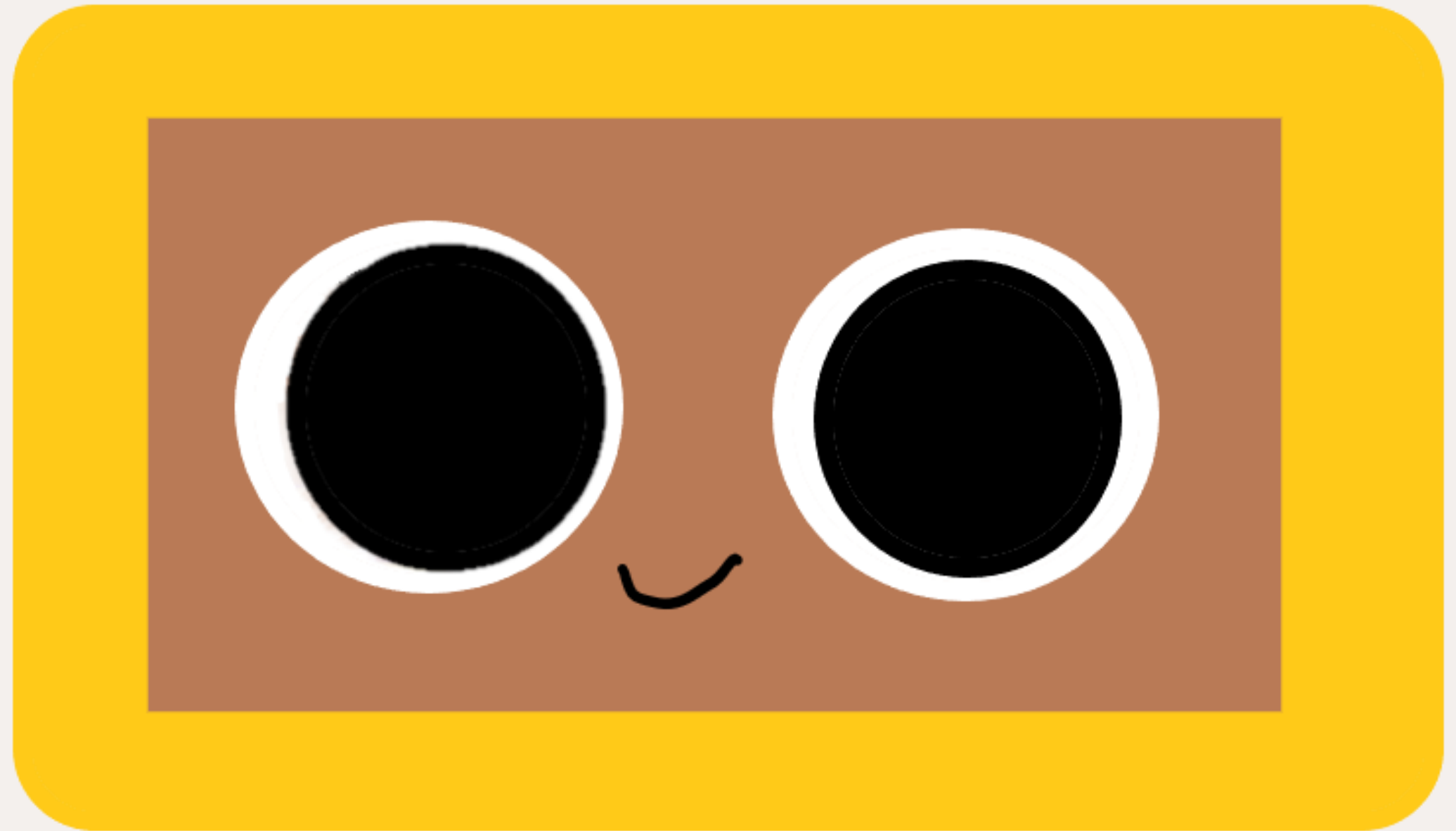


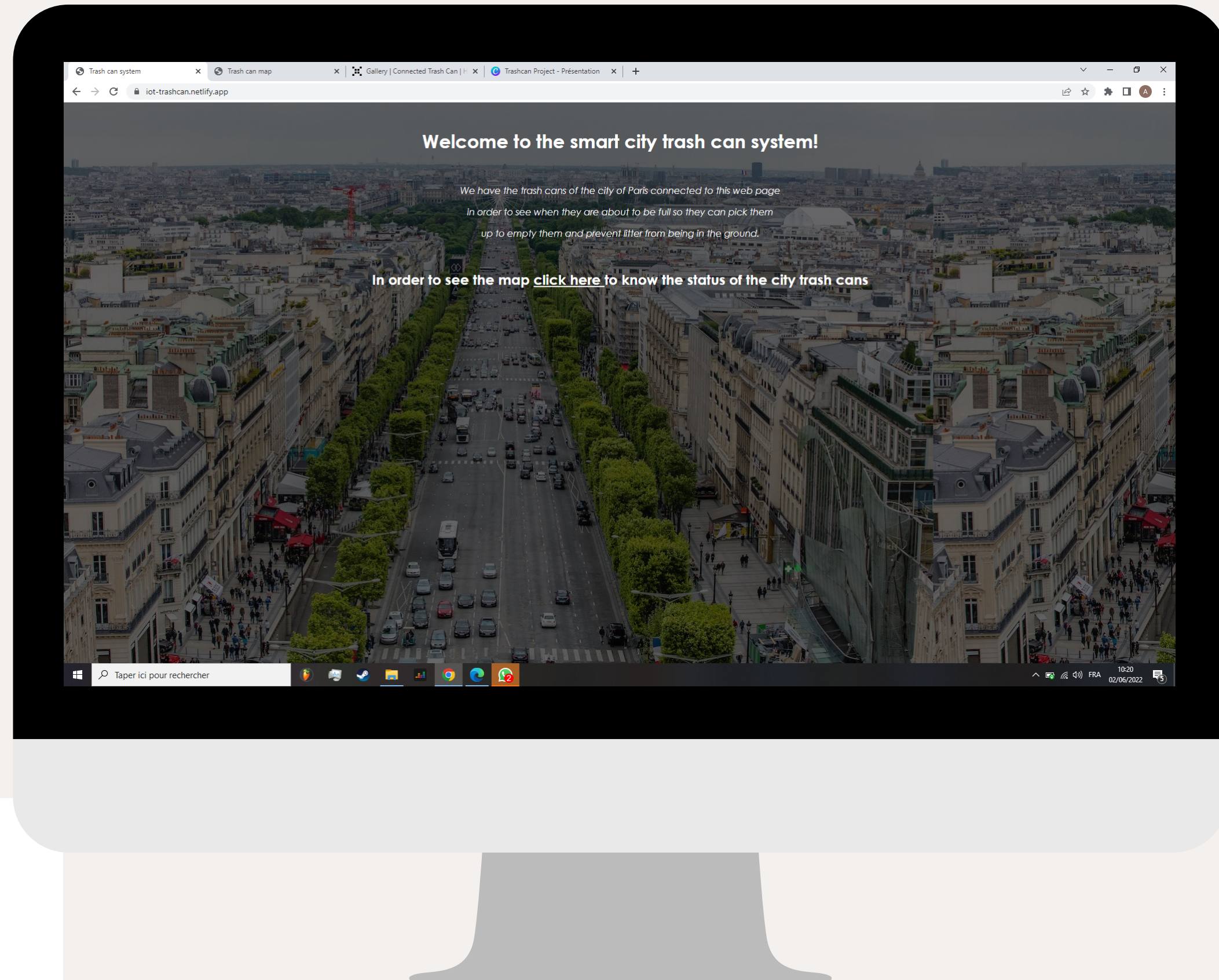
# Trashcan Project

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- 01 ● Current situation
- 02 ● Our proposition
- 03 ● How it works
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# Current situation

*Nowadays the trash cans in the city of Paris are often full to the point that trash is no longer available so it ends up on the ground.*

*Therefore there is a contamination problem.*



# Purpose

## LARGE SCOPE :

We want to provide to the city a system that prevents soil pollution so it helps the environment.

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## SMALL SCOPE :

We want to prevent garbage being in the streets of Paris.

