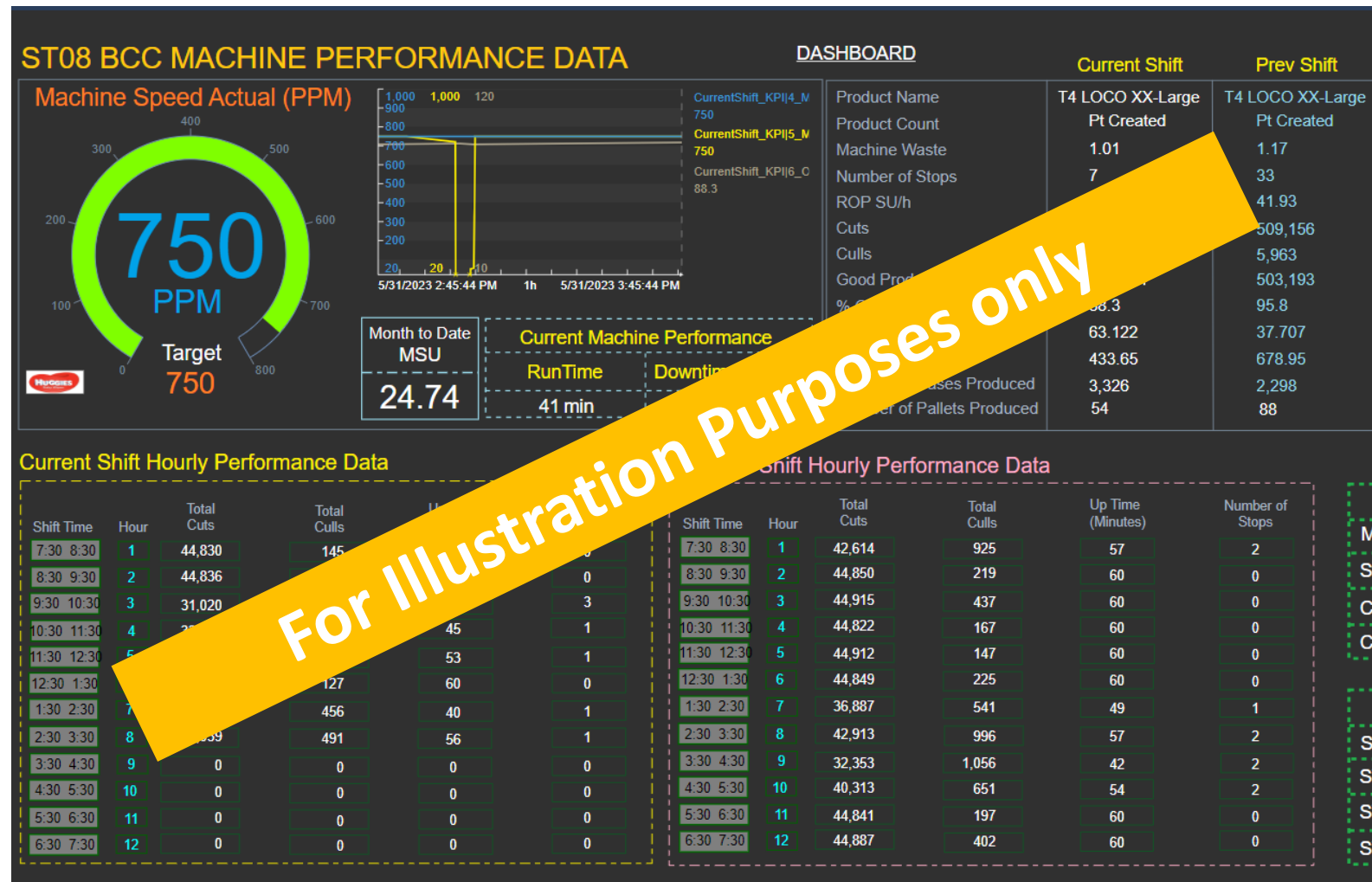


Database (Sample)

