openSAP

IMAGINE IOT
PROTOTYPE CHALLENGE

IMPROVING WASTE DISPOSAL
**Story**

**Summary**

The waste disposal for public trashcans in the City involves a lot of manual work. It is unknown which cans are full and how much garbage has to be removed.

**Storyline**

In the pedestrian zone the crews can drive with a smaller electrical car, in some areas a handwagon must be used. Since both have only a limited capacity, they must return regularly to a larger garbage truck or collection place to empty their container. It is unknown for the garbage men how full they are and so they must do a fixed route to check all.

With the help of sensors on the trashcans and IoT Services it would be possible to measure the individual cans to check how full each of them is. When providing an app on a handheld device for the worker, they could improve their work routine and only empty the bins that are getting full. So it is also possible to prevent overflowing trashcans because those can be emptied as soon as they are getting full.
James Jonasson
Garbage Man

“To keep the city clean...”

About

• 37 years old
• Married, 1 son and 1 daughter
• working for City Waste Disposal Ltd. since 7 years
• likes doing Home Improvements and fishing in his leisure time

Responsibilities

• Empty trashcans in the inner city and pedestrian area
• Pickup overflowing trash from the trashcans
• Empty garbage vehicle when full

Needs

• I need a way to optimize my route
• I need a way to prevent going to nearly empty trashcans
• I need a way to empty my vehicle faster

Main Goals

• Empty as main full trashcans as possible before returning to the base station with a full vehicle/hand wagons

Pain Points

• Often only some trashcans are full/overflowing during my round
• When trashcans are overflowing, the area around looks dirty and we have to clean up
Point of View

As a Garbage Worker

I need a way to find my route to the full trash cans

so that I can prevent overflowing bins and garbage lying around in the city.
## USER EXPERIENCE JOURNEY: EMPTY TRASHCANS BY HAND THROUGH THE CITY

<table>
<thead>
<tr>
<th>ACTIONS</th>
<th>Start route</th>
<th>Empty trashcan</th>
<th>Going to next can</th>
<th>Empty trashcan</th>
<th>Going to next can</th>
<th>Empty trashcan</th>
<th>Empty Vehicle</th>
</tr>
</thead>
<tbody>
<tr>
<td>MINDSET</td>
<td>New day, new luck</td>
<td>This one was getting full, time to empty</td>
<td>Difficult to get through those pedestrians</td>
<td>This was nearly empty, I could have saved the time</td>
<td>Next on is around the corner</td>
<td>This is already overflown with trash, we should have come here earlier</td>
<td>The base station is so far, I am on the other side</td>
</tr>
<tr>
<td>FEELING</td>
<td>😊</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Repeat a couple of times
This is the overview page for the worker listing all trashcans in the area on a map as well as their current position. The list shows the nearest cans and if they need to be emptied or still have enough space in them. When clicking on an item in the list the details view is opened.
The detail page shows some basic information as well as a map with directions from the current position to that can. After visiting that trashcan and emptying it, he can use the button on the top to go directly to the closes can or closes full can. Since this is a response app, it can be used on various handheld devices, so it can be used be works on foot as well as in smaller (e.g. electrical) vehicles.