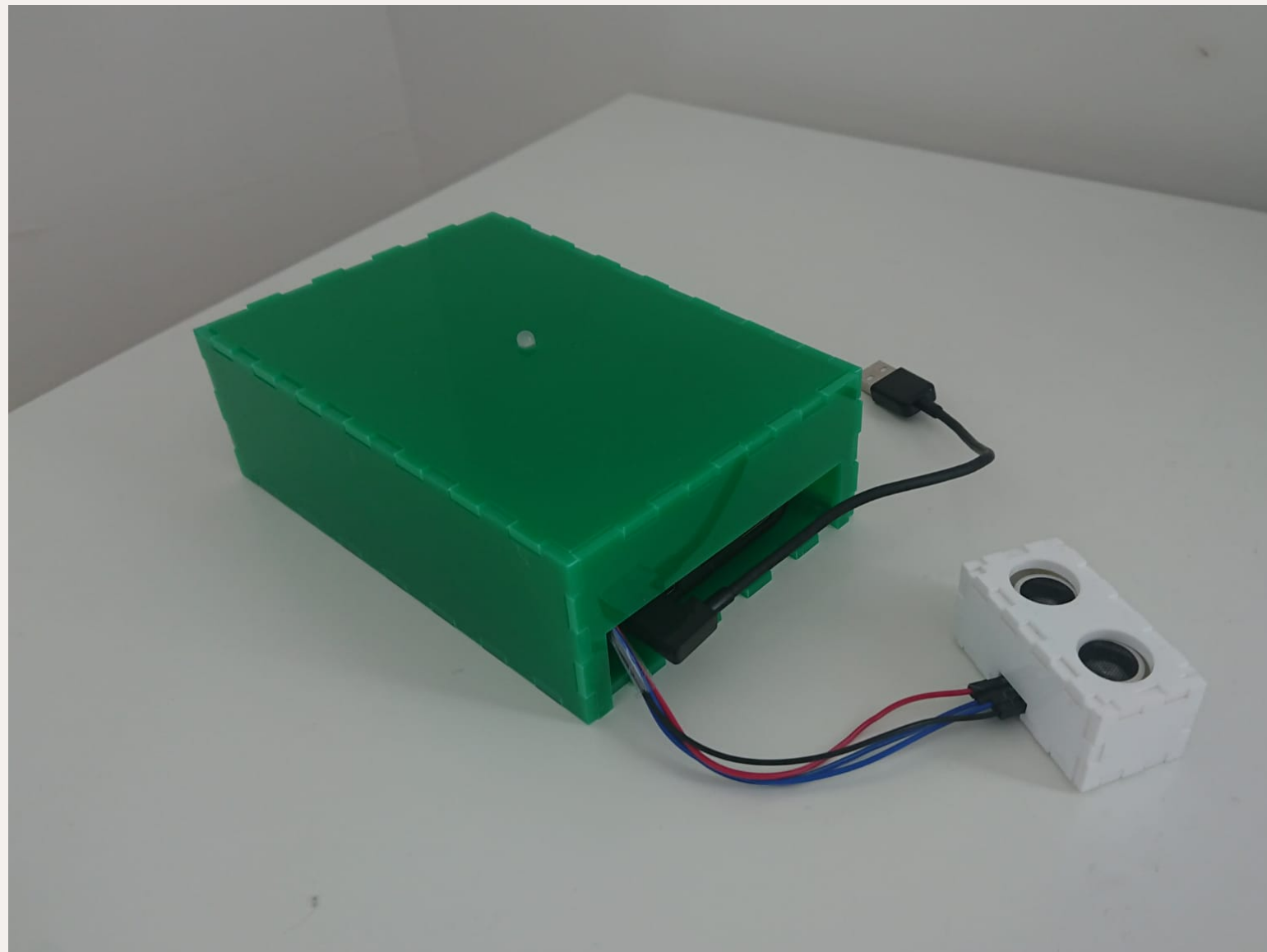


# Main project - Smart system



# Our prototype

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## FEATURES

- It has an ultrasonic sensor
- It feeds a webpage with the current status of the trash can.
- It has a LED that indicates the status of the container.
