

MONITOR PRO



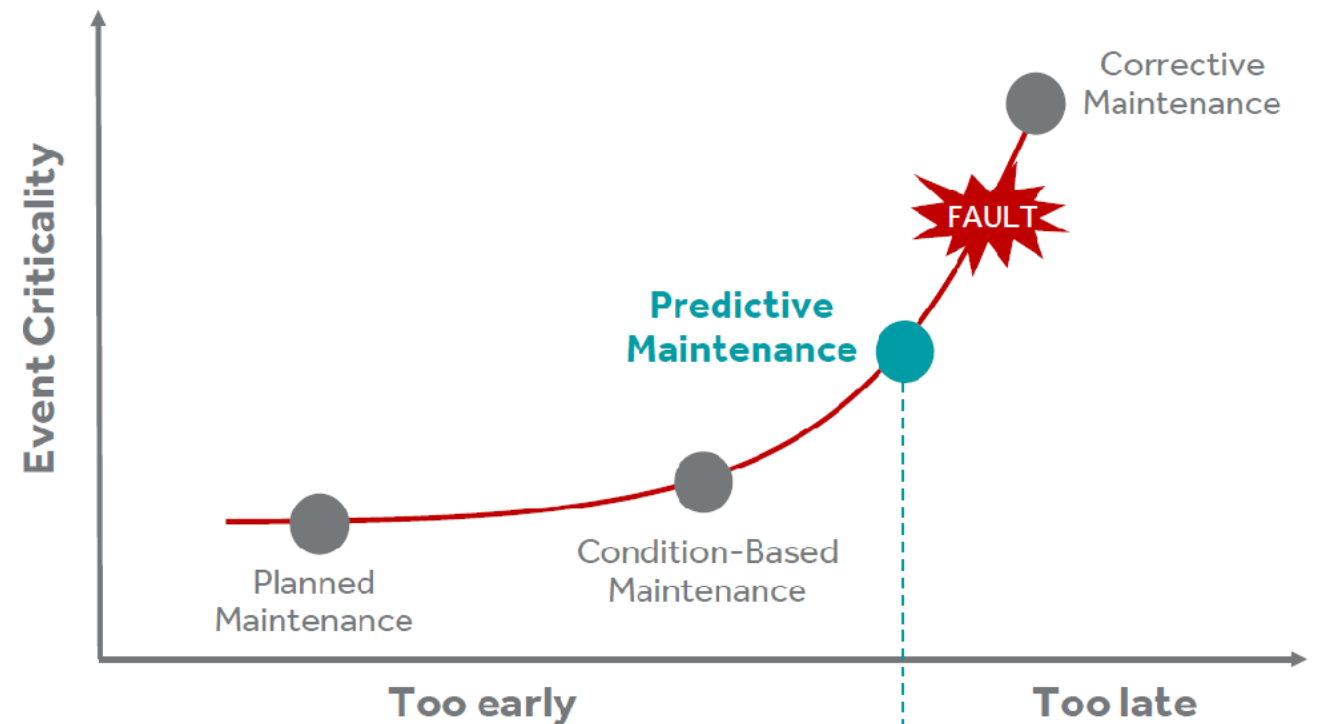
- We have developed various products for IIOT at Netmax. These products helps in Digitisation and Predictive Maintenance of Plants

Digitisation of Legacy Machines

- Monitoring Health of machine with existing and new sensors
- Predicting tool life and maintenance schedule of machines.
- Check production monitoring in the machine
- Check energy consumption of machines

