D12
Documentation of Prototypes

ESR 4 - Smart Cities
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Iterative prototyping

This file contains documentation about prototyping activities developed during the second year of PhD research focusing on waste prevention and smart cities as part of the OpenDoTT project.

The exploration of prototypes and speculative technologies happened in parallel with training modules on Open Hardware and Privacy. Some aspects of it are documented in more detail in the other deliverables.

The prototyping phase happened iteratively. The starting points were two concepts coming from earlier work ("Universal Registry of Things", and "Point and Reuse"). Both explore potential uses of technology to promote a greater reuse of discarded objects and materials in cities and regions.

Over months, updated versions, names and sketches were tried. Feedback was collected at first from colleagues, supervisors and consortium members, and later through a research study called *reuse.city online co-design lab*.

Eventually, the focus of prototyping shifted from hardware to an experimental implementation of the Universal Registry of Things, called ThingWiki.
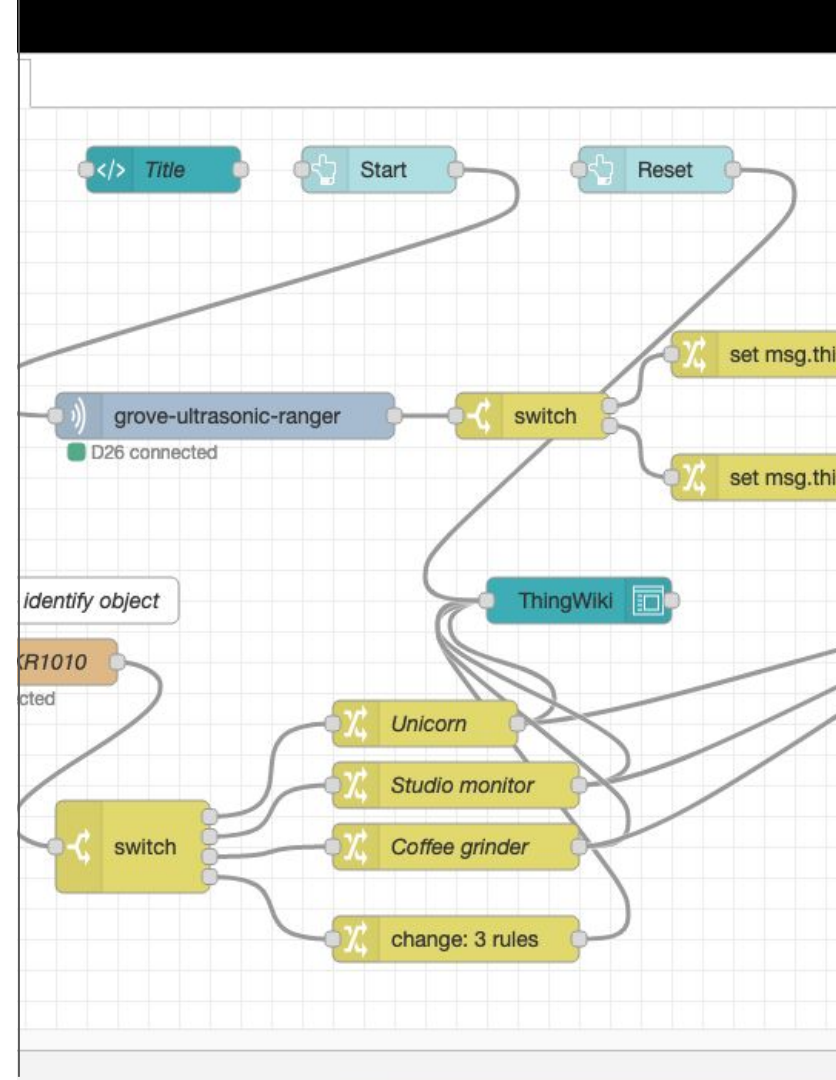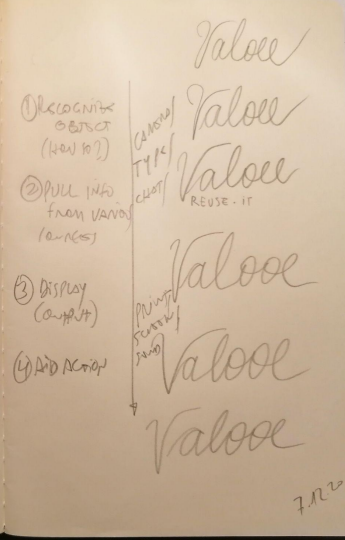
The first take on prototyping were the sketches of a fictional machine to help assess the potential value of objects. It was initially called **Valooe**, and would allow people to access the Universal Registry of Things.

