Masaryk University

Faculty of Informatics

Optimus Trash

Project Report

PA181 Services – Systems, Modeling and Execution

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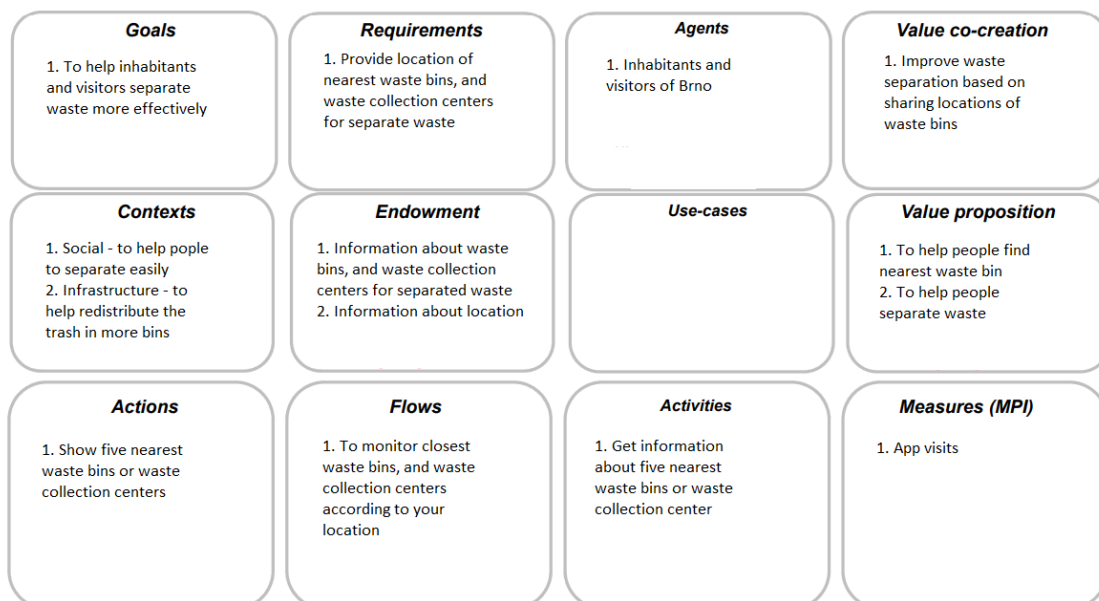
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Content

1 Scenario

Our application targets on the inhabitants or visitors of city Brno, that are separating or would like to separate waste. They might face these problems:

1. People come to waste bin for sorted waste and it's full.
2. They are not in the part of Brno they know, or they just moved to Brno and have no idea where are the nearest bins for sorted waste.
3. They walk/ride somewhere and want to throw out separated waste effectively.

Our application is designed specially to deal with these problems but can answer and be useful in much more cases regarding waste bins for sorted waste. User is able to search for individual waste bins and the application visualize him the nearest ones, needed for a given type of sorted waste, on the map. In this application we are using two open datasets provided by city Brno. They are Waste collection centers [1] (for non-separable but recyclable material and larger waste) and Containers for recycling [2] (standard separation waste bins).

2 Modelling

Goals	Requirements	Agents	Value co-creation
1. To help inhabitants and visitors separate waste more effectively	1. Provide location of nearest waste bins, and waste collection centers for separate waste	1. Inhabitants and visitors of Brno	1. Improve waste separation based on sharing locations of waste bins
Contexts	**Endowment**	**Use-cases**	**Value proposition**
1. Social - to help pople to separate easily 2. Infrastructure - to help redistribute the trash in more bins	1. Information about waste bins, and waste collection centers for separated waste 2. Information about location		1. To help people find nearest waste bin 2. To help people separate waste
Actions	**Flows**	**Activities**	**Measures (MPI)**
1. Show five nearest waste bins or waste collection centers	1. To monitor closest waste bins, and waste collection centers according to your location	1. Get information about five nearest waste bins or waste collection center	1. App visits

3 Used Services

IBM Cloud – suite of cloud computing services that offers both platform as a service (PaaS) and infrastructure as a service (IaaS). [3]

Cloud Foundry - is an open source, platform as a service (PaaS) on IBM Cloud that enables you to deploy and scale apps without managing servers. [4]

React - is a free and open-source front-end JavaScript library for building user interfaces based on UI components.

4   Application

Our application is called Optimus Trash and is available on:

https://optimustrash.eu-de.cf.appdomain.cloud/

4.1   How do you work with app?

In the first step you choose from type of waste you want to separate. According to selected type of waste, five nearest places (distance measured by meters) are presented for you where you can than throw them out. You click on one of them and it is visualized on the map along with your current location.