- It is made out of Plexiglas

# HOW DOES IT WORK?



# Why to use a ultrasonic sensor?



## Pros:

- *Cheap*
- *Easy to use*
- *Gives the distance from the obstacle*

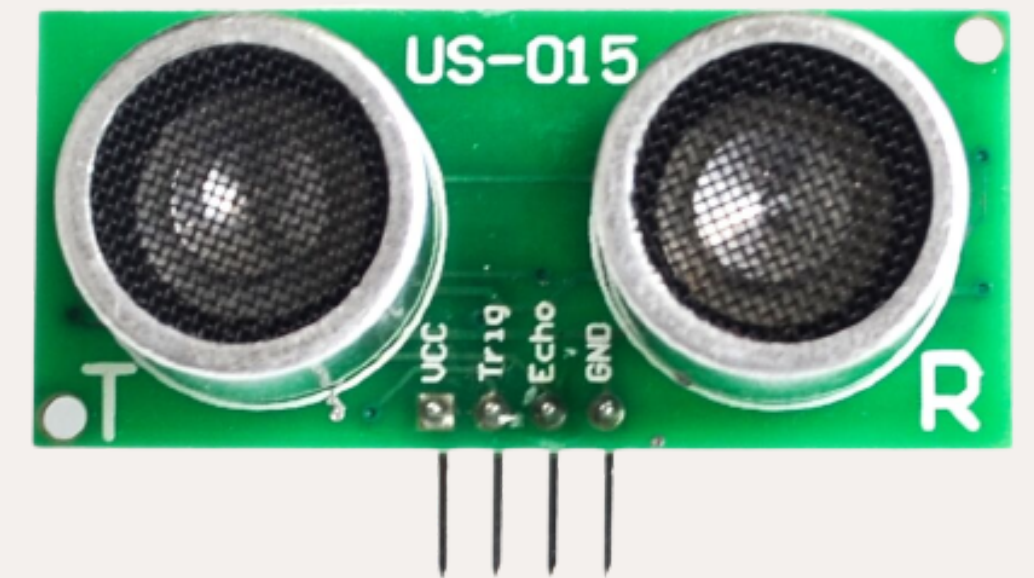
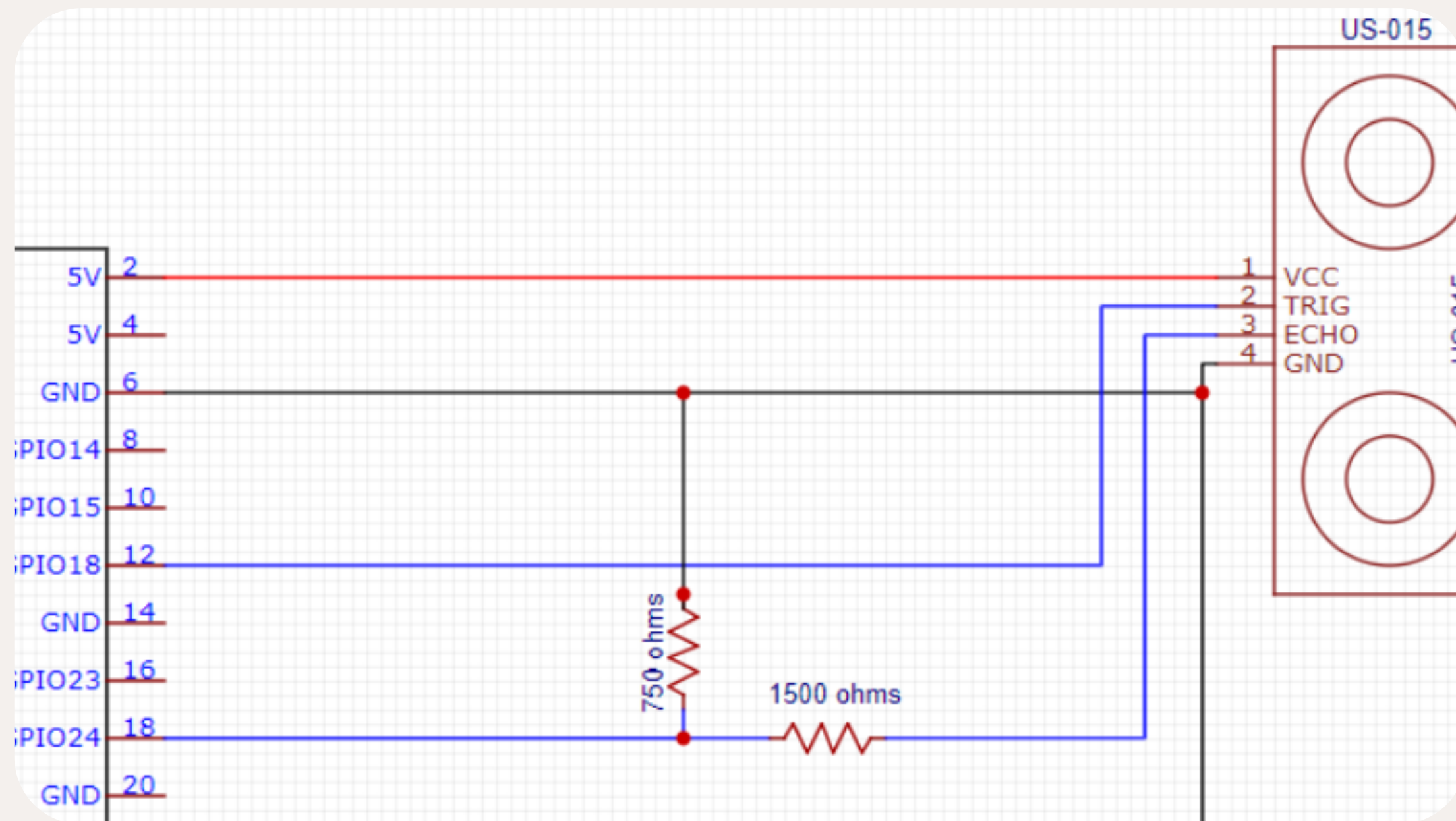
## Cons:

- *Fragile*
- *Unreliable*
- *Doesn't work on every material*



# Wiring

## Wiring the sensor



## Wiring

# Why to use a RGB LED?



### Pros:

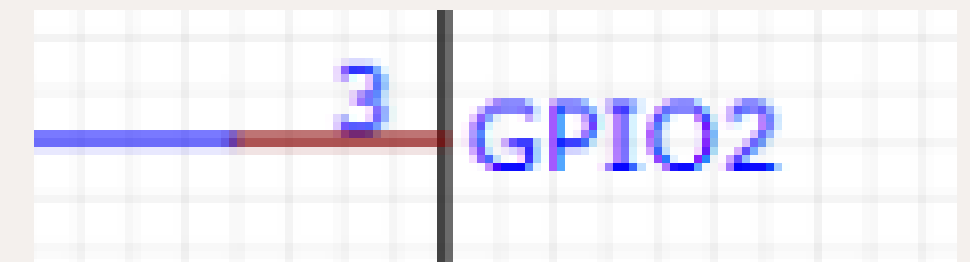
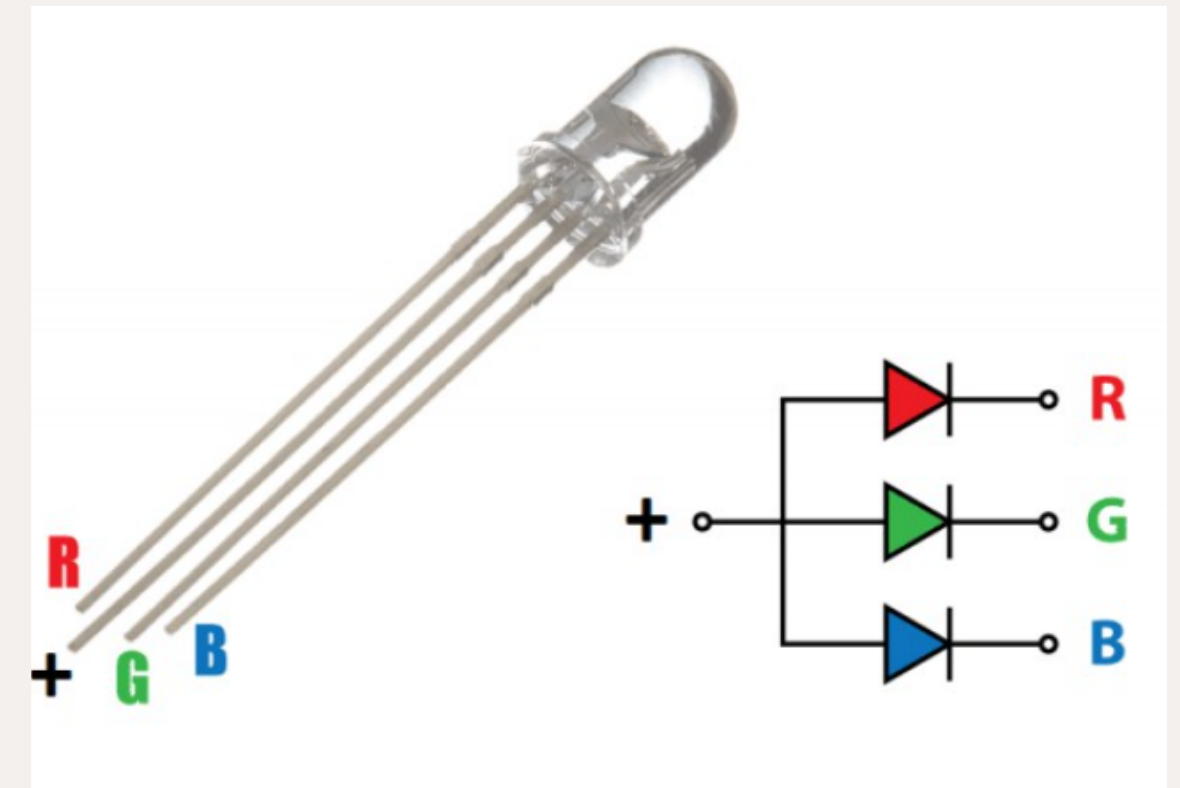
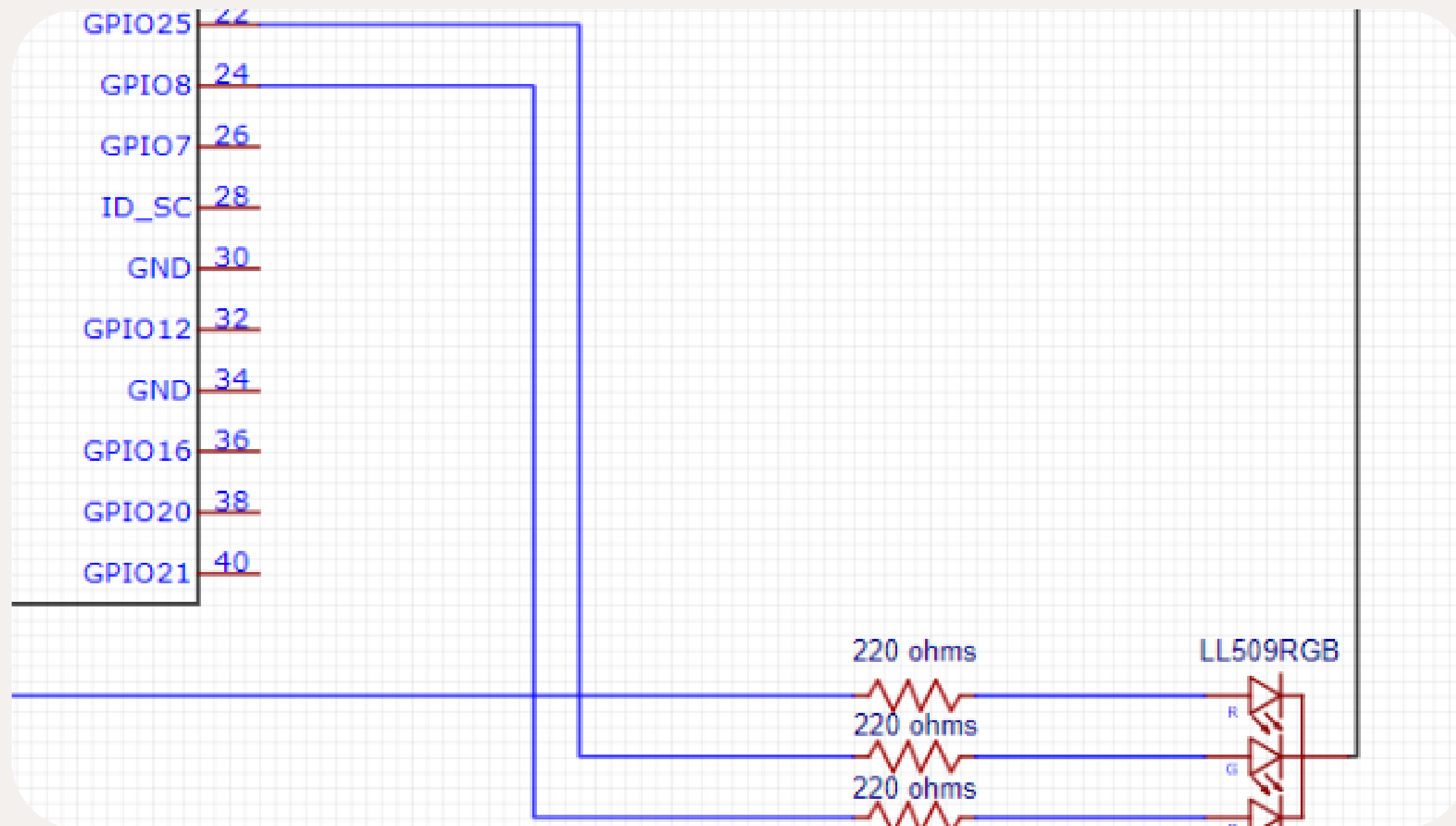
- *Able to show different colors*