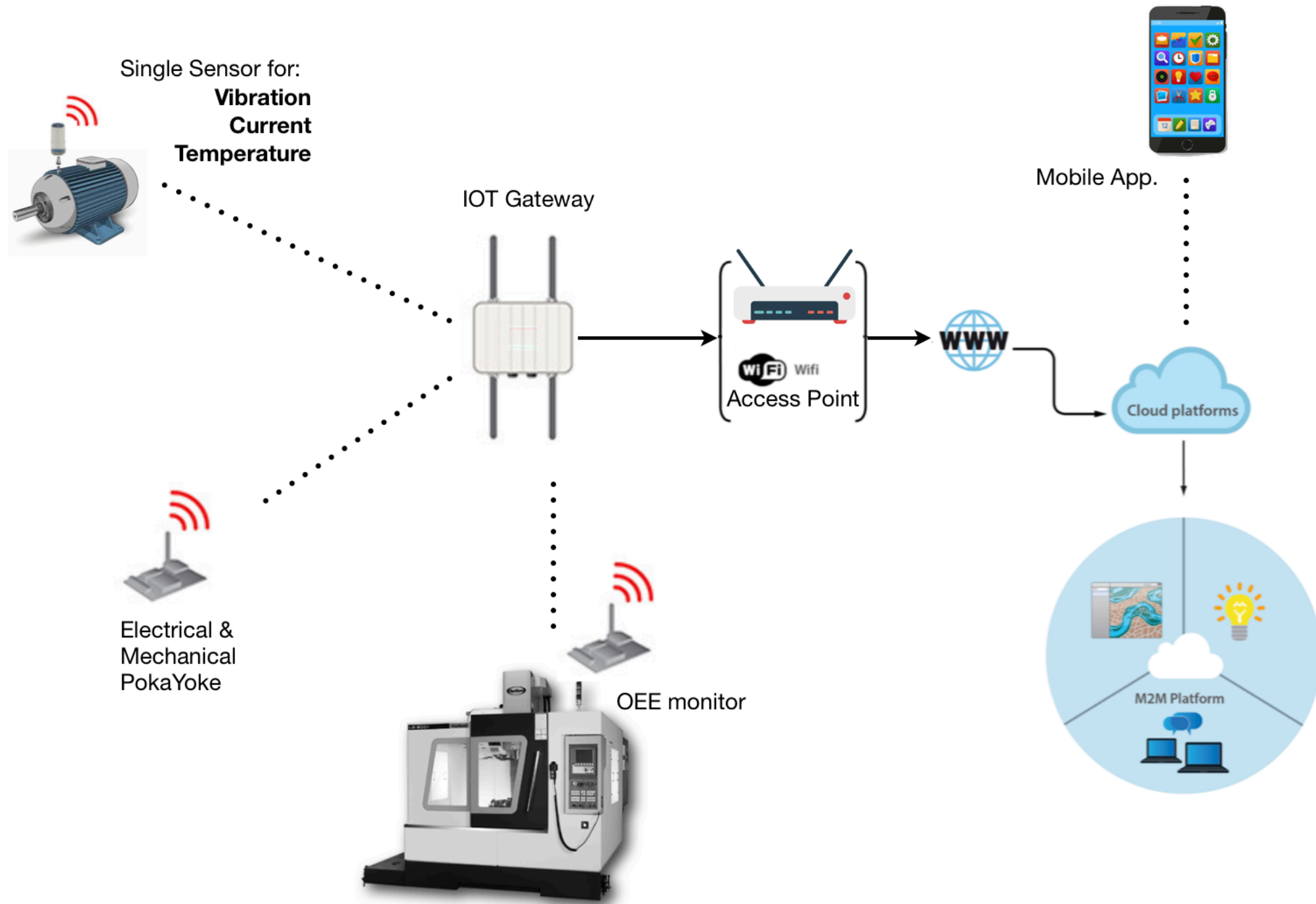
Predictive Maintenance

- Less Breakdowns
- Increased Machine Uptime
- Avoid costly repairs
- Real Time Alerts



Topology & Architecture

Topology



The Hardware

CBM Sensor

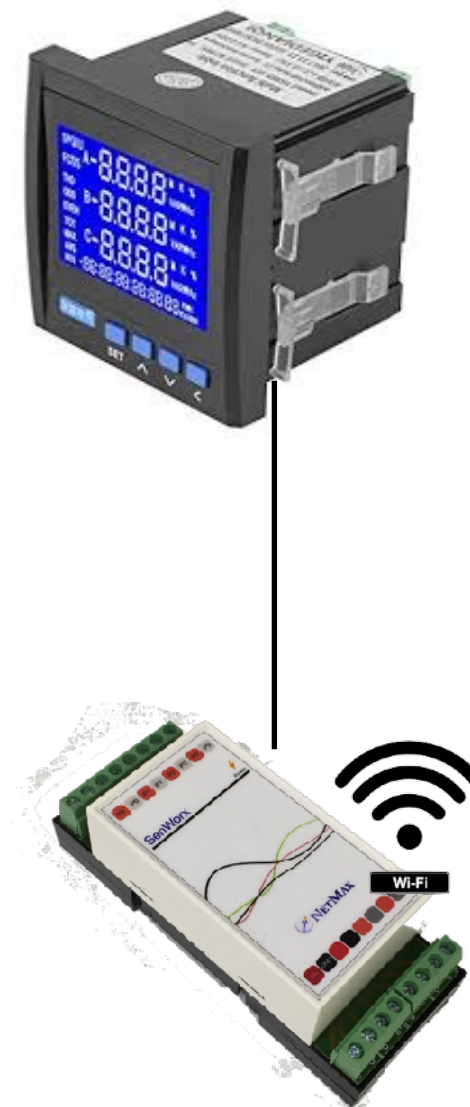
A wifi enabled sensor which is capable of taking 3 parameters
- **Temperature, Current and Vibration**



Energy Monitoring Module

Convert existing RS485 based energy meter to Wireless Energy monitor

- RS485 to Wireless
- Monitor All Parameters
- Plot Graphs
- Data storage in LOCAL/ONLINE



Keypad UIO unit

Multi-functional device which can be used for Part Production Monitoring, JH activity, Report Breakdowns etc

- **Monitor Part Count**
- **Perform JH Activity**
- **Lubrication Low Status**
- **Energy Monitoring**
- **Set Machine Status -**
Breakdown/Operator Waiting,
Job Waiting, Tool Waiting etc.
- **Report Part Specification**



Touch UIO unit

Multi-functional device which can be used for Part Production Monitoring, JH activity, Report Breakdowns etc

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Smart Switch

Replace Standard Switches with IOT buttons that can record button press its time and generate analytics for future use.