The steps described above plus design and layout of our application is visualized on screenshots below.
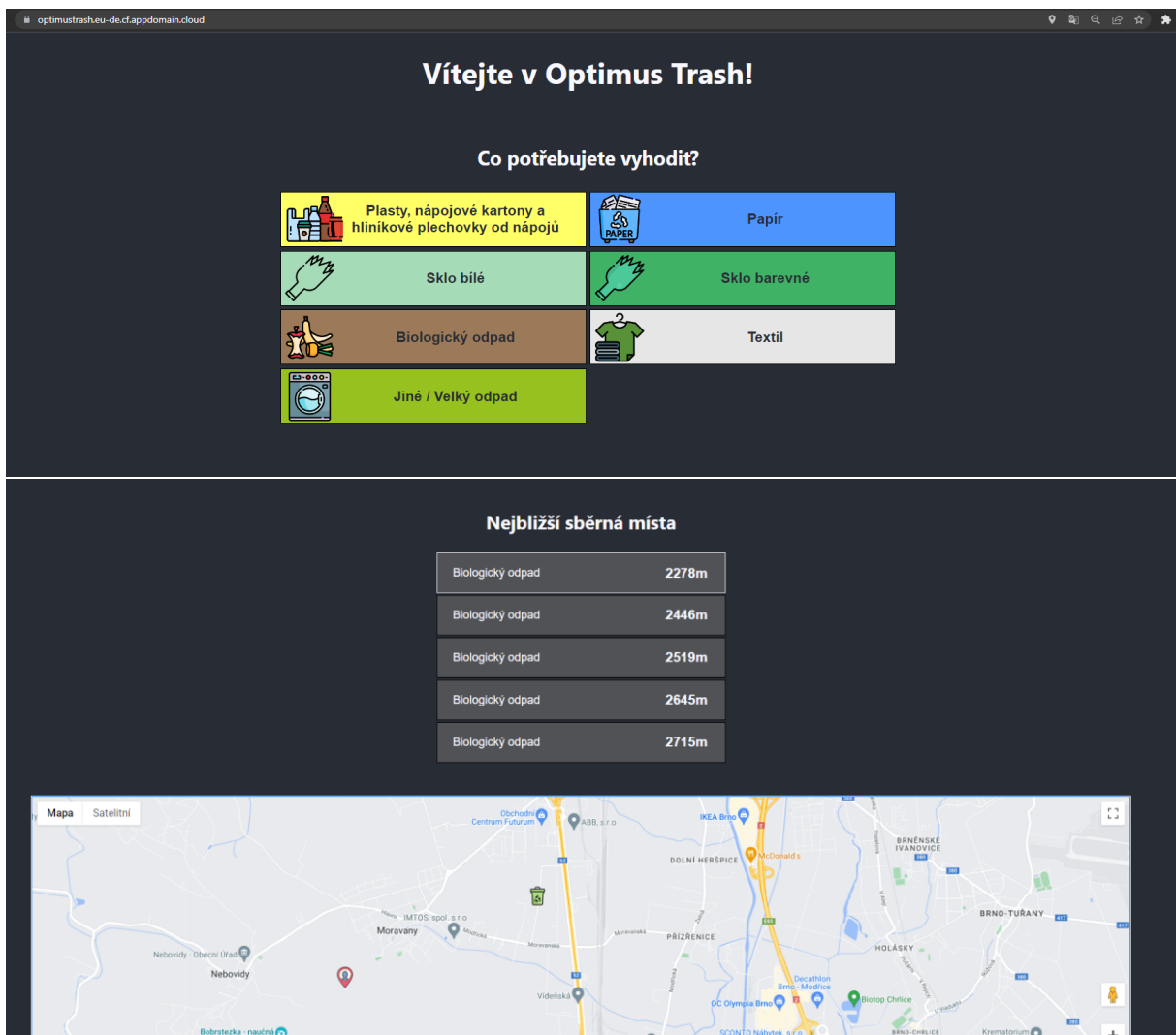
5 Summary

We've created a simple app which according to location of your device, finds five closest recycling waste bins or waste collection centers according to chosen type of separated waste

In the beginning we were closely working together to come up with the idea and project plan. Later we distributed the work on the project was as described below.

- Patrik Procházka
    - Project management – leaded the project and is responsible for result
    - Presentation
    - Graphics
- Zdeno Nekvasil
    - Data – came up with idea to use these data sets
    - Report – created this report
- Adam Baňanka
    - App development and deployment – coding + working with IBM Bluemix

6 Sources

1. https://data.brno.cz/datasets/sb%C4%9Brn%C3%A1-st%C5%99ediska-odpad%C5%AF-waste-collection-centres/explore?location=49.210010%2C16.593814%2C11.99
2. https://data.brno.cz/datasets/mestobrno::kontejnery-na-separovan%C3%BD-odpad-containers-for-recycling/explore?location=49.193878%2C16.574629%2C14.00&showTable=true
3. https://www.techtarget.com/searchcloudcomputing/definition/IBM-Bluemix
4. https://www.ibm.com/cloud/cloud-foundry