### Cons:

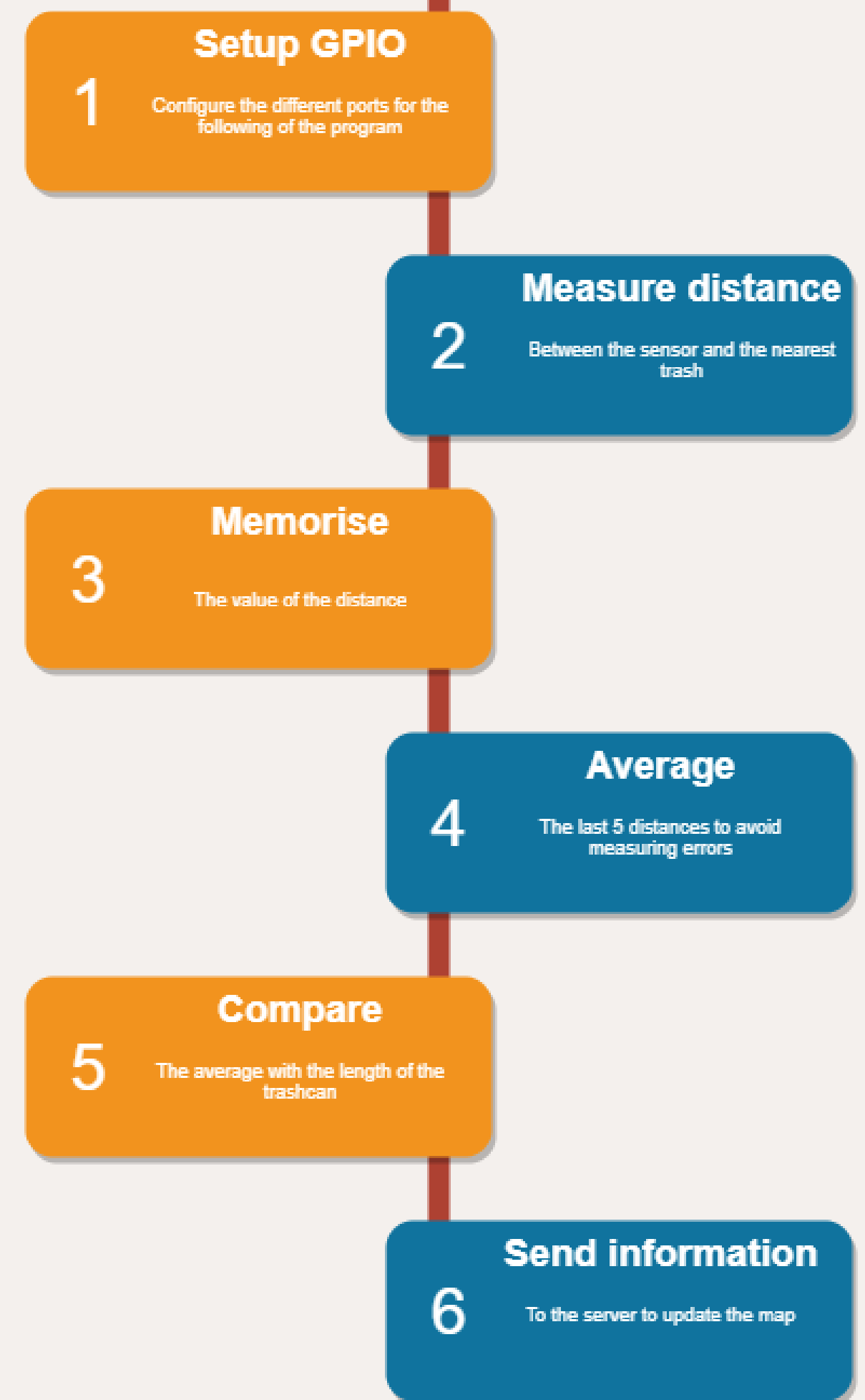
- *More expensive than a usual LED*
- *Harder to wire*

# Wiring

## Wiring the LED



```
pi@raspberrypi:~ $ python3 capteur.py
```



lot-trashcan ▾

# Realtime Database

Données Règles Sauvegardes Utilisation

```
https://iot-trashcan-default-rtdb.eur...  
  
events  
└── -N39stEghoLy8EJczTE0  
    └── value: 30
```

## IT part : following the data How to store the data?

### Description:

*Database service available online with a Google account. You can store values inside in real time.*

### Pros:

- Free service
- Updating in real time
- NoSQL

### Cons:

- Not perfectly responsive
- JSON language
- Not easy to modify

# IT part : following the data

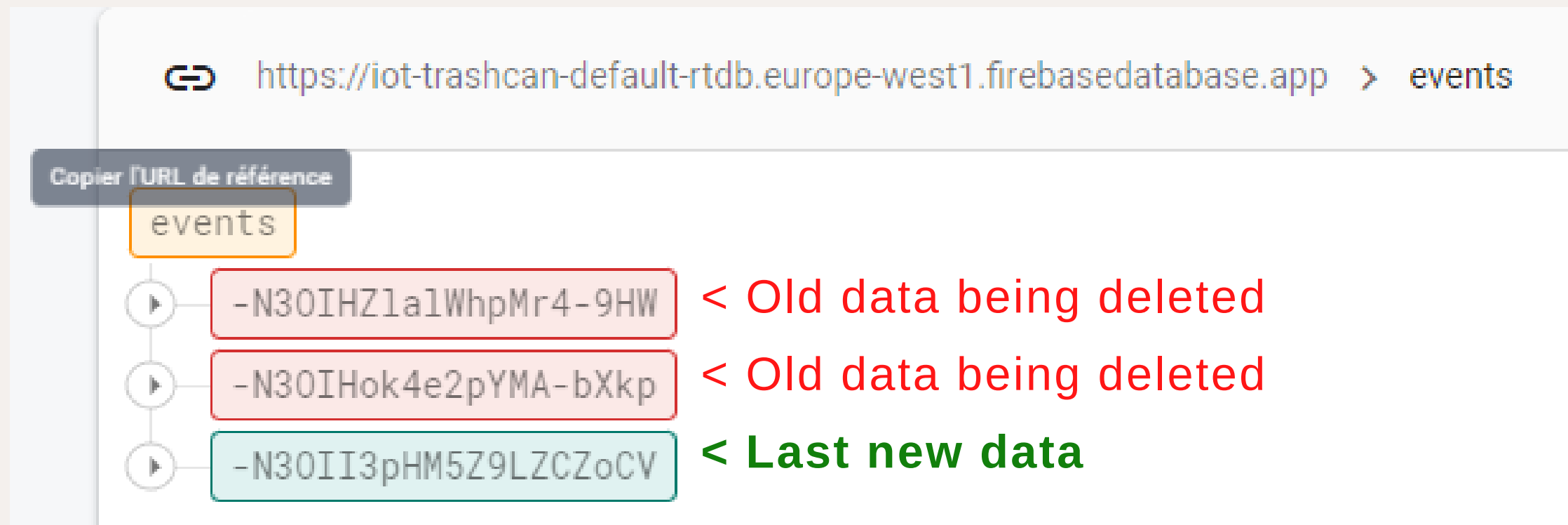
## How to store the data?