- Log Time When Line is Stopped
- Register Line Stoppage Reasons
- Plot Graphs and Reports



LED Display Unit

- Connected to TV Unit with HDMI
- Low Energy Consumption
- Display Parameters as Required



Production	Hours	Target	ShiftA	Loss	Hours	Target	ShiftB	Loss
0 Target	5:30 - 6:30	H1	H1	H1	14:00 - 15:00	H1	H1	H1
	6:30 - 7:30	H2	H2	H2	15:00 - 16:00	H2	H2	H2
	7:30 - 8:30	H3	H3	H3	16:00 - 17:00	H3	H3	H3
0 Coupling	8:30 - 10:00	H4	H4	H4	17:00 - 18:00	H4	H4	H4
	10:00 - 11:00	H5	H5	H5	18:00 - 19:00	H5	H5	H5
	11:00 - 12:00	H6	H6	H6	19:00 - 20:00	H6	H6	H6
0 Dismounting	12:00 - 13:00	H7	H7	H7	20:00 - 21:00	H7	H7	H7
	13:00 - 14:00	H8	H8	H8	21:00 - 23:00	H8	H8	H8

Hourly Monitoring

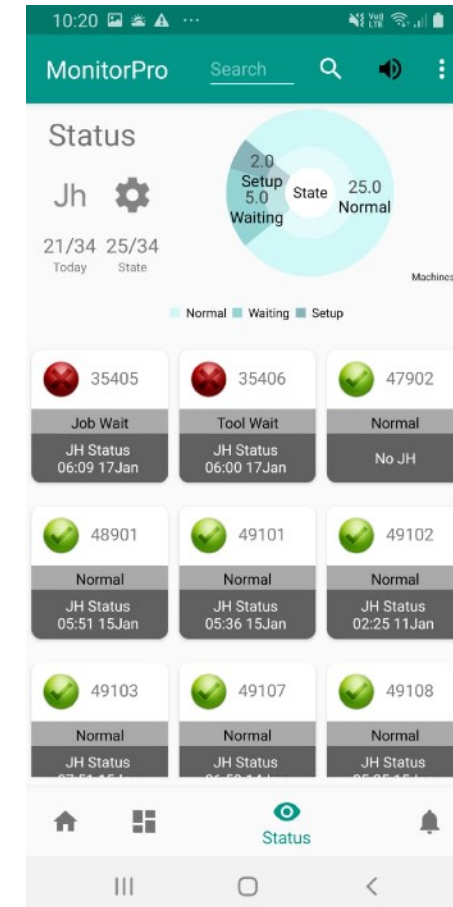
Production	Hour Data	LOOPS	Status
0 Target	Hour 1	LOOP 1	NA
	Hour 2	LOOP 2	NA
	Hour 3	LOOP 3	NA
0 Coupling	Hour 4	LOOP 4	NA
	Hour 5	LOOP 5	NA
	Hour 6	SLAT conveyor	NA
0 Dismounting	Hour 7	OH Conveyor	NA
	Hour 8		

Hourly Monitoring with Loop Status

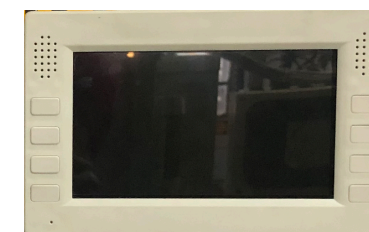
Example Applications

Machine Digitisation

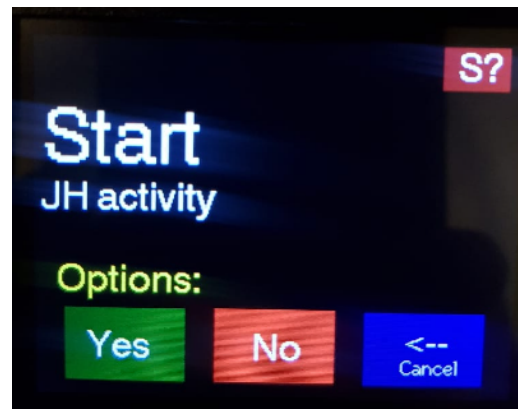
Monitoring Production
Monitoring Lubrication
Fault Relay Status online
Emergency Switch Status
Energy Monitoring
Jh activity
Machine Status
Tool Life Monitoring



