TOUCH IOT WITH SAP LEONARDO
PROTOTYPE CHALLENGE

SMART RESIDENTIAL COMPLEX
- SUBMISSION
The Maintenance Head of a large residential complex needs a solution to monitor critical parameters such as temperature rise, oil level, cooler fans’ speed, battery water level etc.,

Storyline

The Maintenance Head wants a solution that would help him see vital warnings that could lead to failure, such as, abnormal temperature rise of the transformer coolant oil (50 degree above ambient temperature is permissible), low oil level (that could lead to temperature rise and to failure), malfunctioning cooler fans, low diesel level in generators, low water level in batteries connected to inverter power banks. He can then initiate corrective action to prevent failures and reduce downtime.
Ramaiah
Maintenance Head

“I like to reduce surprises. There should be no downtime or outage. It is difficult to monitor a huge set up manually with untrained workforce. This should be a smart residential complex”.

About

- 45, married, 15 years of maintenance experience.
- Motivated to try out new technology. Computer savvy.
- Aim is to advertise “This is a smart residential complex”.
- I work with the supervisors (diploma holders) and workers who take downtime and repairs “as a way of life”

Responsibilities

- I am responsible for maintenance of the power plant of several residential complexes
- I am working with the management to make this complex a smart one.
- I spend around half of my time inspecting the various sites, but I also do work in my office.
- I generate reports bimonthly on failures, maintenance costs, causes etc.

Needs

- I need to know the health of equipment at a glance
- I need to automate processes more to circumvent human delays and errors

Main Goals

- Being the person responsible for energy continuity, I must keep improve or automate the monitoring and reporting
- Workforce can then do preventive maintenance and servicing rather than downtime maintenance.
- Increase satisfaction of residents and reduce complaints and frustration.

Pain Points

- Workforce not proactive
- Lack of training
Point of View

As a maintenance head

I need a way to reduce downtime and increase energy efficiency of the power plant

so that this “smart” residential complex is downtime free and both management and residents are happy.
### ACTIONS

- Ramiah enters the office.
- He inspects failure and maintenance due data.
- He discusses with supervisors about potential issues.
- Failure analysis report points to low oil level heating up the transformer and its failure.
- Determine root cause.
- Analyze how to minimize. Inspect periodically or intelligently.

### MINDSET

- I hope today goes well without undue alarms.
- The workers and supervisors should be educated.
- How to eliminate? Let us narrow down on the cause of failure.
- Look at the metrics. Oil valve could be leaky, or maintenance technician might not have topped up oil.
- Let us inspect oil level.
- Check if oil has spilled near the valves or if level indicator is faulty.

### FEELING

- 😊
- 😞
<table>
<thead>
<tr>
<th>TOUCH POINTS</th>
<th>Maintenance report</th>
<th>Failure report</th>
<th>Conference room, marker pen, white board, supervisors</th>
<th>Metrics report</th>
<th>Conference room, marker pen, white board, supervisors</th>
<th>Transformer site, Office, Computer</th>
</tr>
</thead>
</table>
Prototype

mockup(s):

Sensors are fitted to detect low oil level, low battery water level, oil temperature, oil leak etc. The sensor data is collected and presented to show the overall health of the power plant. For example, temperature rise of 55 degree can be a warning and 60 can be an error for a transformer.

Landing page shows a list of equipment and a map of electrical equipment installed in the residential complex. If you click any equipment in the list with red or amber status line (error or warning), map zooms in on the location of the equipment. From there, Ramaiah can drill down the root case (leaky oil valve etc), and click the Action button to send an automated mail to the service contractor. He can also generate routine reports of maintenance schedules, inventory, and training needs. He can generate metrics and showcase the value added to management.