

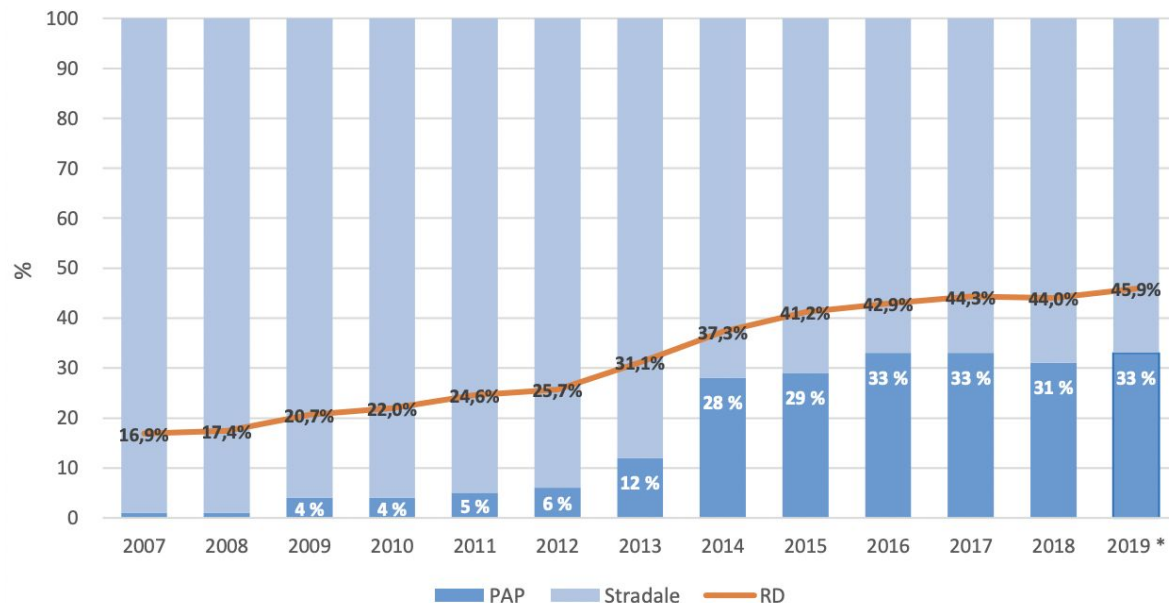
checkBin - Concept

The Problem



not only Images also Data

Use of the Waste Management services in Rome



PAP: door to door collection

Stradale: on street bins collection

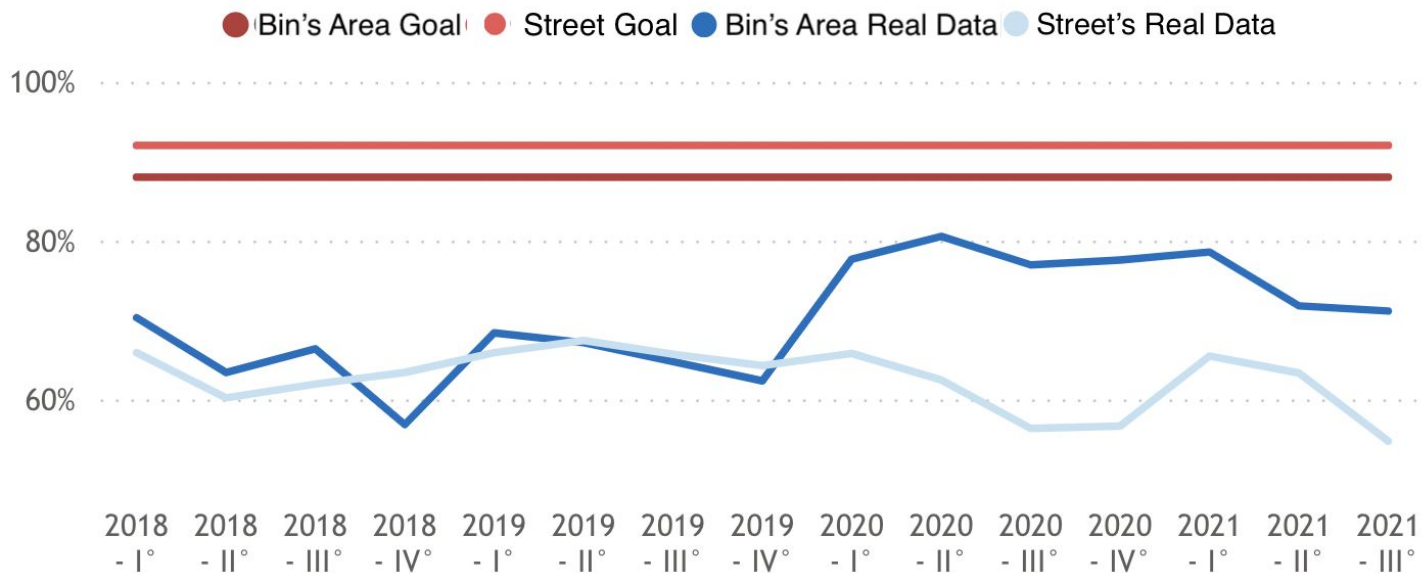
RD: percentage of recycled waste

Source: AMA, Anagrafe dei rifiuti di Roma Capitale -

https://www.comune.roma.it/web-resources/cms/documents/Raccolta_e_ciclo_rifiuti2018.pdf