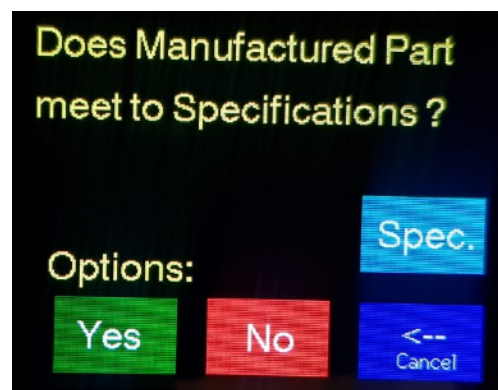
Hardware: Any UIO Unit



Machine Digitisation



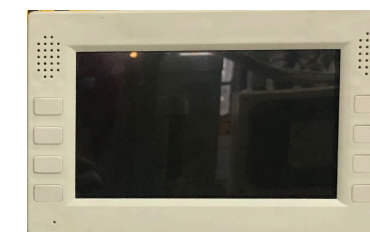
JH activity



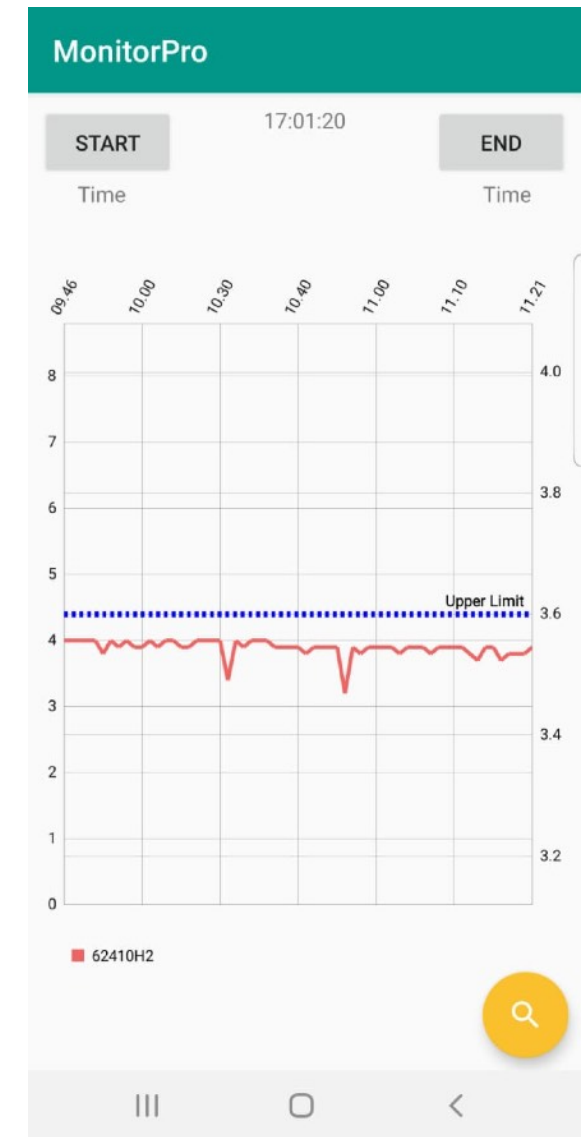
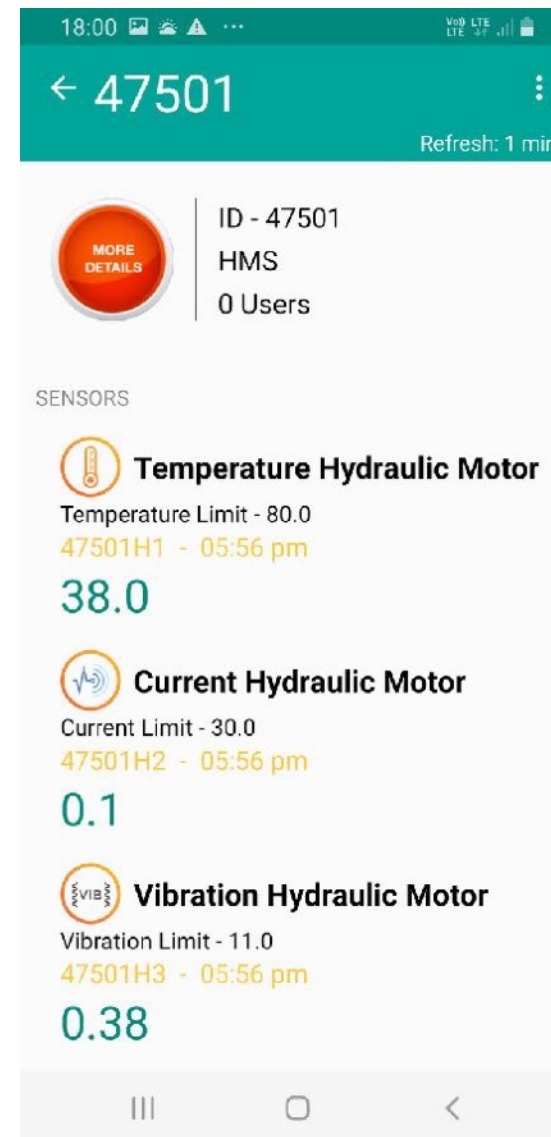
Part Spec Update

