WAZÉ'PHANT

The wild data

Executive Slides

Executive Slides

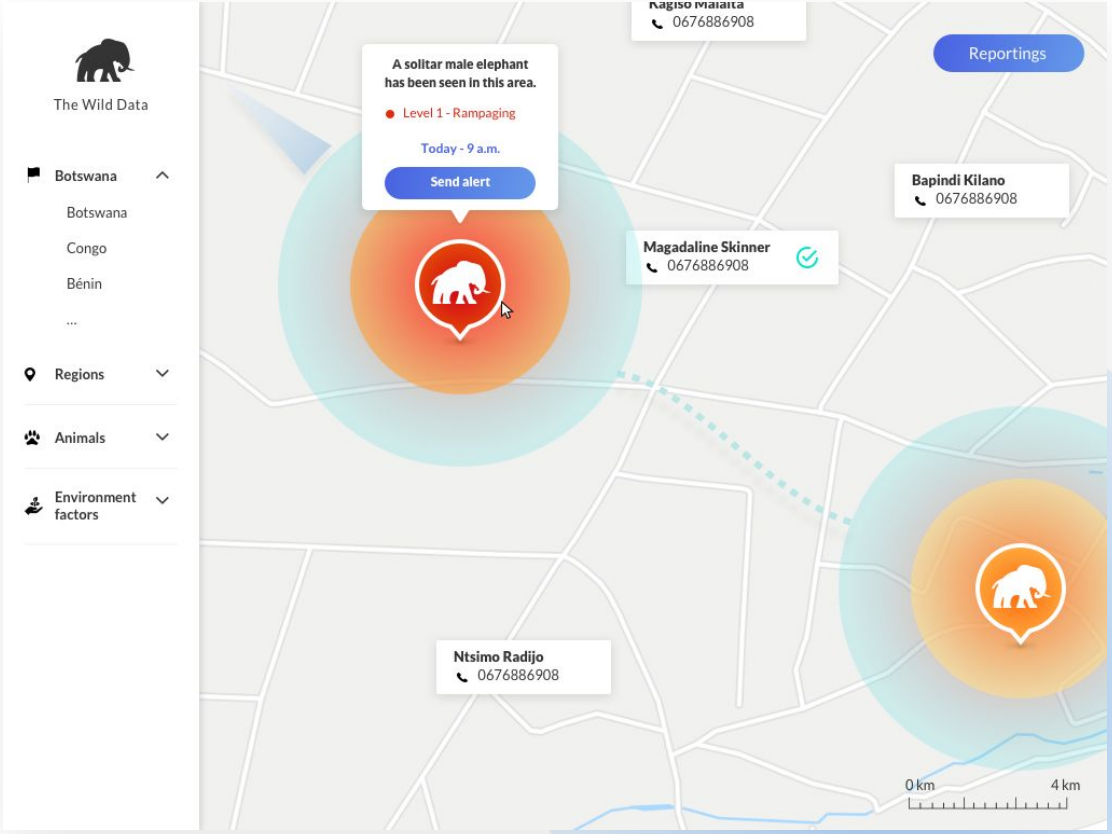
Displaying a livemap of the alerts of the Elephants positions