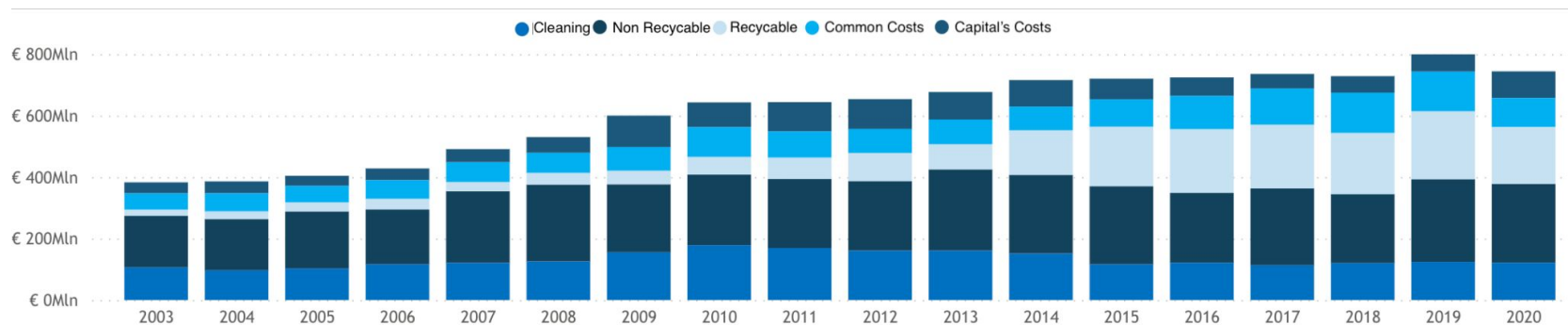
not only Images also Data

Street Cleaning and Bin's Area Cleaning



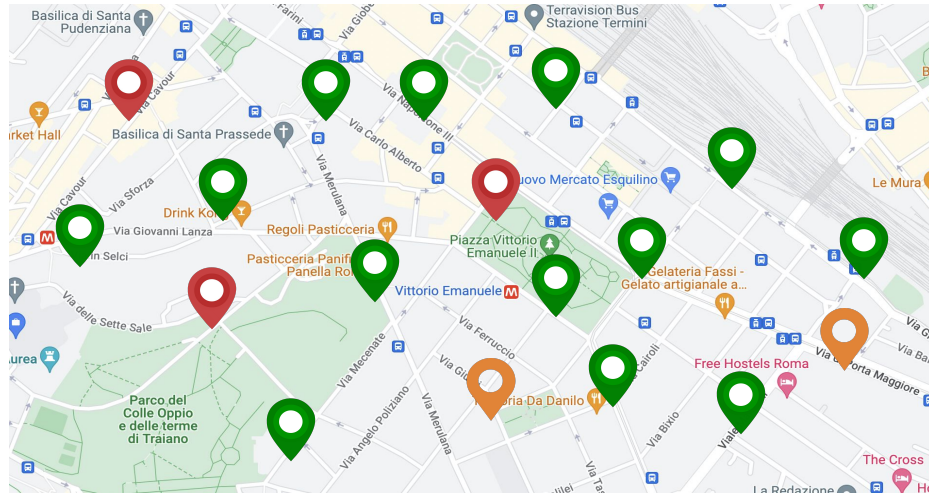
not only Images also Data