		295.01	166.01/166.02	535.02
S.No.	Item/ JH POINT			
1	Have you checked Lub. Oil Level	✓	✓	
2	have you checked Lub. Oil Pressure and gauge condition	✓	✓	
3	Have you checked Coolant Level	✓	✓	✓
4	Have you Clean M/C body from outside	✓	✓	✓
5	Have you Clean chip Tray	✓		
6	Have you checked Fixture Condition	✓	✓	✓
7	Are the Gauges Calibrated	✓	✓	✓
8	Have you checked Hyd. Oil Level		✓	✓
9	have you checked Hyd. Oil Pressure and gauge condition		✓	✓
10	Have Oil Level in Lub. Cup in FRL		✓	
11	Have you checked Coolant Pressure		✓	
12	Is the A/C Functioning		✓	
13	Have you checked A/C Temperature		✓	
14	Is the Gear Train Functioning properly			
15	Have you checked Cutting Oil Level			
16	Have you checked Cutting Oil pressure			
17	Have you checked air pressure			
18	Is Main Spindle Motor working			
19	Is Cutter Angle Head Motor working			
20	Clean AC filter			
21	Have you checked Check tail stock clamping pressure			
22	Have you checked Check balancing cylinder Pressure			

Hardware: Any UIO Unit

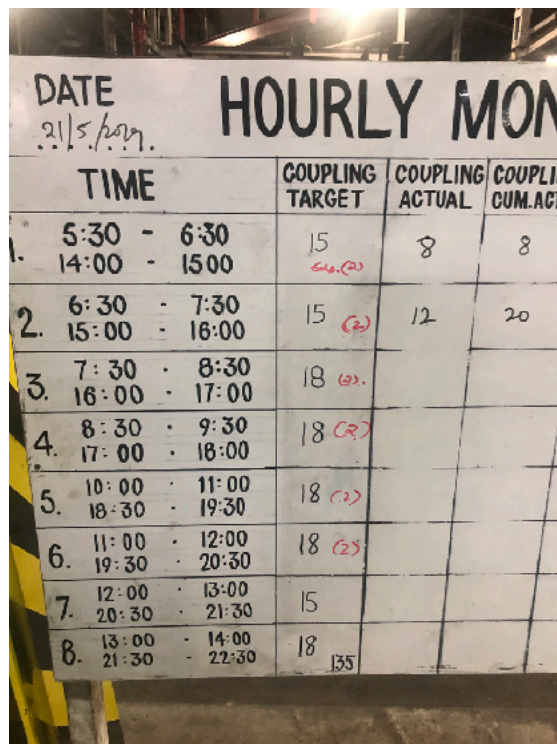


CBM Sensor



Digitisation of Hourly Monitoring Table

Coupling and Dismounting Counters



A handwritten table on a whiteboard titled 'DATE 21/5/2017. HOURLY MON'. It tracks coupling and dismounting counts over an 8-hour period. The table has columns for Time, Coupling Target, Coupling Actual, and Coupling Cum. Act.

	TIME	COUPLING TARGET	COUPLING ACTUAL	COUPLING CUM. ACT
1.	5:30 - 6:30 14:00 - 15:00	15	8	8
2.	6:30 - 7:30 15:00 - 16:00	15 (2)	12	20
3.	7:30 - 8:30 16:00 - 17:00	18 (3)		
4.	8:30 - 9:30 17:00 - 18:00	18 (2)		
5.	10:00 - 11:00 18:30 - 19:30	18 (2)		
6.	11:00 - 12:00 19:30 - 20:30	18 (2)		
7.	12:00 - 13:00 20:30 - 21:30	15		
8.	13:00 - 14:00 21:30 - 22:30	18		