Ability to manually send an alert to the farmers if a error occurs

Analysis of the roads taken by the herds of Elephants

Visualization of the risk level of the herd from red to green scale

Ability to predict the moves of the herds over time



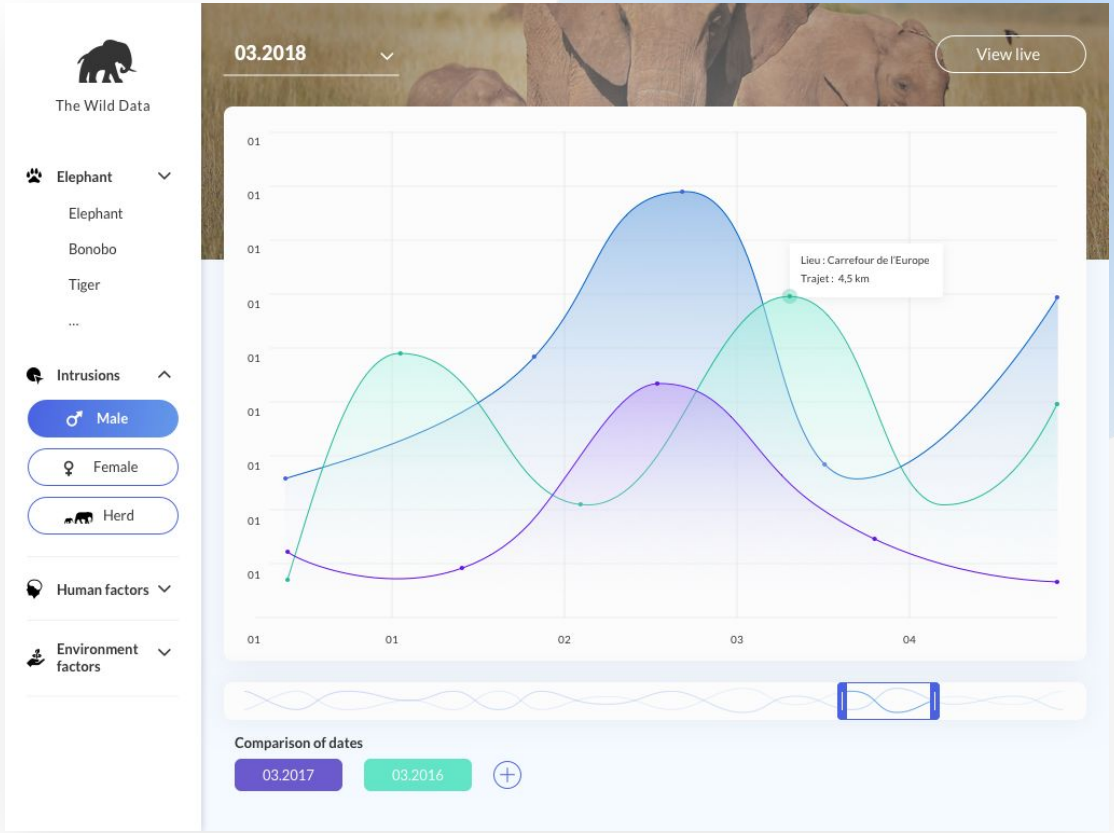
Executive Slides

For Data scientist

Aggregation of flux of dataset

Foreseen on time

Prediction herd movements

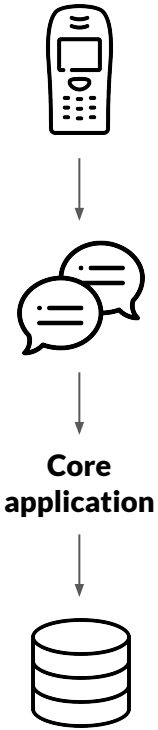



WAZÉ'PHANT
The wild data

Our mindset

With the data that we currently have, and the datas that we want to get, we will save environmental informations for each SMS we receive. With meteorological informations and environmental informations saved, we will save all informations to develop some **Big Data** to analyze and predict elephants' behaviour.

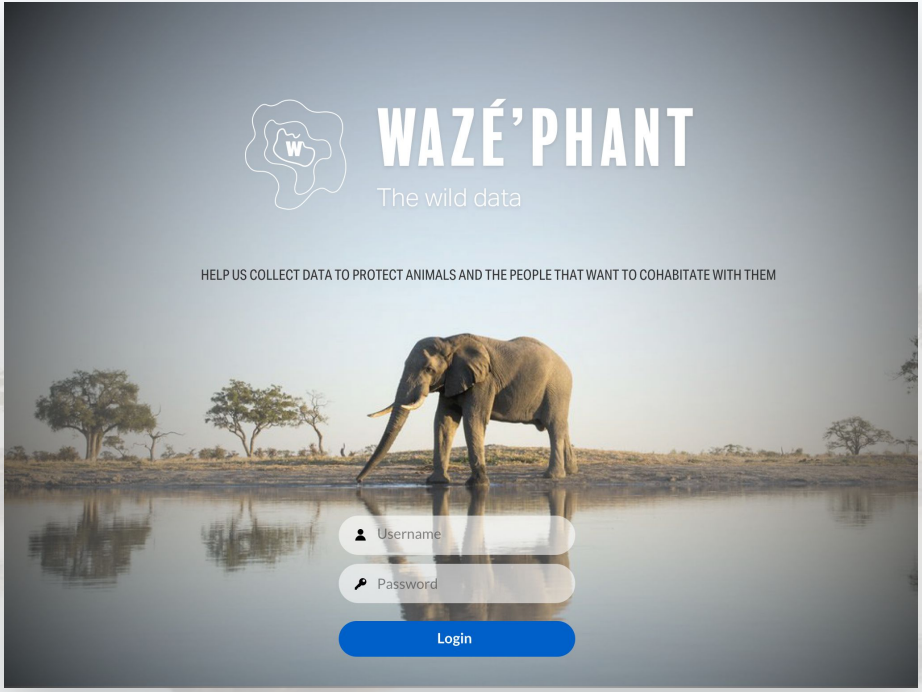
So the SMS is hooked by the **API Gateway** who format the datas and send them to the **core application**. The core application will transmit the informations and **save them in the Database**. Once we have our datas, we will use **machine learning** in collaboration with data scientist to predict elephants' behavior. Finally, we will be able to visualize the data **through the dashboard**.*



