openSAP

IMAGINE IOT
PROTOTYPE CHALLENGE

Template Description
Story

A big problem with maintenance and repairing of distribution pipes in that problems only pop up when there is a big burst and water pumps out, destroying the pavement or road above it. This has as a consequence that the pipe needs to be fixed ASAP and that the reparation is going to take a lot longer and cost a lot more than when the leak could have been fixed when it was just a little hole.

These leaks create annoyance with the people who rely on these pipes to supply them with water as these big bursts usually happen when the demand is the highest and repairs take very long.

Smart metering on both home water meters as well as supply lines with near real time meter reading could solve this problem. Statistics on the water consumption during the day could indicate the ideal times to plan maintenance in a neighborhood and the sum of the consumption of all the home meters should be the same as the throughput of the distribution pipe. A loss on that distribution pipe (with a loss of pressure could indicate a small, beginning leak which might result in a major pipe burst.)
**Persona**

**Greet**

*Maintenance planner*

“ I like to plan my maintenance in a way that it bothers as little people as possible”

**About**

- 32, married, years of utilities sector experience.
- Being the person who plans maintenance on large distribution pipes, I have to keep the balance between maintaining as much pipes while affecting as little people as possible.
- I work with the Chief Technical Engineer, Technicians, and maintenance workers

**Responsibilities**

- I am responsible for maintenance planning in a large urban area.
- I am responsible for multiple projects per week and each project is tied to a specific street or area.
- I spend most of my time in my office but occasionally I also have to spend time in meetings discussing larger projects.
- I enter time once a week on a project by project basis or on a daily basis for emergencies.

**Main Goals**

- Being the person who plans maintenance on large distribution pipes, I have to keep the balance between maintaining as much pipes while affecting as little people as possible.
- Better management of actual time spent on projects.

**Needs**

- When a pipe bursts, it needs to be fixed ASAP as it puts a large amount of people without water.
- I need to know in advance which pipes will burst
- I need the ability to know when the water consumption is the highest in an area so I can plan the maintenance in a time slot with low consumption

**Pain Points**

- Can’t predict pipe bursting
- Need to see water consumption in small time slots
- Need the ability to bulk plan.
Point of View

As a maintenance planner

I need a way to know if there is a small leak in a distribution pipe and at which times the clients in an area will use the least amount of water so that I can plan maintenance on that pipe in a timeslot that will affect as little people as possible in a negative way when performing maintenance.
<table>
<thead>
<tr>
<th>ACTIONS</th>
<th>Open program</th>
<th>Identify possible leaks</th>
<th>Look at least busy times in affected areas</th>
<th>Check available crews at time</th>
<th>Plan maintenance in best time slot</th>
<th>Inform customers of planned maintenance</th>
</tr>
</thead>
<tbody>
<tr>
<td>MINDSET</td>
<td>Let’s see how many pipes are leaking today!</td>
<td>5 possible leaks is not that bad</td>
<td>Typical 9 to 5 area so not a lot of water usage in that area!</td>
<td>Crews are all rather busy today</td>
<td>Leak is rather small so maintenance can be next week</td>
<td>Not a lot of people will be affected so not a lot of complaints</td>
</tr>
<tr>
<td>FEELING</td>
<td>😊</td>
<td><img src="#" alt="Red Bar" /></td>
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<tr>
<td>TOUCH POINTS</td>
<td>Meter management program</td>
<td>Meter management program</td>
<td>Meter analyzer</td>
<td>Crew management</td>
<td>Crew management</td>
<td>Customers</td>
</tr>
</tbody>
</table>
Prototype

MeterReader

- Show possible leaks
- Show all pipes

- Total: 345m³
  - Metered consumption: 330m³
  - Loss of 15m³

- Total: 250m³
  - Metered consumption: 245m³
  - Loss of 5m³

- Show averages by area
- Show all consumption

- 01:00 - 03:00: 0.5m³
- 04:00 - 07:00: 3
- 07:00 - 10:00: 2
- 10:00 - 13:00: 1
- 13:00 - 16:00: 1
- 16:00 - 19:00: 4
- 19:00 - 22:00: 2
- 22:00 - 01:00: 0.3m³