

Touch IoT Design Challenge Submission

1. Story

In the Utilities industry – especially in the Water domain, the wholesaler (companies managing the assets (pumps, loggers etc.)) is responsible to ensure continuous supply of water, pre-empt outages, reduce leakages, treat wastewater and keep the customer informed. Further, the organization is audited by the regulator and awarded/penalized based on the KPI's marked across industry standards.

With this background, it is evident that the 'Operations' team needs to have real-time (not near real-time) information on water pressure, burst mains, flooding, leakages so that quick action can be taken to minimize the impact on environment and the customer.

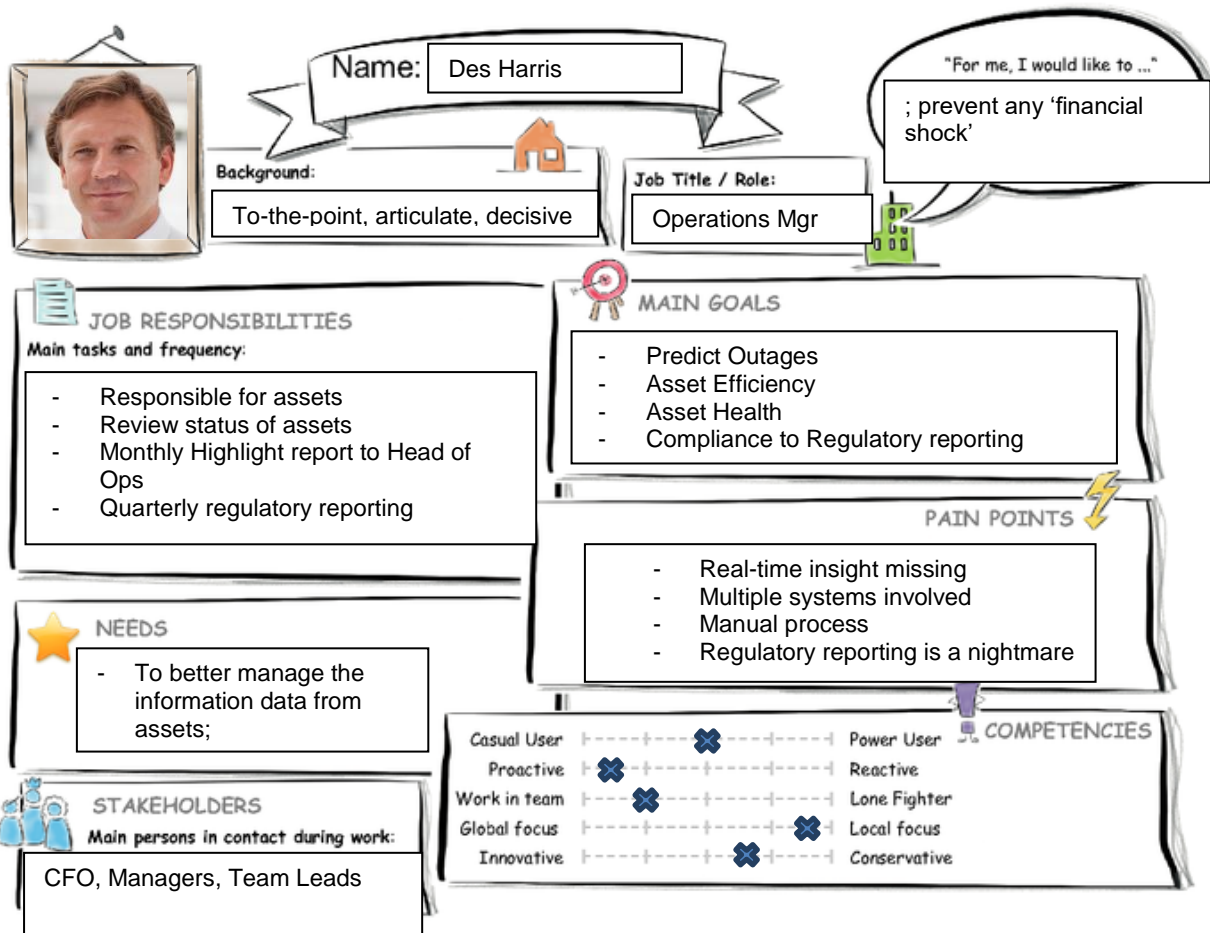
Presently, most water companies rely on M2M (machine-to-machine) connections to get data from assets; this is often re-active and historic information and the challenge is to move to pro-active, real-time updates.

The app is designed and targeted to the Outage Management teams that look at the historic, real-time data and predict the possibility of low water pressure, leakages etc.