*See in appendix

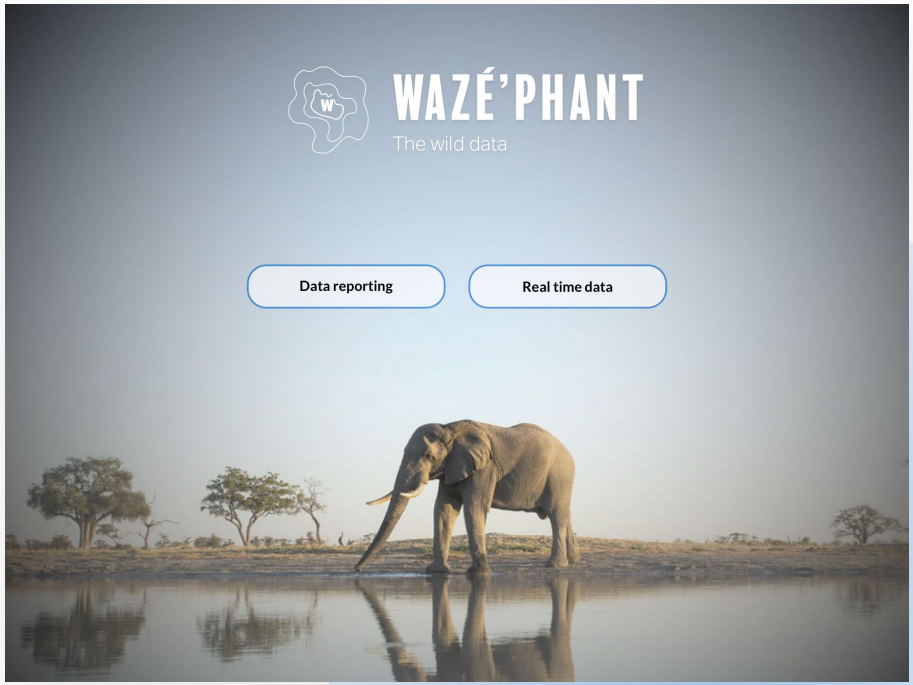
Login Screen

Poachers, you shall not pass !