The name **valudata** was used as a simpler alternative to discuss the Universal Registry of Things.

A first attempt to model valudata was done in the form of a rich database.
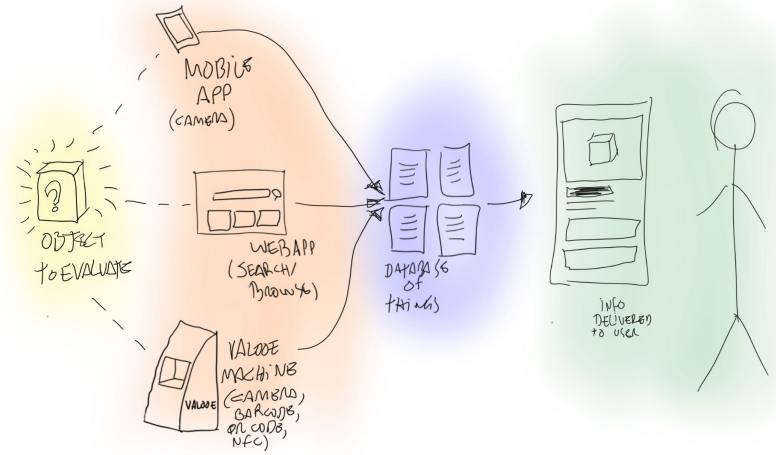

Universal Registry of Things
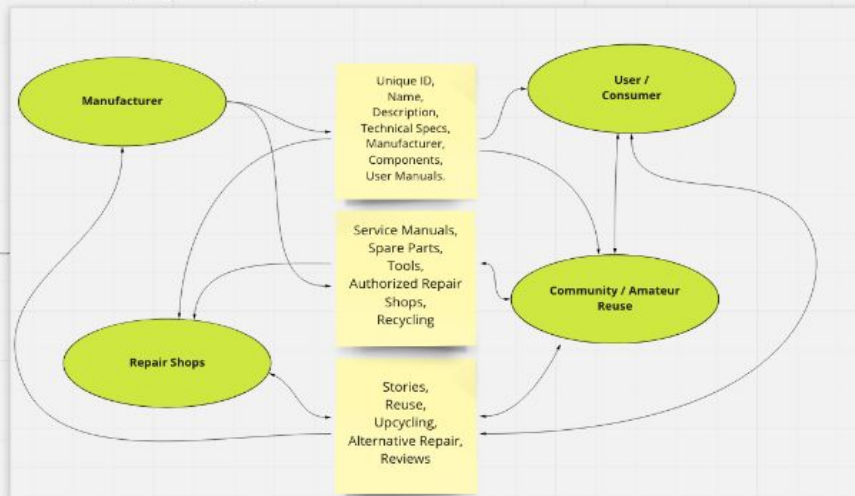
A tentative structure for valudata was used to trigger discussions with participants of a workshop during MozFest 2021.

valudata

After giving up on the name "Valooe" and playing with the expression *e-valudata* to call the machine that would provide easier access to the Universal Registry of Things, a new name was decided: Evaluation Interface, or **E-I**.