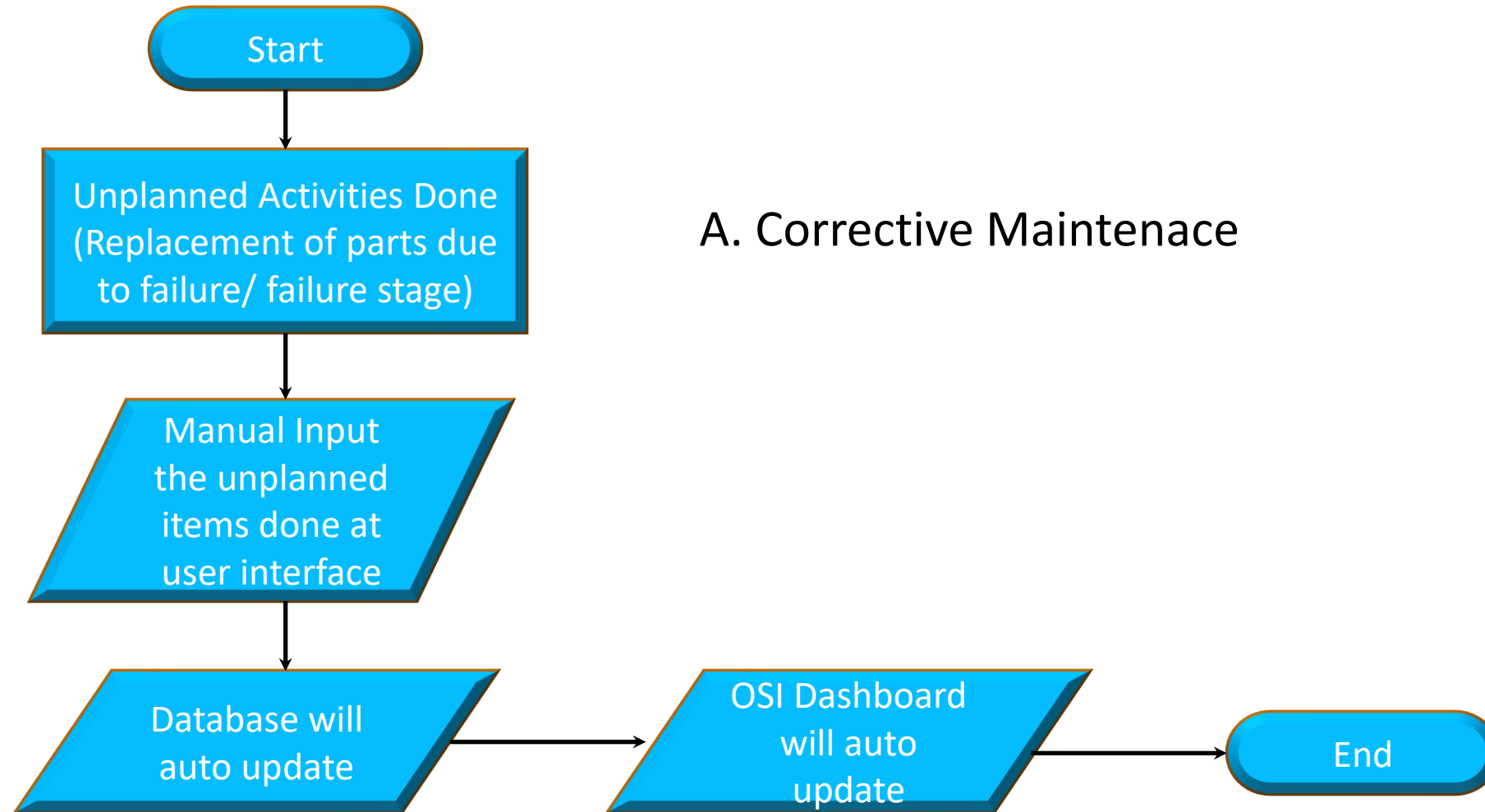
Data will be updated in this database and it will be use by the system to trigger the next PM items.