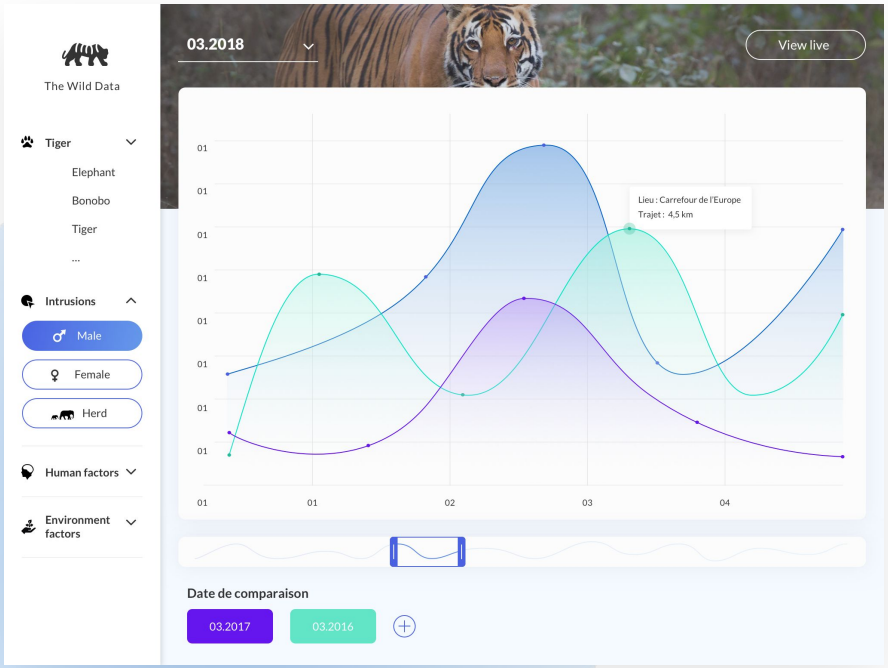


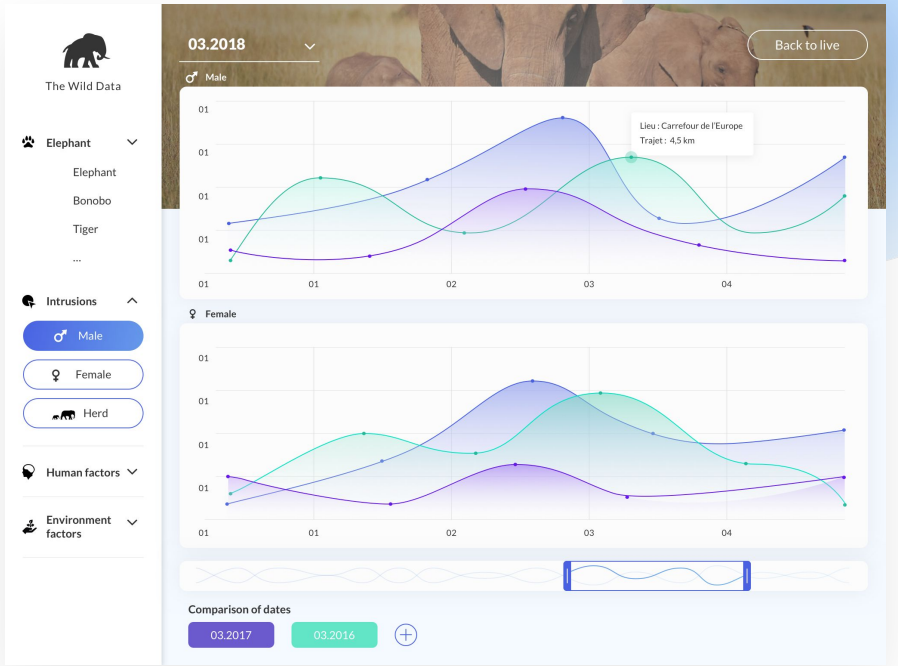
Login Screen / **Poachers, you shall not pass !**

- The platform is especially designed for :
  - The farmers, that will be able freely to access to the live data part,
  - The scientists, researchers, developers and members of EfA and GoodPlanet, that will be able to access freely to both the live data part, and the raw data part.
  - The local tourist information office, or some people accepted by the holders of the platform, but with premium plans.
- The security measures are :
  - Only the people that has been accepted by the associations will be given accounts to access the platform.