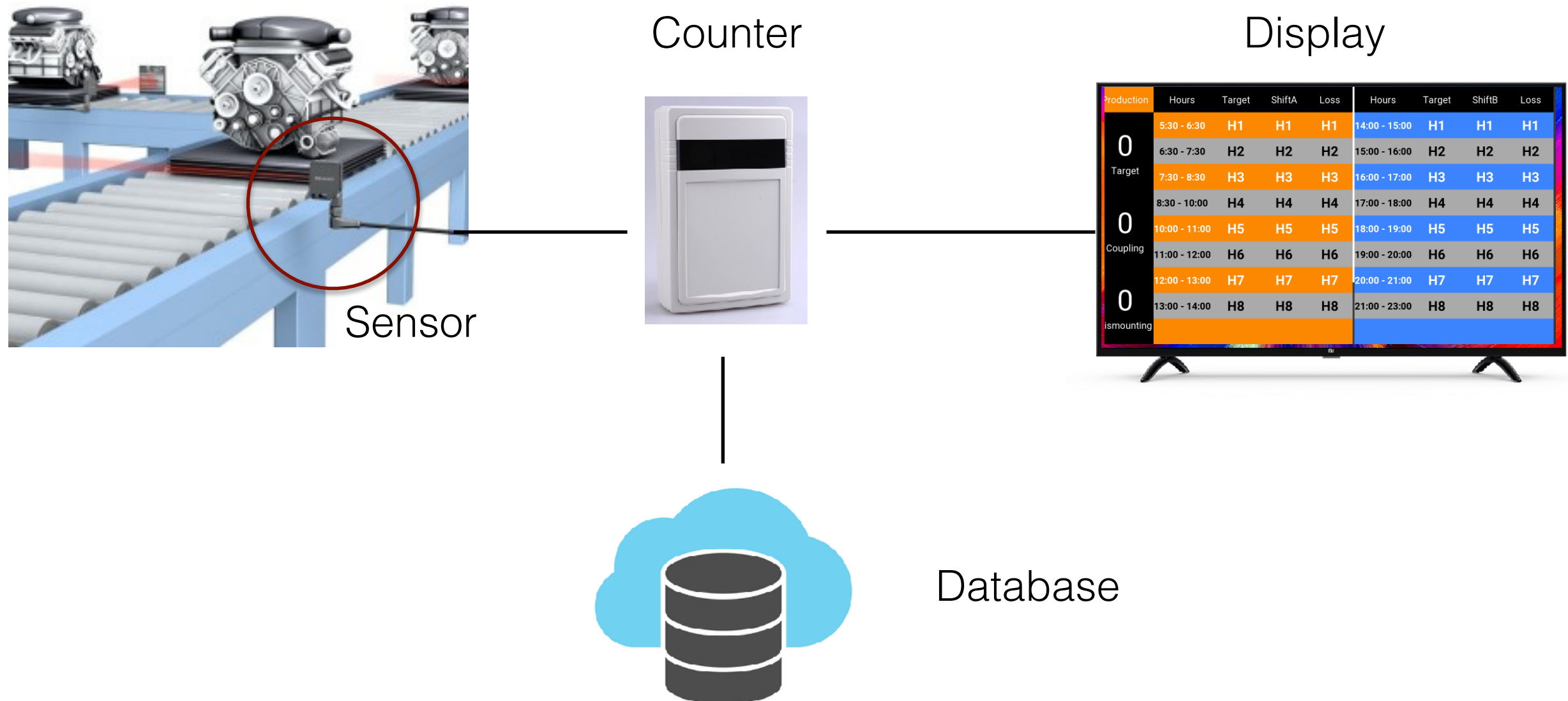
A digital display of the hourly monitoring table on a TV screen. The display is divided into two main sections: 'Production' (orange background) and 'Coupling' (blue background). The 'Production' section shows a target of 270 and a current count of 172. The 'Coupling' section shows a target of 0 and a current count of 0. The table lists hourly targets and actual counts for the next 24 hours.

Hours	Target	ShiftA	Loss	Hours	Target	ShiftB	Loss
5:30 - 6:30	15	0	0	14:00 - 15:00	15	0	0
6:30 - 7:30	15	0	0	15:00 - 16:00	15	0	0
7:30 - 8:30	18	0	0	16:00 - 17:00	18	0	0
8:30 - 10:00	18	0	0	17:00 - 18:00	18	0	0
10:00 - 11:00	18	0	0	18:00 - 19:00	18	0	0
11:00 - 12:00	18	0	0	19:00 - 20:00	18	0	0
12:00 - 13:00	15	0	0	20:00 - 21:00	15	2	0
13:00 - 14:00	18	0	0	21:00 - 23:00	18	2	0