| Conveyor Bearings Replacement | | SAP | Spare Loc. | Replace ment Freq | PM Schedule | |
|--|--------|----------|------------|-------------------|------------------|------------------|
| | | | | | Last Replacement | Next Replacement |
| Pad spacing conveyor conveyor (184mm Hole width) | driven | 10389602 | 3-A1-1 | 3yrs | 26-May-23 | 26-May-26 |
| Insert assembly conveyor (115.5mm Hole width) | driven | 10389602 | 3-A1-1 | 3yrs | 4-Feb-22 | 4-Feb-25 |
| Panel folding top green conveyor | drive | 10389599 | 3-A1-1 | 1yr | 27-Jun-22 | 27-Jun-23 |
| Folding conveyor(blue) OP | driven | 10389602 | 3-A1-1 | 1yr | 15-May-23 | 15-May-24 |
| Folding conveyor(blue) DR | drive | 10389599 | 3-A1-1 | 1yr | 7-Jul-22 | 7-Jul-23 |
| Folding conveyor(blue) DR | driven | 10389602 | 3-A1-1 | 1yr | 7-Jul-22 | 7-Jul-23 |
| Twist belt OP | driven | 10389602 | 3-A1-1 | 2yrs | 5-Sep-22 | 5-Sep-24 |
| Conveyor Bearings Lubrication | | SAP | Spare Loc. | Replace ment Freq | PM Schedule | |
| | | | | | Last Replacement | Next Replacement |
| Pad spacing conveyor conveyor (184mm Hole width) | driven | 10389602 | 3-A1-1 | 30 days | 26-May-23 | |
| Insert assembly conveyor (115.5mm Hole width) | driven | 10389602 | 3-A1-1 | 30 days | 4-Feb-22 | |
| Panel folding top green conveyor | drive | 10389599 | 3-A1-1 | 30 days | 27-Jun-22 | |
| Folding conveyor(blue) OP | driven | 10389602 | 3-A1-1 | 30 days | 15-May-23 | |
| Folding conveyor(blue) DR | drive | 10389599 | 3-A1-1 | 30 days | 7-Jul-22 | |
| Folding conveyor(blue) DR | driven | 10389602 | 3-A1-1 | 30 days | 7-Jul-22 | |
| Twist belt OP | driven | 10389602 | 3-A1-1 | 30 days | 5-Sep-22 | |

OSI Dash Board (for easy monitoring by all concerned personnels)