Wildviz / **Dataviz to protect wildlife**



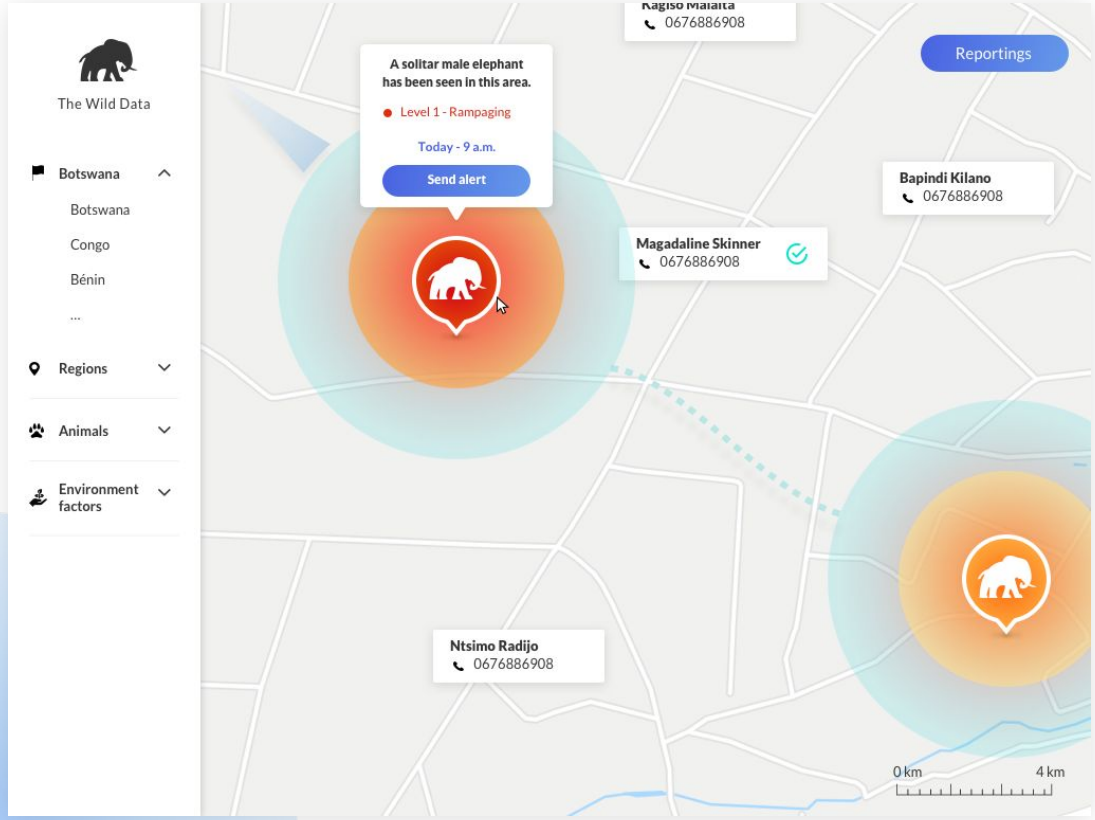


Wildviz / **Dataviz to protect wildlife**

- Evolutive platform : originally made for Elephants in Botswana, but can be extended to other species and countries
- The data can be displayed within some types of parameters : the species, the gender of the crops raiders, the human factors linked with the crops (as the type of crops planted, the amount of crops, and so on), and the environmental factors (as the weather, the season…)
- All the graphs are set by default to one month, and can be resized to a certain amount of days.
- The graphs can be displayed on the top of the others.
- Two graphs of two different parameters can be displayed side by side, to allow the data scientists to analyze.