Waste Management costs in Rome



Our Solution

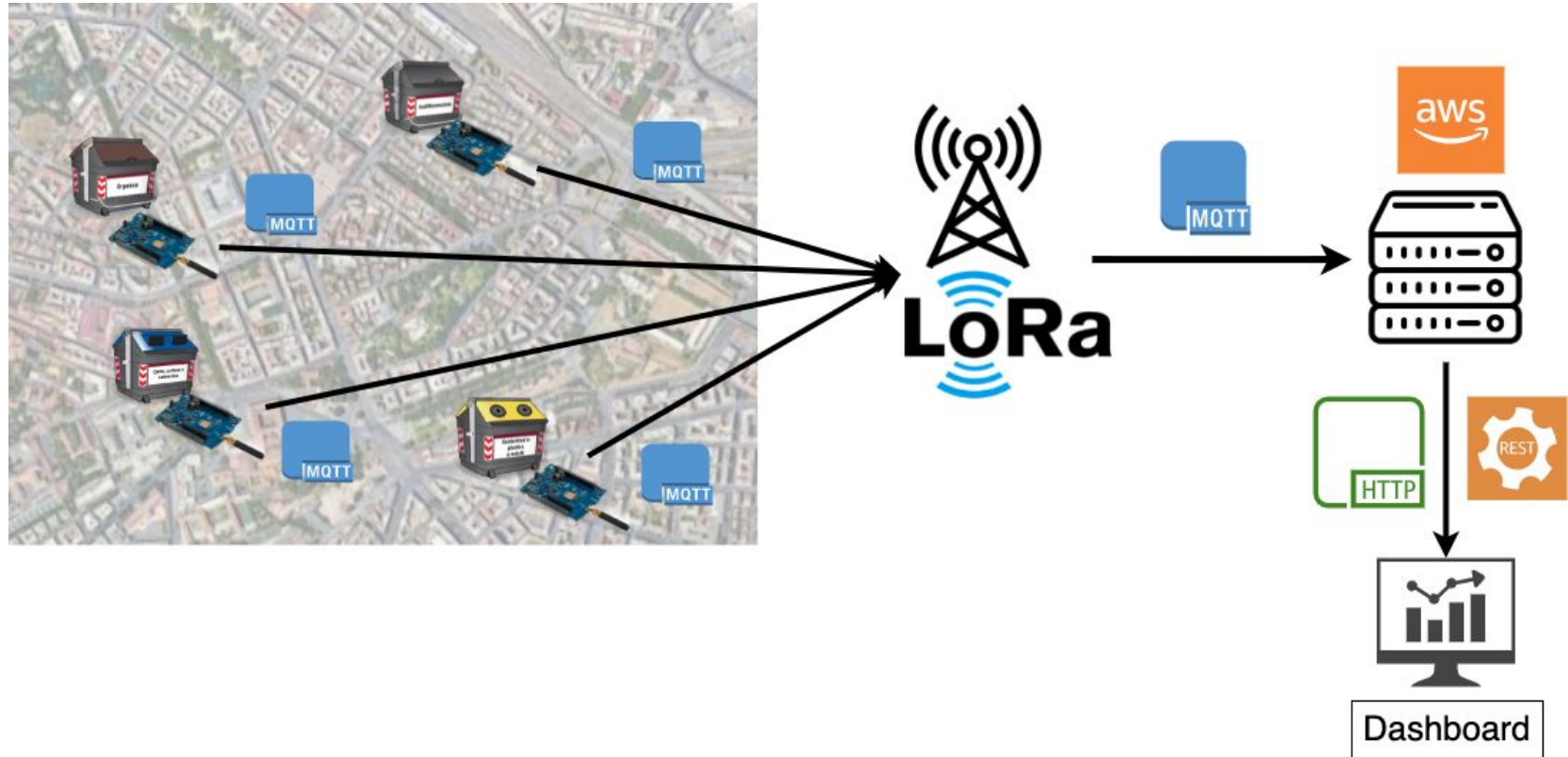
Introduction of smart bins to
monitor their fill level and create a
collective intelligence of the whole
city status