### Step 1: Deleting the old data

```
response = requests.delete("https://iot-trashcan-default-rtdb.europe-west1.firebaseio.com/events.json")
```

### Step 2: Sending the new data

```
params = {'value': value}
headers = {'Content-Type': 'application/json'}
response = requests.post("https://iot-trashcan-default-rtdb.europe-west1.firebaseio.com/events.json", json = params, headers = headers)
```



<https://iot-trashcan-default-rtdb.europe-west1.firebaseio.com/events>

Copier l'URL de référence

events

- N30IHZ1a1WhpMr4-9HW < Old data being deleted
- N30IHok4e2pYMA-bXkp < Old data being deleted
- N30II3pHM5Z9LZCZoCV < Last new data

# IT part : following the data

## How to display the data

### Description:

We used some HTML mixed with JSON, to enable the update of the data without having to reload the webpage.

### Pros:

- Enabling to update live
- Very documented
- Adapted to all web support

### Cons:

- Multiple languages
- Restrictive syntax

```
24 <script src="https://ajax.googleapis.com/ajax/libs/jquery/3.6.0/jquery.min.js"></script>
25 <script>
26     $( document ).ready(function(){
27         setInterval(function(){
28             $( "#results" ).empty();
29             $.getJSON("https://iot-trashcan-default-rtdb.europe-west1.firebaseio.com/events.json",
30                 $.each(data, function(key, val) {
31                     if(val.value == 30) {
32                         $("<div class='green-square'></div>").appendTo("#results");
33                     }
34                     else if(val.value == 60) {
35                         $("<div class='yellow-square'></div>").appendTo("#results");
36                     }
37                     else if(val.value == 100) {
38                         $("<div class='red-square'></div>").appendTo("#results");
39                     }
40                 });
41             });
42             }, 500); // 0.5 secondes
43     });
44 </script>
45
46 <TITLE> Trash can map </TITLE>
47
48 <META name="description" content="ejemplos de editores">
49
50 </HEAD>
```

Part of the HTML code

# IT part : following the data

## How to display the data

```
<script src="https://ajax.googleapis.com/ajax/libs/jquery/3.6.0/jquery.min.js"></script>
<script>
$( document ).ready(function(){
    setInterval(function(){
        $( "#results" ).empty();
        $.getJSON("https://iot-trashcan-default-rtdb.europe-west1.firebaseio.com/events.json", function(data, status){
            $.each(data, function(key, val) {
                If the value is 30 > if(val.value == 30) {
                    $("<div class=\"green-square\"></div>").appendTo($("#results"));
                }
                is 60 > else if(val.value == 60) {
                    $("<div class=\"yellow-square\"></div>").appendTo($("#results"));
                }
                is 100 > else if(val.value == 100) {
                    $("<div class=\"red-square\"></div>").appendTo($("#results"));
                }
            });
        });
    }, 500); // 0.5 secondes
});
```

**JSON part of the code**



# IT part : following the data How to host the webpage?

AntoineCBS's team > iot-trashcan

Site overview Deploys Plugins Functions Edge Functions Identity Forms Large Media

**iot-trashcan**

- <https://iot-trashcan.netlify.app>

Deploys from [GitHub](#). Last published on May 28.