Live Data / **Collect, Analyse, Predict**

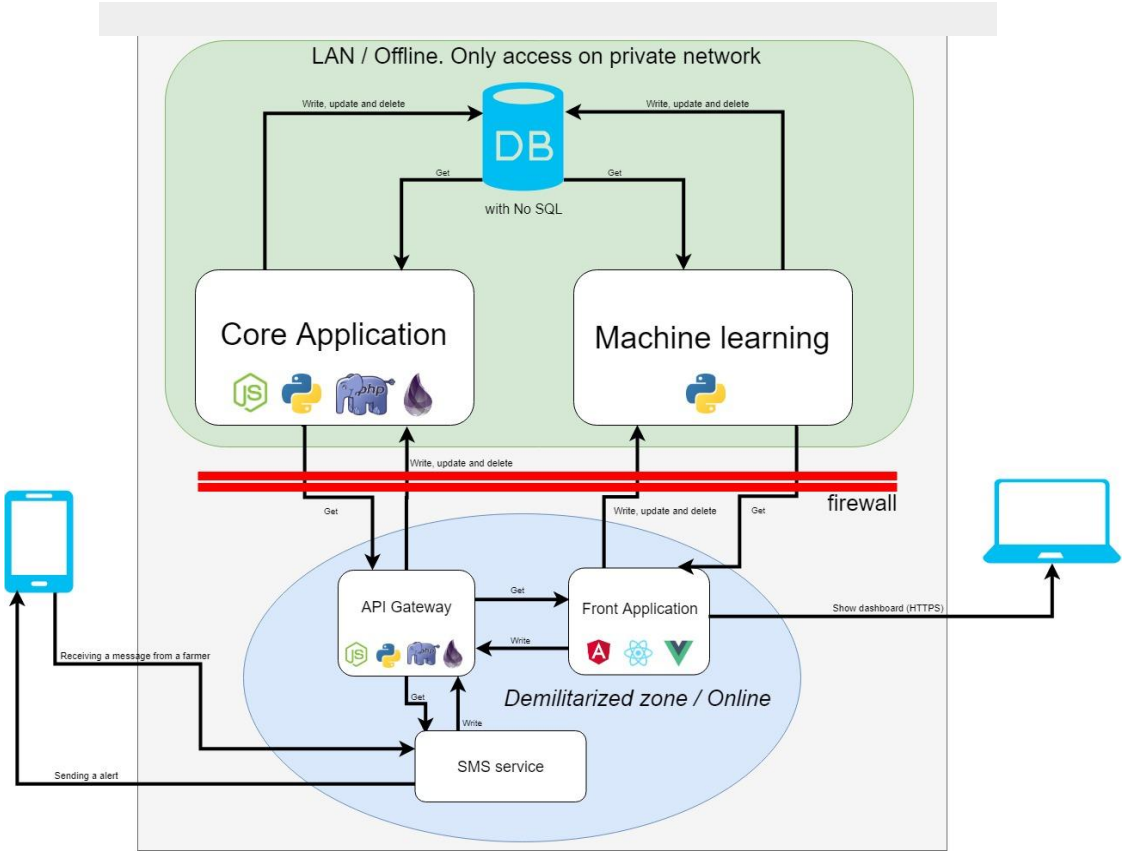
The data will be analysed, and correlated with some data sets, such as geographic data, but also meteorologic and human. The objective researched is to predict the behaviour of herds of animals, and, by the meantime, to be able to avoid the destruction of the farmers' crops.