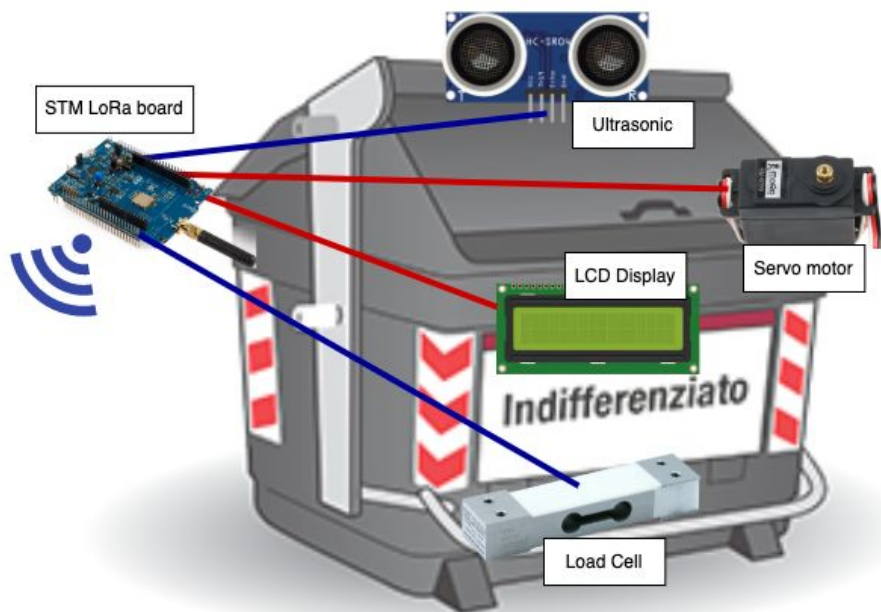


checkBin - Technology

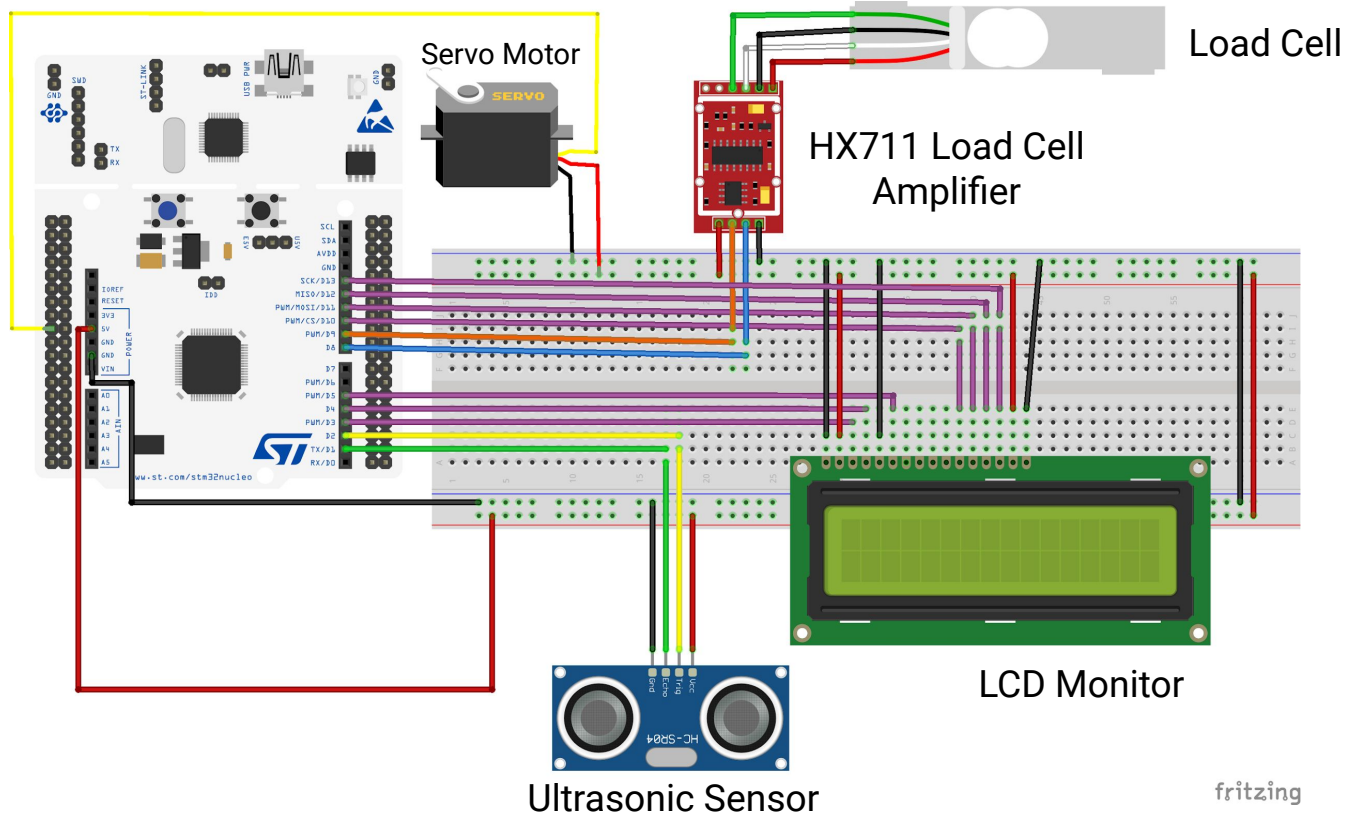
General Architecture



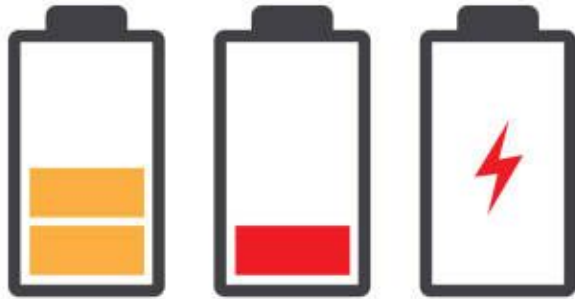
Bin - Overview



Bin - Circuit Detail



Energy constraints

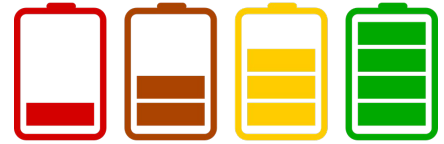


- Low consumption
- Charge few times as possible
- Tailor duty cycle on the needs

checkBin - Evaluation

What we Plan to Measure for the Evaluation

- total energy consumption of the board, sensors and actuators
- total network usage on the LoRa gateway and on every single board
- final cost of the product



What we Plan to Measure for the Evaluation