A workbench version of E-I was developed during the Open Hardware Training module. Documentation about the machine complete with hardware and software specifications can be found in the appropriate deliverable.
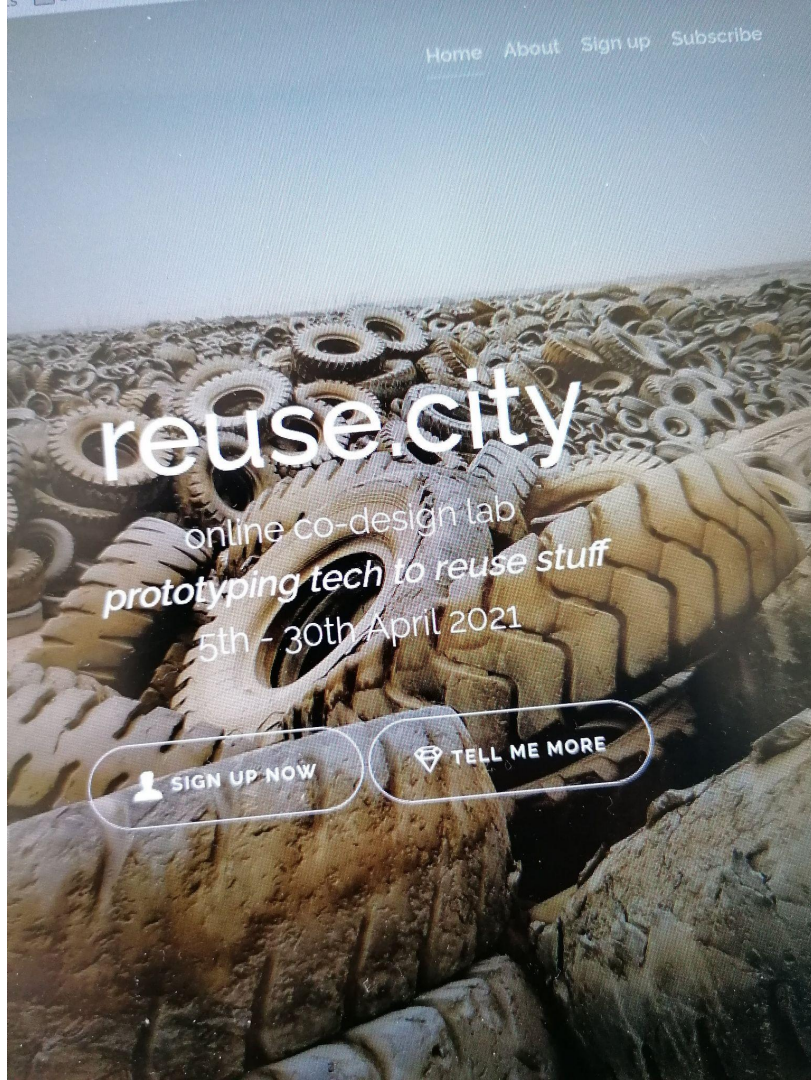
Proto-community

Preparing to conduct a research study exploring technologies for the reuse of materials led to the creation of an online community connecting practitioners, artists and researchers involved with repair, upcycling and the re-circulation of goods and materials.

An online co-design lab was established for a specific point in time in order to experiment how such a community could come into being. It was called **reuse.city**.

A combination of online tools was used for that: a series of live workshops and presentations, discussion groups based on e-mail and on a messaging platform, a GitHub repository, as well as directed content.
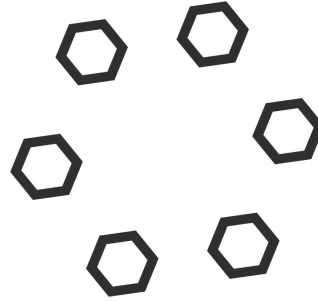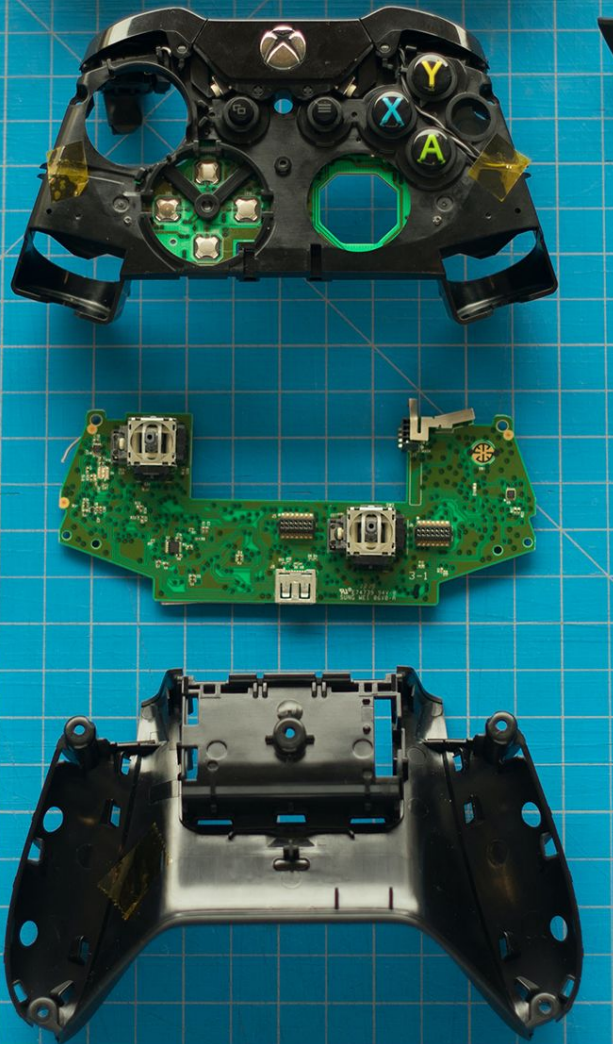
The discussions conducted during reuse.city suggested that a wiki-inspired approach could help sort out some of the anticipated issues that an Universal Registry of Things could face.