Segmentation : Industry focus – Utilities (Energy & Resources)

Target : Outage Management Teams

2. Persona



3. Point of View

User: Des Harris (Operations Manager)

Needs a way to: effectively predict outage (including leakages etc.)

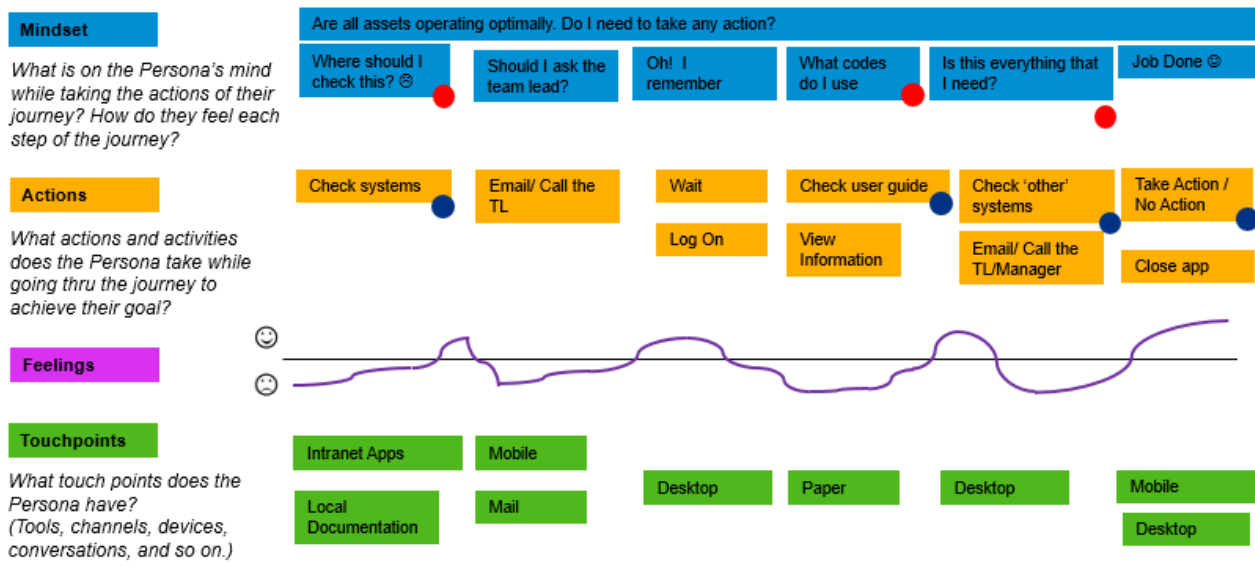
So that: action can be taken to reduce impact to customer/environment

Because: currently the process is manual intensive, laborious often resulting in delay in decision making

4. User Experience Journey

Touch IoT Design Thinking Challenge

User Experience Journey



5. Mock Up

The mock-up is an app to view the pumping station details for the defined KPI's with a view to predict possible outage.


The user is provided with a dashboard view with the Pumping Station overview details

When the user clicks on the tile, he is navigated to the detailed view page. Here, he is presented with relevant information.

The user can select the relevant pumping station based on geographical consideration. Also, the assets (pumps) details at the selected pumping station are displayed. In this example, the 'North East' area is selected and the KPI for Efficiency, Temperature and Flow rate are displayed over a 10 hour period.

The predictive algorithm provides the probability of outage based on the key parameters of operation


Dashboard



2
ALERT

Pumping Station
Status

Needs Attention



0
ITEMS

Coming Soon

FYI

Detailed Page

<
Water Pressure Info

Pumping Stations

Select Pumping Station* North East

Service Provider
Trex Services

Notify

Connected Assets

<input checked="" type="checkbox"/>	NE20393-01-WS	●	Active	📶	Connected	⚡	<input type="checkbox"/>
<input checked="" type="checkbox"/>	NE20205-02-WS	●	Active	📶	Connected	⚡	<input type="checkbox"/>
<input checked="" type="checkbox"/>	NE74920-03-WS	●	Active	📶	Connected	⚡	<input type="checkbox"/>
<input checked="" type="checkbox"/>	NE80028-01-WS	●	Active	📶	Connected	⚡	<input type="checkbox"/>

Alert Details

The pump is running at a high temp
The pump is running below threshold

Jul 05, 2017
Jul 05, 2017

Outage Probability

Hourly

Hour	Chance of Outage (%)	Threshold (%)
1PM	15	60
2PM	22	60
3PM	44	60
4PM	52	60
5PM	40	60
6PM	38	60
7PM	25	60
8PM	25	60
9PM	25	60
10PM	25	60

Efficiency (%)

Hourly

Hour	Low (%)	High (%)	Target (%)
1PM	~90	~100	~100
2PM	~90	~100	~100
3PM	~90	~100	~100
4PM	~90	~100	~100
5PM	~90	~100	~100
6PM	~90	~100	~100
7PM	~90	~100	~100
8PM	~90	~100	~100
9PM	~90	~100	~100
10PM	~90	~100	~100

Temperature (Cel.)