Hardware: TV display Unit

Production Monitor

Coupling and Dismounting Counters



Hardware: TV display Unit & UIO Unit

PokaYoke Monitor

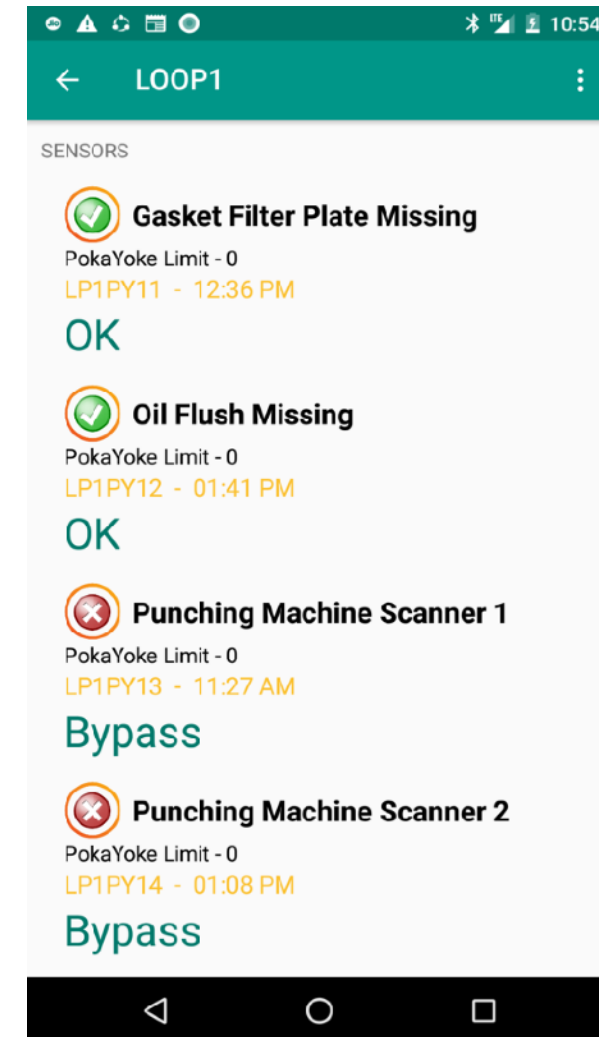
Monitoring Pokayoke Status online



Status

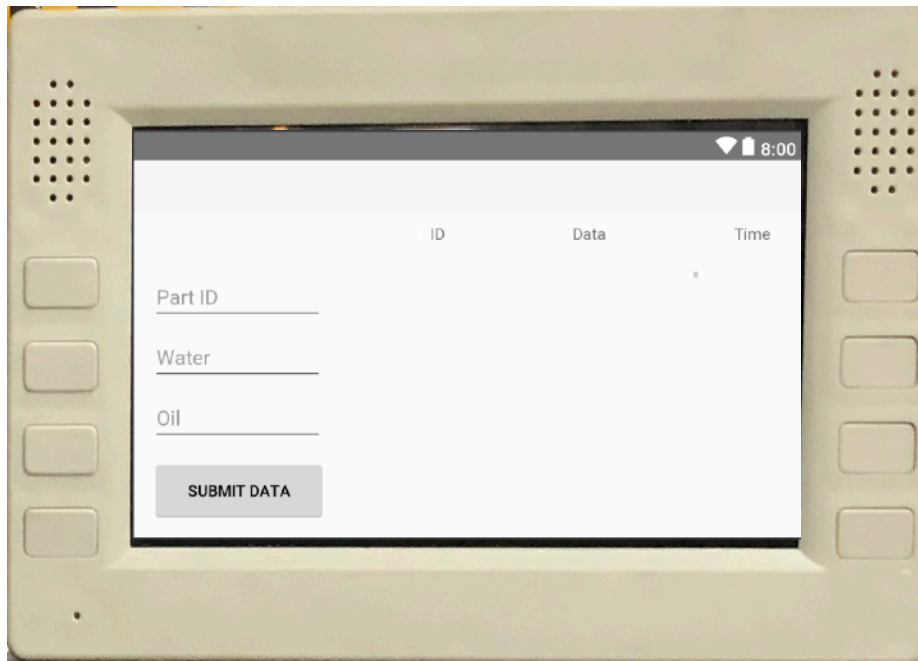


Poka Yoke Alert



Hardware: UIO Unit without display

Digitisation of Leak Test Data



The image shows a smartphone screen displaying a data entry application. The status bar at the top shows the time '12:33' and various icons. The app interface has a teal header with the text '63402' and '09/01/2020'. Below the header is a table with columns 'Time' and 'Data'. The table contains two rows of data, each preceded by a red circle with a white 'X' icon. A yellow circular button with a green plus sign is located at the bottom right of the screen.

