Storage hot water cylinders are an essential element in most homes, especially in countries with colder climate. They have a cost and resource usage (radiant loss, electricity usage) aspect which when monitored and controlled can bring in significant efficiencies and savings. On the other hand, they also have safety aspects (leaks, pressure, temperature, flow) which, if not monitored and controlled can lead to safety hazards like hot water burns, electric short circuits, water leakages and fire).

Through this IoT prototype, I am trying to monitor the following:
1) Pressure inside the cylinder 2) Temperature inside the cylinder 3) Inlet and Outlet Flow rate 4) Radiant Loss (Difference between casing temperature and ambient temperature)

As a start, water supply companies can monitor this across their customers in a region to detect any potential safety hazards. With further functionality / algorithms, this can be extended for energy companies to provide individual users with data to monitor energy consumption, set preferences on times of usage, optimize temperature of shower water through connected thermostats etc.
ROBERT

The Faulterminator

“I like to get hold of faults in a jiffy and get our good folks (field engineers) acting on it.

About

- I work as the Fault Detection Specialist in UTILCO (Energy provider)
- I assist a team of field engineers detect faults on the energy line and alert them at the earliest to allow them be at site and resolve things.
- I like to keep it safe when it comes to electricity.

Responsibilities

- Detection of electrical faults / potential safety issues.
- Alert field engineers to make sure our customers are safe and sound.

Main Goals

- Early / timely detection of faults.
- Highlighting warning signs at the earliest and give field staff enough time to resolve.

Needs

- Real time monitoring of potential faults through analysis of key parameters to form insights.

Pain Points

- Difficulty in monitoring parameters across households.
- Reactive approach to fault resolution and potential safety hazards.
Point of View

As a Fault Detection Specialist

I need a way to detect any eventuated or potential faults early enough

so that I can give enough time to my field engineers to resolve it and keep our customers safe.
## User Experience Journey Template – Typical Day for a Fault Detection Specialist

| ACTIONS | \begin{tabular}{l}
Enter Office  
Place Headphones  
on Switch Computer On  
Calls start coming  
Attend Calls  
Log calls  
On fault notifications  
from customers, call  
field engineers  
Update log call  
Sometimes being  
busy a call drops so  
call back  
Cannot get hold  
of field engineer  
Got hold of field  
engineer who is  
now off to site  
Field engineer resolves  
problem and notifies  
Uptime  
I document and close
\end{tabular} | \begin{tabular}{l}
Hope today is not a  
day of too many  
incidents  
Oh dear! Doesn’t  
seem like a good day  
So many calls  
Ok. At least I have got  
someone on the way  
Oh dear! I hope it was  
not something major  
Grrr...Now what!  
I am fearing for  
my customer  
Relief!
\end{tabular} | \begin{tabular}{l}
\end{tabular} | \begin{tabular}{l}
\end{tabular} | \begin{tabular}{l}
\end{tabular} | \begin{tabular}{l}
\end{tabular} | \begin{tabular}{l}
\end{tabular} |
| --- | --- | --- | --- | --- | --- | --- | --- |
| MINDSET | FEELING | TOUCH POINTS | \begin{tabular}{l}
Computer  
Phone  
Customer  
Phone  
Field Engineer  
Phone  
Customer  
Phone  
Field Engineer  
Computer  
Phone  
Customer  
Computer
\end{tabular} | \begin{tabular}{l}
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\end{tabular} |
Prototype

Build Link: https://standard.build.me/prototype/editors/api/public/v1/snapshots/b2aa890206fd8c180e1362bb/artifacts/latest/index.html#/launch_page