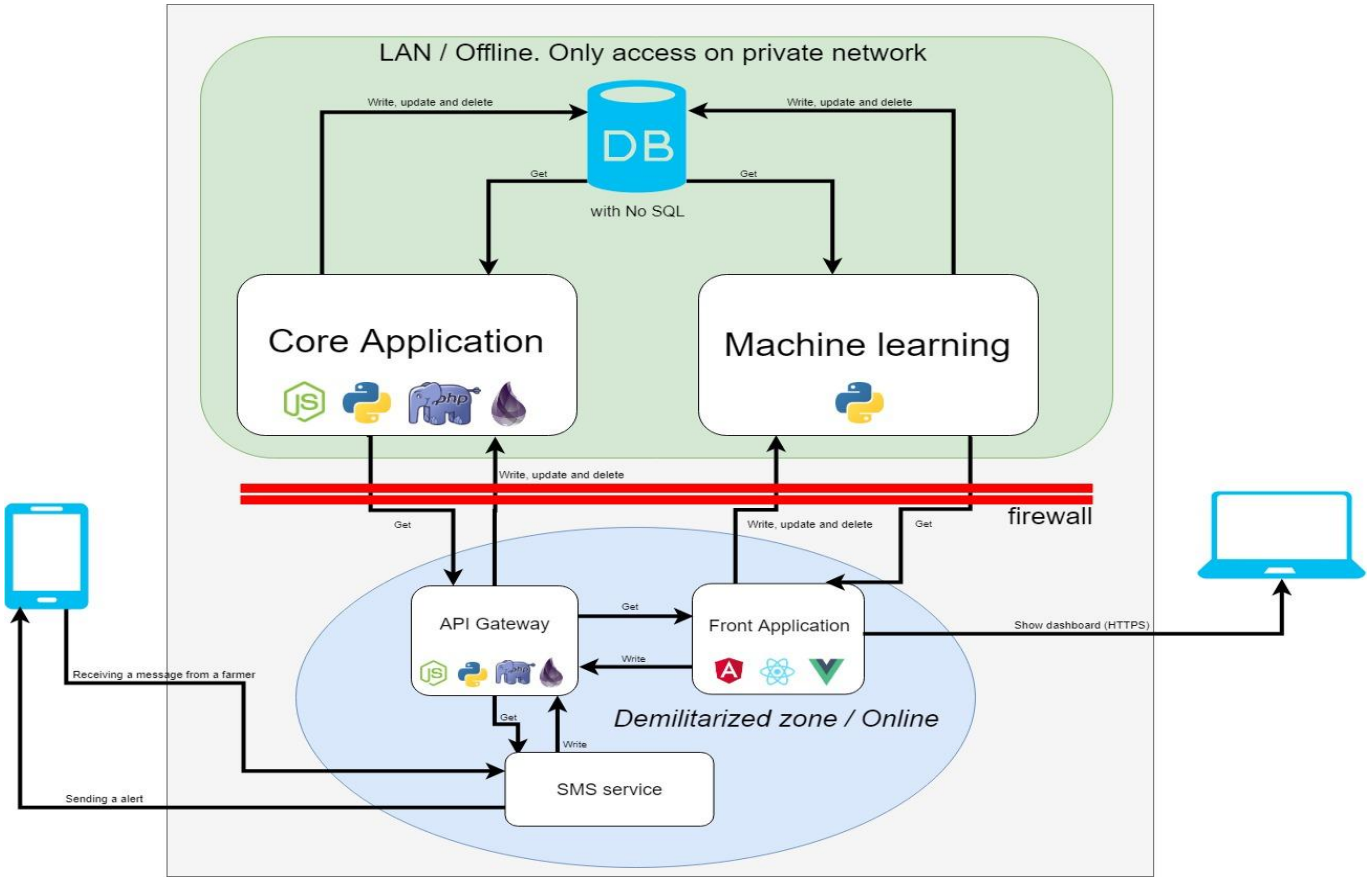
Security **of the platform**

Once we gathered, analysed the data, we choosed to a solution of low-level on a Network architecture, we use a **DMZ (Demilitarized Zone)** which allows to **isolate absolutely the Application and the Database**. So, it is accessible only in a private Network, and **only the API linked to the App can access to it.**

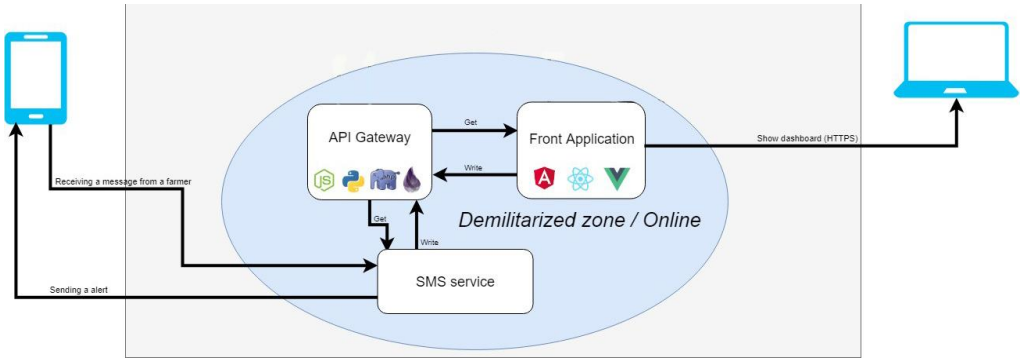
We **haven't choose** an encrypt solution, that would lower the **quality** of the process, and its **speed**. Furthermore, our low-level system **protects the whole data, without encryption.**