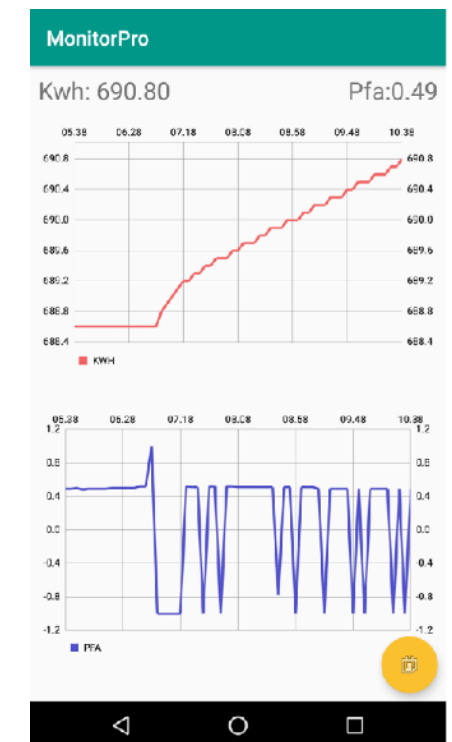
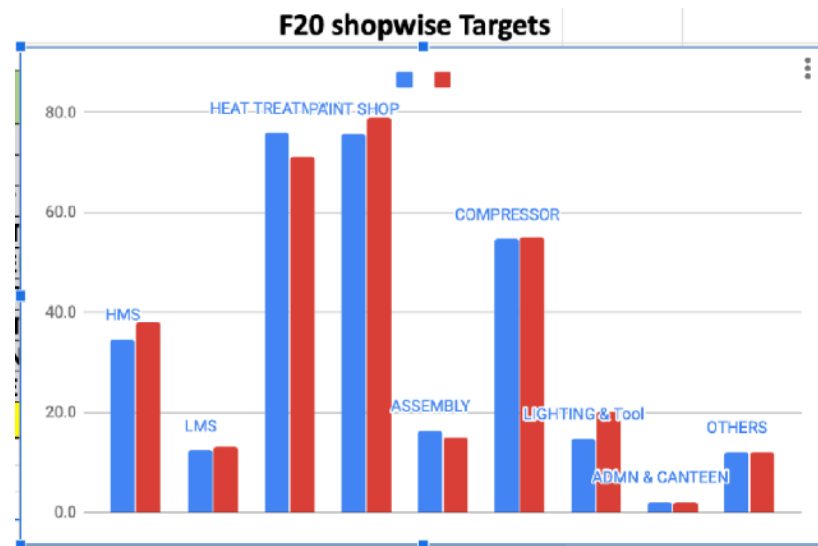
Time	Data
11:40 am 09/01/2020	bba1134 7.78 6.98
11:42 am 09/01/2020	bba1134 12.7 5.65

Hardware: Touch based UIO Unit

Plant wise Energy Monitoring

Data Analysis and platform for complete plant

- Automate readings from all Meters
- Display Department wise energy utilisation
- Plot graphs for ShopWise target vs actuals consumption



Hardware: Energy IO unit

Assembly Line Monitoring

Replace Standard Switches with IOT buttons that can record button press its time and generate analytics for future use.

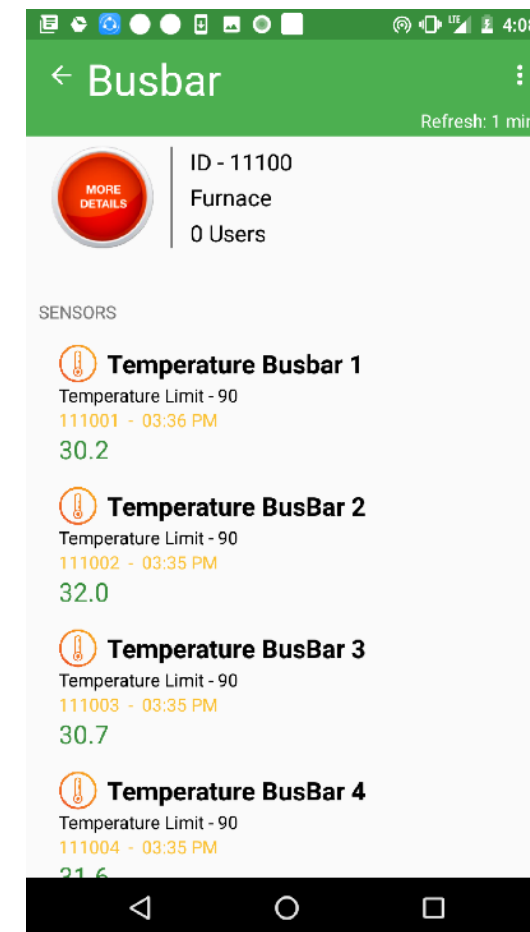


Monitor detailed data in online Portal

Monitoring Temperature of very high power BusBars without making contact



Non Contact
Temperature
Sensor



Ground Leakage Detection) GLD value With Camera



Get GLD value online
without any interference



Camera taking image
then convert to text

Thanks
Jagdeep Singh
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