OpenFacto

Tracking vessels with Python

Dataharvest Digital

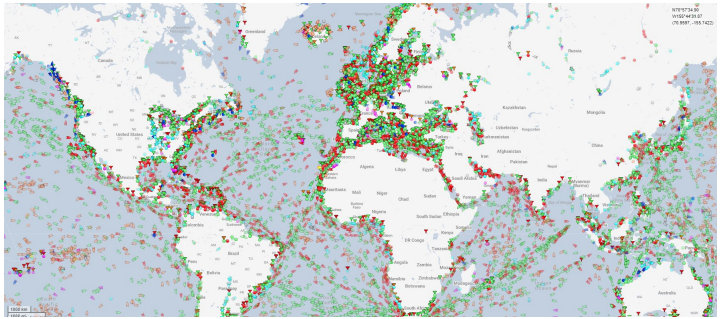
Where Europe's investigative journalists meet
#EIJC20 | September–November 2020

Tracking vessels is crucial

Drug trafficking, poaching, arms deliveries, violations of embargos….

Vessels and cargos an ideal way of transporting large quantities of goods.

They have AIS transponders and are supposed to send their position.



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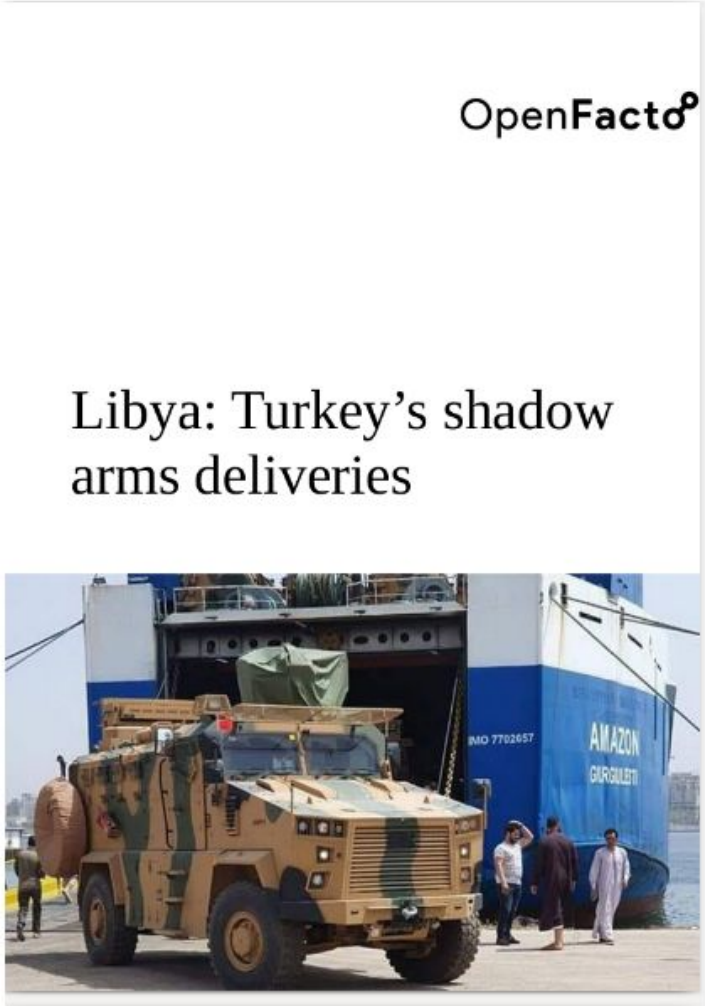


An example of impact

OpenFacto released in june its [first long form investigative report] on detecting arms embargo violations using open sources techniques :

Turkey's Shadow Arms Deliveries

One of the group mentioned in our report was placed under sanctions in september 2020

1. Problems

But for some reasons, it can be time and money consuming….

- ➔ **Long period**
  Vessels are…slow
- ➔ **Expensive**
  Websites are often free but have paid options to log historical data.
- ➔ **Lack of features**
  Alarm on specific events could be a good idea…

Python to the rescue!

- A webpage can be scraped…
- even a beginner can achieve simple scraping tasks in python
- Code doesn’t have to be cutting-edge to work

Let's try together!

in three steps...