Hourly

Hour	NE20393-01-WS	NE20205-02-WS	NW74920-03-WS	NE80028-01-WS
1PM	17.8	20.4	18.4	18.4
2PM	18.4	21.6	18.4	18.4
3PM	18.4	22.2	18.4	18.4
4PM	18.5	21.9	18.7	18.7
5PM	18.2	21.6	18.2	18.2
6PM	18.9	22.7	18.9	18.9
7PM	18.2	21.8	18.2	18.2
8PM	19	22.9	19	19
9PM	18.3	22	18.3	18.3
10PM	18.8	22.4	18.8	18.8

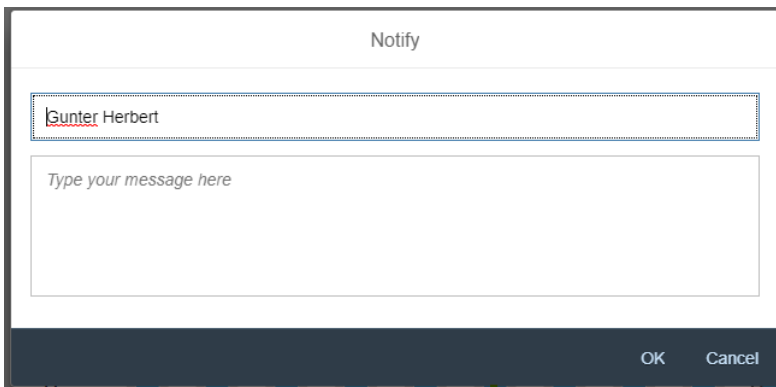
Flow Rate

Hourly

Hour	NE20309-01-WS	NE70373-02-WS	NE03938-03-WS	NE80093-04-WS
1PM	99.6	97.4	98.8	99.6
2PM	98.8	99.6	97.4	98.1
3PM	97.4	98.1	98.8	99.6
4PM	98.1	98.8	96.5	98.9
5PM	96.5	98.9	99.6	99.3
6PM	99.6	99.3	98.9	98.8
7PM	98.9	98.8	98.8	97.4
8PM	98.8	97.4	99.3	99.6
9PM	99.3	99.6	97.4	97.4
10PM	99.6	97.4	97.4	97.4

The Efficiency Chart shows that the pump is not operating at the 99.5% efficiency.
 The Temperature Chart shows that the pump NW74920-03-WS is operating at a higher temperature than normal.
 The Flow Rate chart shows that the pump NE03938-03-WS is not meeting the expected standard.

The threshold of 60% is baselined for predicting an outage. The user would also be able to notify the service provider (Trex Services) at the pumping station to take action by clicking the 'Notify' button.



Notify

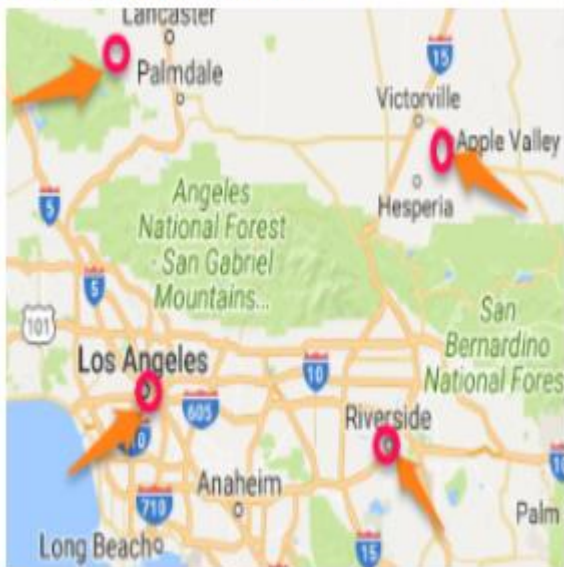
Gunter Herbert

Type your message here

OK Cancel

The user can also see the geographical location of the pumping station as a map

Pumping Stations



Mock-up URL:

https://standard.build.me/prototype-editors/api/public/v1/snapshots/225739c514a83ee10e1911b0/artifacts/latest/index.html#/main_page