ThingWiki was created as an experimental implementation of the Universal Registry of Things. The prototype is a website with information about a sample of different kinds of objects. It is designed to be easy to navigate and access by users, whilst enabling raw data and its structure to be exchanged and reused by information systems.

ThingWiki is live at https://thingwiki.cc

Data structure

For prototyping purposes, a data template was established to allow descriptions of things in objective (physical characteristics and manufacturing) as well as subjective terms (stories).

```
1   # 0001: Title
2
3   ## Basic data
4
5   ### Name
6
7   ### Description
8
9   ### Manufacturer
10
11  ### Manufacturer website
12
13  ### Color
14
15  ### Identifiers
16
17  ### More information
18
19  ### Images
20
21  ## Stories
22
23  ### Author
```
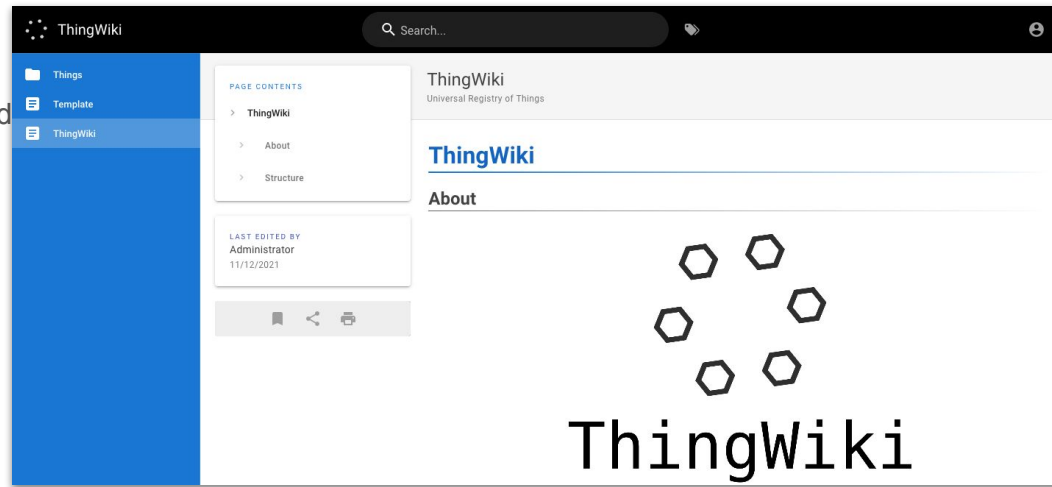

Software

The ThingWiki prototype uses the wiki engine Wiki.js to render a website with individual pages for discrete objects.

The choice for this wiki engine was based on its ease of use and ability to configure text-based folders as a means of storage. That allows for easy replication and exchange of data.

Flexibility

The website is easy to navigate, based on a simple structure:

- Home page
    - Template
    - Sample data
        - Entry 0001
        - Entry 0002
        - Entry *N*

With the contents stored and backed up as plaintext markdown files via a Git repository, data can be accessed and used by any online system.

Complete documentation about ThingWiki can be found in the project repository:

https://github.com/opendott-smartcities/II/tree/main/D12_documentation-of-prototypes/thingwiki