- A simple script to scrape one vessel
- A function based on this script to scrape several vessels at one time
- A gift from OpenFacto : a more complex tools with alarms.

Hint

We'll use Jupyter Notebook with Python3

Some extra libraries will be needed : Pandas, Requests, beautifulsoup...

2. Code 1

We want to scrape the position of a vessel called **Motivation D** on vesselfinder.

➔ **What**
Timestamp, gps position, draught, heading, speed....

➔ **What for**
Create a csv file to be plotted on a map.

➔ **When**

The script should be played every hour....

What we did

- A simple yet functional script
- One boat
- We can trigger it using the scheduler of our computer
- We can export this file to openstreetmap!

What we could do...

- Use it for several vessels…
- Allow our user to easily add/remove ships….

2. Code 2

We want to scrape the position of several vessels on vesselfinder, using a spreadsheet.

➔ **What**
Timestamp, gps position, draught, heading, speed....

➔ **What for**
Create a csv file to be plotted on a map.

➔ **When**

The script should be played every hour....

➔ **How**

Upcycling what we already created

What we did

- A more complex script
- We re-used our 1st script
- For as many ships as we want
- Taking care of APIs
- Taking care of our users….

What could be cool?

- Alarms (mail….)
- Triggers (Dest and ETA changes, Draught changes)....
- Because we are lazy and pragmatical!

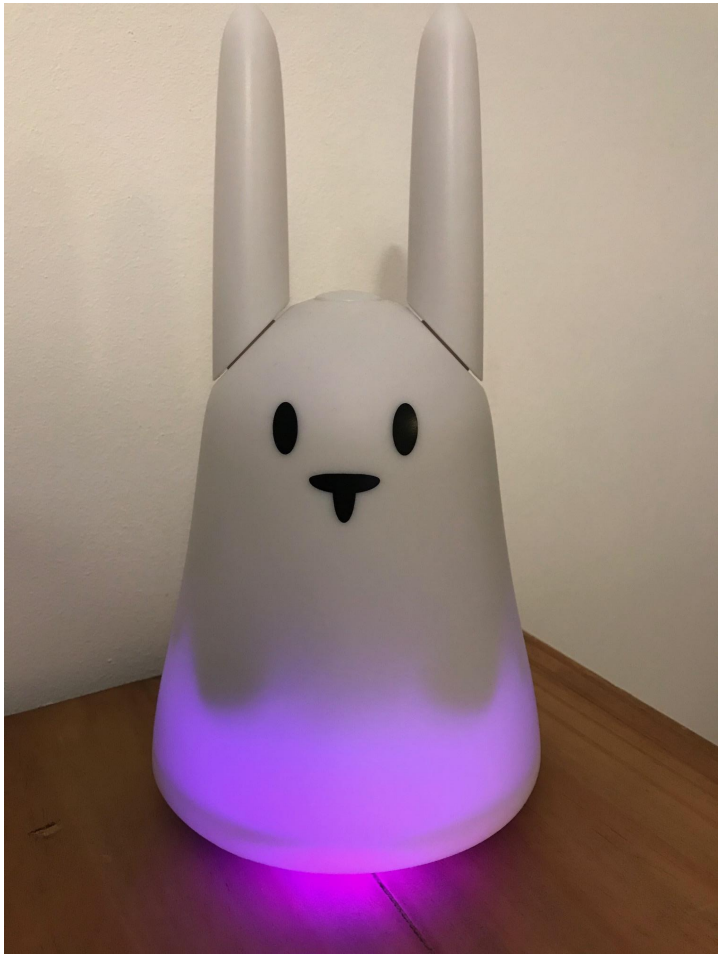
2. Code 3

A gift for you....

- **What**
  Timestamp, gps position, draught, heading, speed....
- **What for**
  Create a csv file to be plotted on a map.
- **When**

  The script should be played every hour....
- **With...**

  Alarms and triggers!!!



Where to deploy?

- A Nabaztag!
- Or a simple raspberry Pi Zero
- PythonAnywhere
- Whatever server you like….

Thank you!

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