⚙ Site settings ⚙ Domain settings

## Netlify server service

### Description:

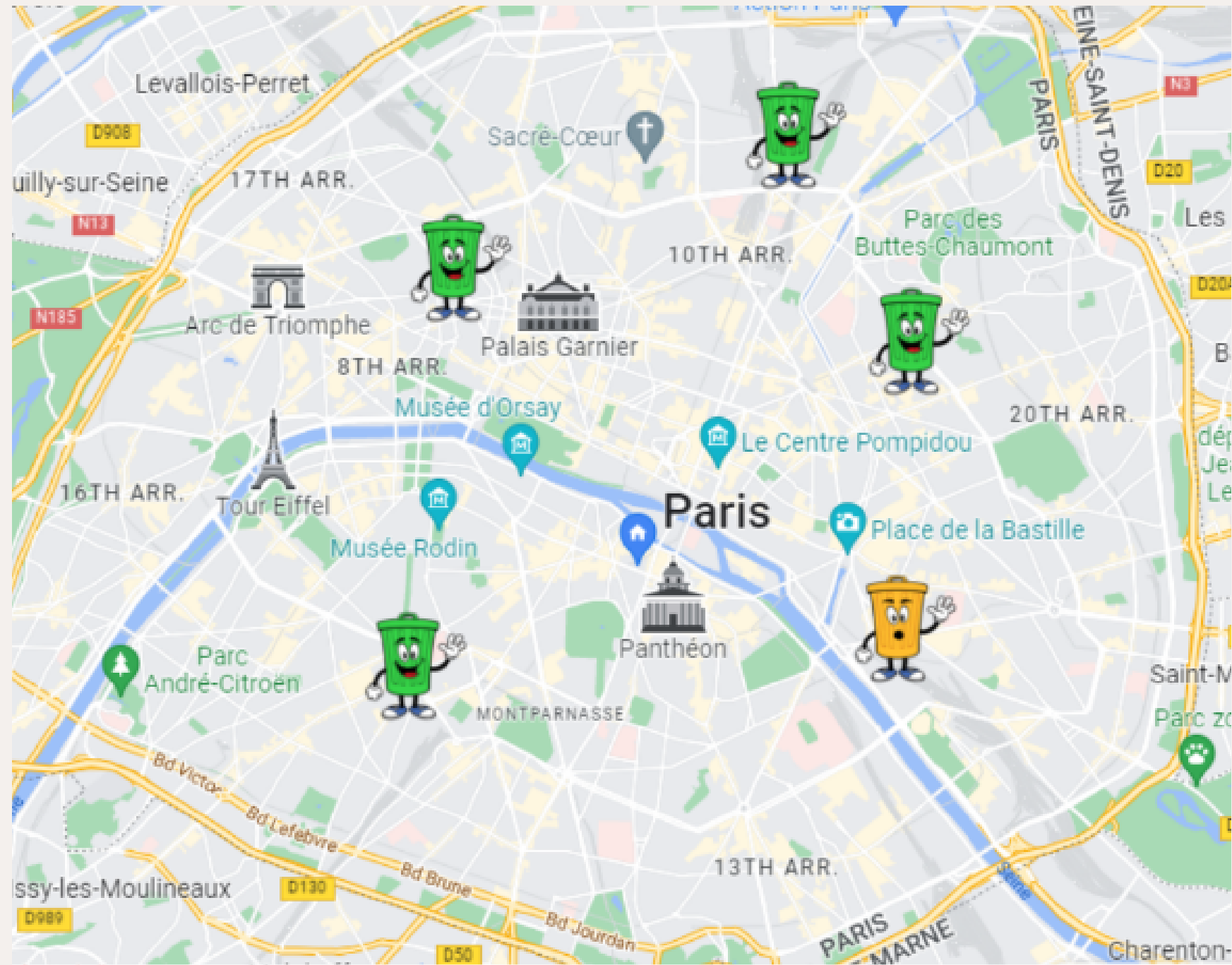
*Server service available online with a GitHub account. It allows you to host a web page*

### Pros:

- Free service
- Always active
- Linked to Github

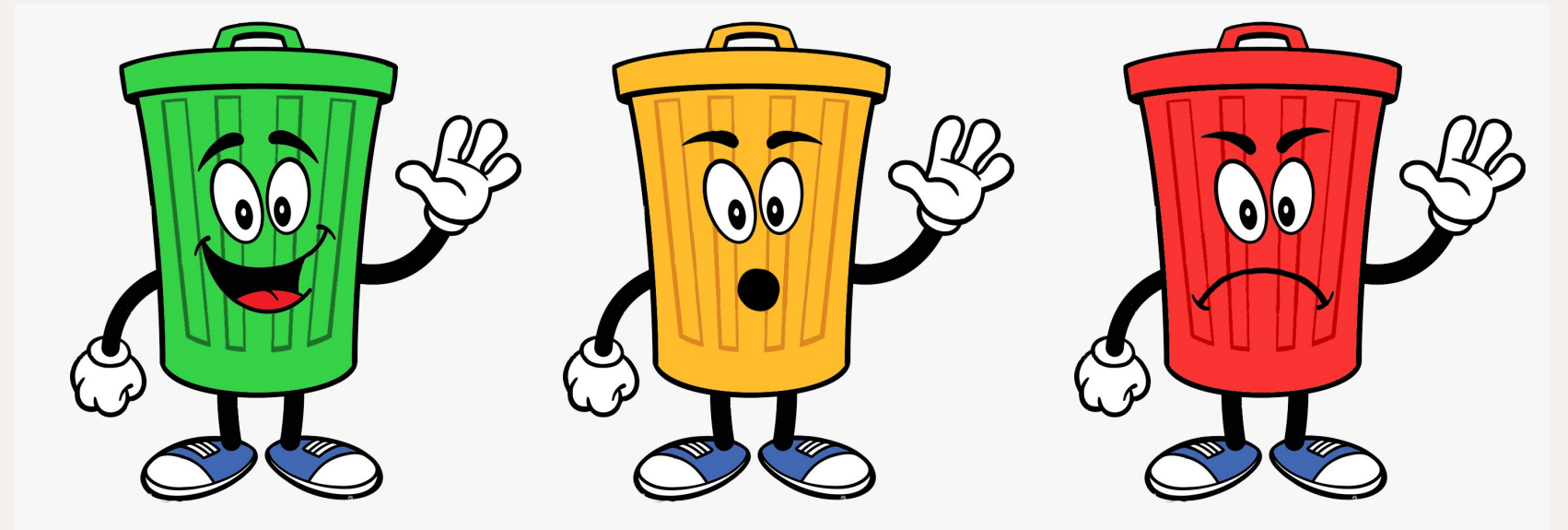
### Cons:

- Not adapted to debug
- Server console hard to understand



# FINAL RESULT

*We have markers on the map with three fill levels to indicate the order to collect the bins .*



**Empty**

**Half filled**

**Filled**

# FINAL RESULT

*The aim is to avoid full bins to not have waste coming out and polluting. And also to create the fastest way to avoid polluting the streets of Paris with a big garbage truck.*

<https://iot-trashcan.netlify.app/dashboard.html>