- percentage of inaccurate measurements in the bins
- difference between real fill level and measured fill level on a sample
- average filling level when bins are emptied



Two phase plan

1. install the devices and
collect data in order to create
a baseline



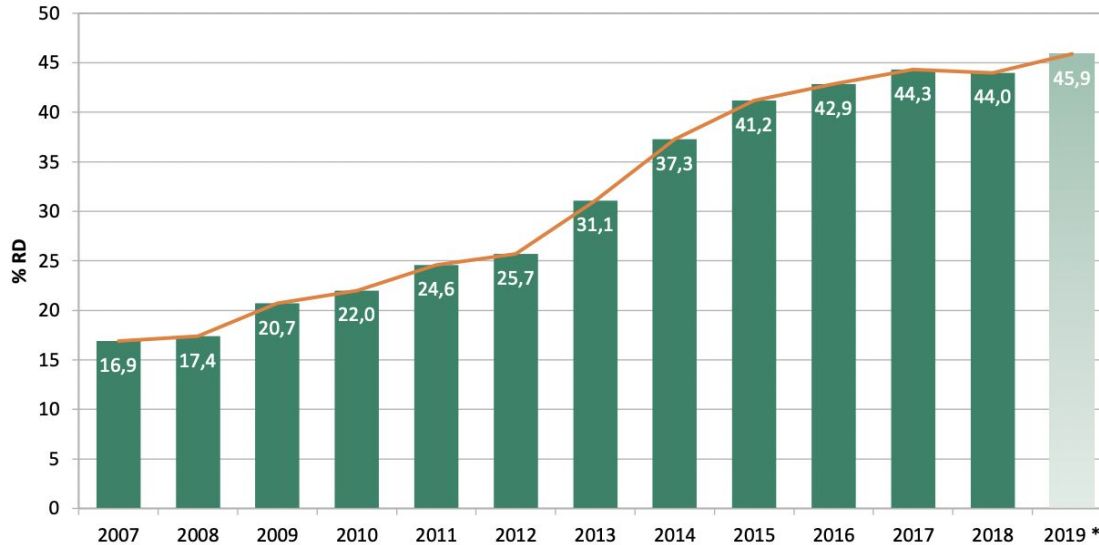
2. enforce new policies
based on the data and
compare the outcomes to
the baseline

checkBin - Open Impact

Social impact data

How can we measure soft outcomes through IoT data?

Percentage of waste diverted from disposal in Rome 2007 - 2019 (first semester)



Better precision in
gathered data

Statistics on
specific areas



Thanks for the attention!