Konverto Hackathon Challenge

PowerNap Team
Noi Hackathon Summer Edition - Scena 02.07.2024

Let's start from facts

➔ **Rising EV Adoption**
EV Market Share on all new cars is expected from 14% on 2021 to 86% in 2030 (source: iea.org)

➔ **Charging infrastructure challenges**
Many regions face a shortage of public charging stations, causing inconvenience and range anxiety among EV users.

➔ **Change in Energy Consumption Pattern**
Charging Electric Vehicles requires time and needs to adapt to people's lives.
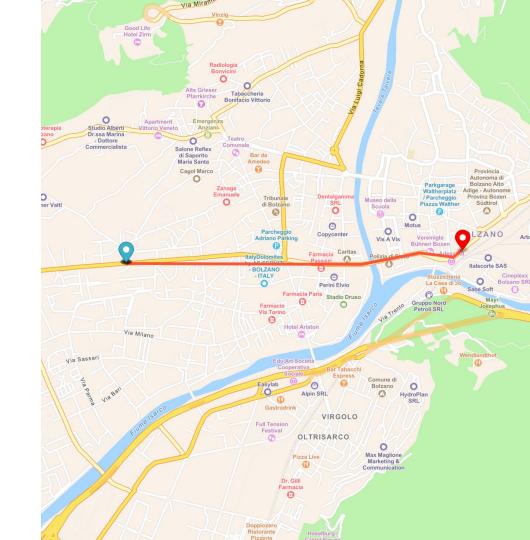
How do you take advantage **of your EV charging time?**

Let us introduce PowerNap.

Easy to use

➜ **Electric Vehicle Model**
Insert your **car** model, **current** and **desired** charge.

➜ **Insert your destination**
Define your desidered location

➜ **Charging Preferences**
Choose which key values should be prioritised - e.g. Cost Efficiency or charging speed.

Try yourself:

https://web.powernap.alberto.fun/

Made by devs
for devs.

Three easy endpoints

Three easy endpoints

➜ **get-charging-stations**
   Returns a **list of charging stations** around a given point,

Try yourself:

https://powernap.alberto.fun/get-charging-stations

```
"body": [
    {
        "location": [
            11.315262,
            46.49311
        ],
        "rank": 1.7569265237225493,
        "station_id": "BZ_RESIA-2"
    },
    {
        "location": [
            11.325609,
            46.494854
        ],
        "rank": 1.4185265961155342,
        "station_id": "ASM_00000404-1"
    },...
}
```

Three easy endpoints

➔ **get-details-from-station**
Returns a list of charging stations around a given point, using a **weighted algorithm** that creates **rank** calculated on **distance** from the destination point, charging **cost**, **ability to charge** the EV at the of the **desired amount of KWh** and if the **type of plug** matches the one your car has.

Try yourself:

https://powernap.alberto.fun/get-charging-stations

```
"body": [
    {
        "location": [
            11.315262,
            46.49311
        ],
        "rank": 1.7569265237225493,
        "station_id": "BZ_RESIA-2"
    },
    {
        "location": [
            11.325609,
            46.494854
        ],
        "rank": 1.4185265961155342,
        "station_id": "ASM_00000404-1"
    },...
}
```

Three easy endpoints

➜ **get-location**
Returns a set of **locations** based on a human-readable location name (e.g. "Via Milano, 5 - Bolzano") given as a body argument in JSON format

Try yourself:

https://powernap.alberto.fun/get-location

```
{
"address": "Via Milano, 5 Bolzano",
 "body": [
     14.5040089,
      41.0914419
    ]
}
```

Technical details

➜ **Realtime Data**
Data integration from Open Data Hub

➜ **Algorithm**
Use an **heuristic** to calculate the charger station by considering the **starting point**, the **destination** and other additional information

➜ **User experience**
Access through an user friendly Progressive Web Application

Next steps

PowerNap will be released as a Progressive Web Application

➜ **Easy access through a mobile app**
Both web and mobile UI interface

➜ **Easy to integrate**
APIs can be integrated easily in other apps

➜ **Stimulates EV Growth**
Allows user to more easily approach to Electric Vehicles