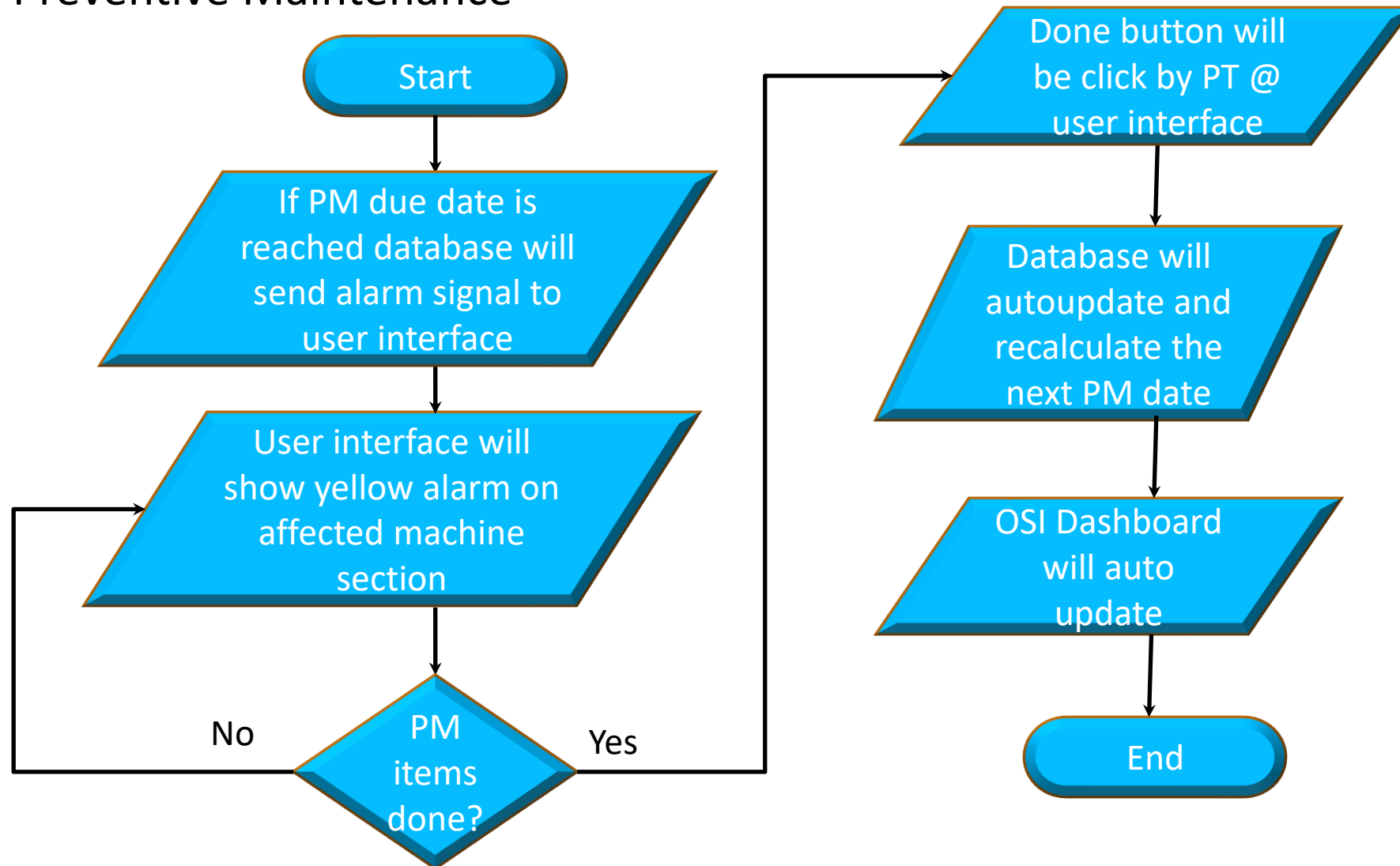
System Flow Chart



A. Corrective Maintenance

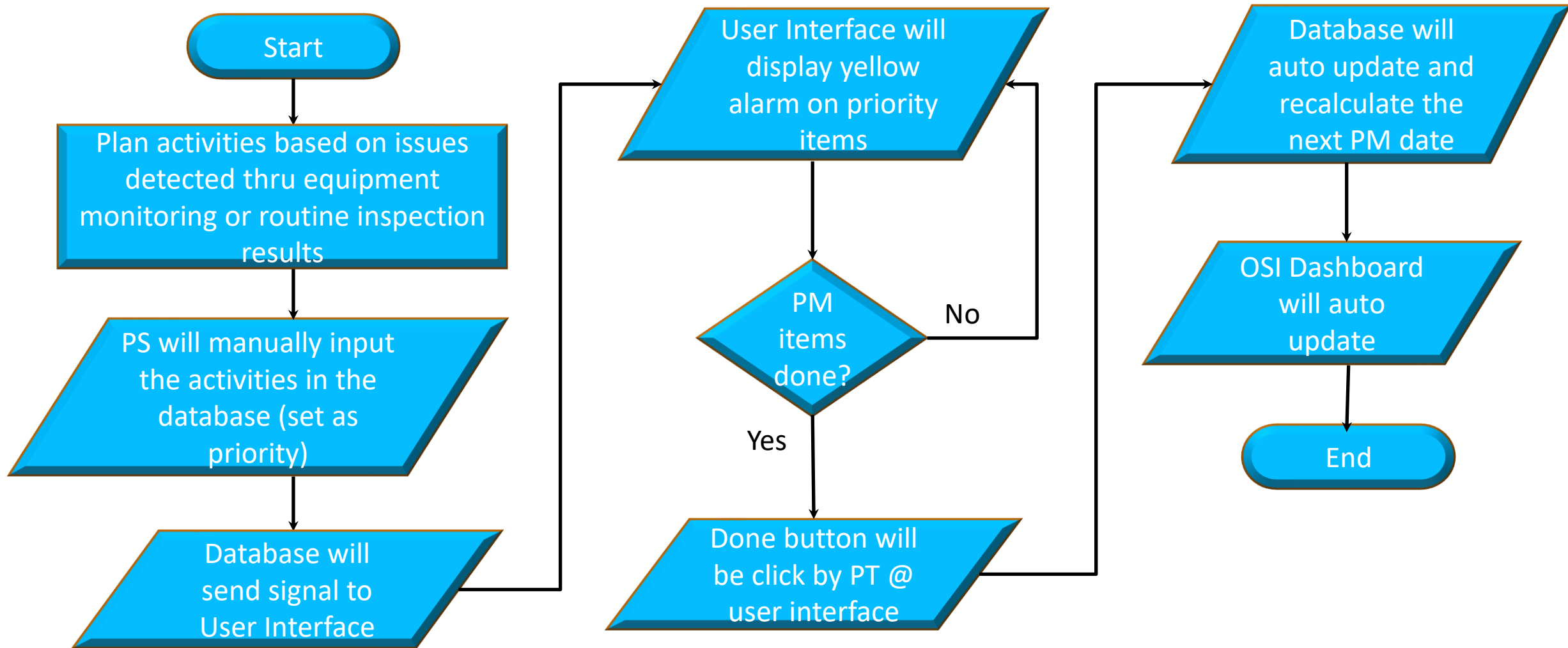
System Flow Chart

B. Preventive Maintenance



System Flow Chart

C. Predictive Maintenance



Summary:

A. Production Line User Interface

- PT will be able to check what necessary PM items needs to be done whenever there is an opportunity down.
- PT will also be able to update all the items that they have done.
- This user interface is also link to a database

B. Database

- This is where all the PM item list are located, including historical data and calculations of when the next PM for a particular item is scheduled.

C. OSI DashBoard

- Here we can display all the necessary monitoring items such as, PM items done, Pending PM items, PM Cost, PM Delays etc.