Live Data / **Architecture sketch**



Endpoint on Online Network



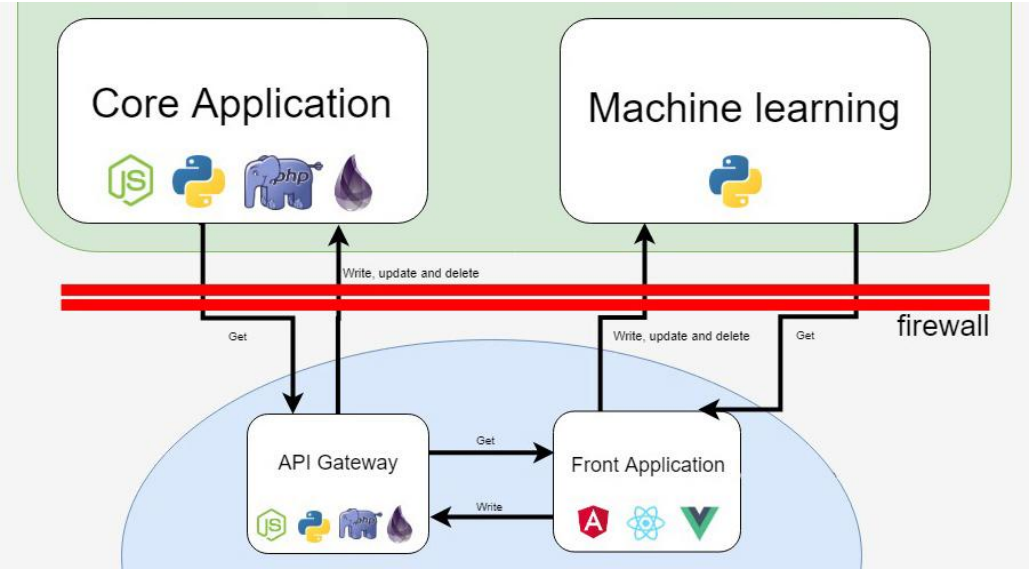
API gateway: It is the main communication interface of the Demilitarized zone (the part in the online network), it behaves like a bridge between the online network and the private network.

Front application:This is the graphic interface which only the user will access.

SMS Service: Service that is monitoring the SMS protocol.

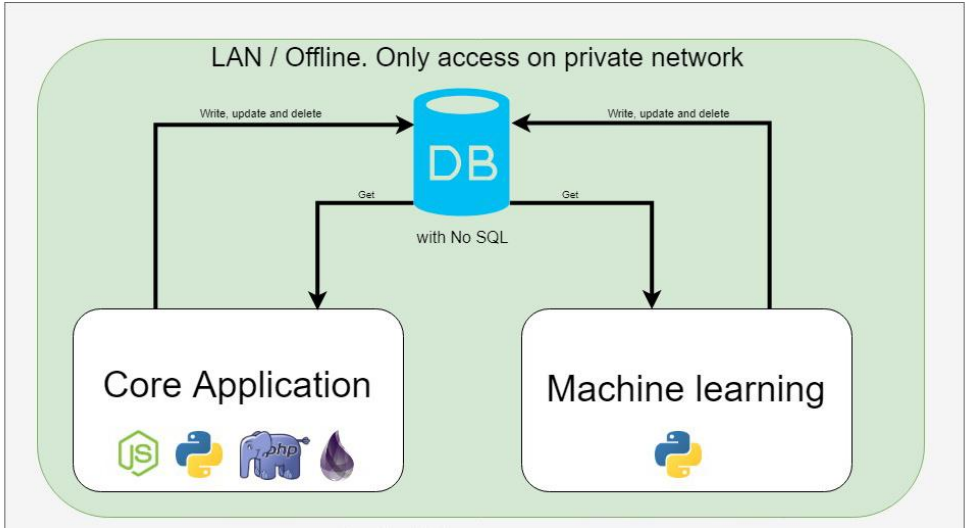
DMZ (Demilitarized Zone): A DMZ is a physical or logical subnetwork that contains and exposes an organization's external-facing services to an untrusted network, usually a larger network such as the Internet.

Online Network to private network



Firewall: A firewall is a network security system that monitors and controls incoming and outgoing network traffic based on predetermined security rules.

Offline Network



Database/ Base de donnée: The Database stores all the data and is only accessible by the services that are physically within the private network.

Core Application: The Core Application is the main communication interface that is in the private part of the network, it allows to process and to transfer the data with the database.

Machine Learning: The Machine Learning is a self-learning service that allows the app to develop itself with the data.

Appendix / **Vocabulary**

NodeJS is an environment that allows developers to use one of the most common web language on the **server side**. They are a lot of developers in Javascript, the technology is very efficient, it's based on asynchronous actions. The **Asynchronous concept** is very important for real time interactions.

VueJS / Angular / ReactJS are both **front** frameworks. They are useful for projects which requires **reactivity and fast updates** like realtime. They are based on **components concept**. We can found libraries of components for maps for example.

Elixir is a functional language used mainly used for **API creation**. The Elixir language is really young but it's really **fast for data processing.**

NoSQL are databases based on non relational concept and non tabular data. NoSQL is really useful because the data architecture is **evolutive** and NoSQL is easily usable for **real time datas** like for example Firebase.

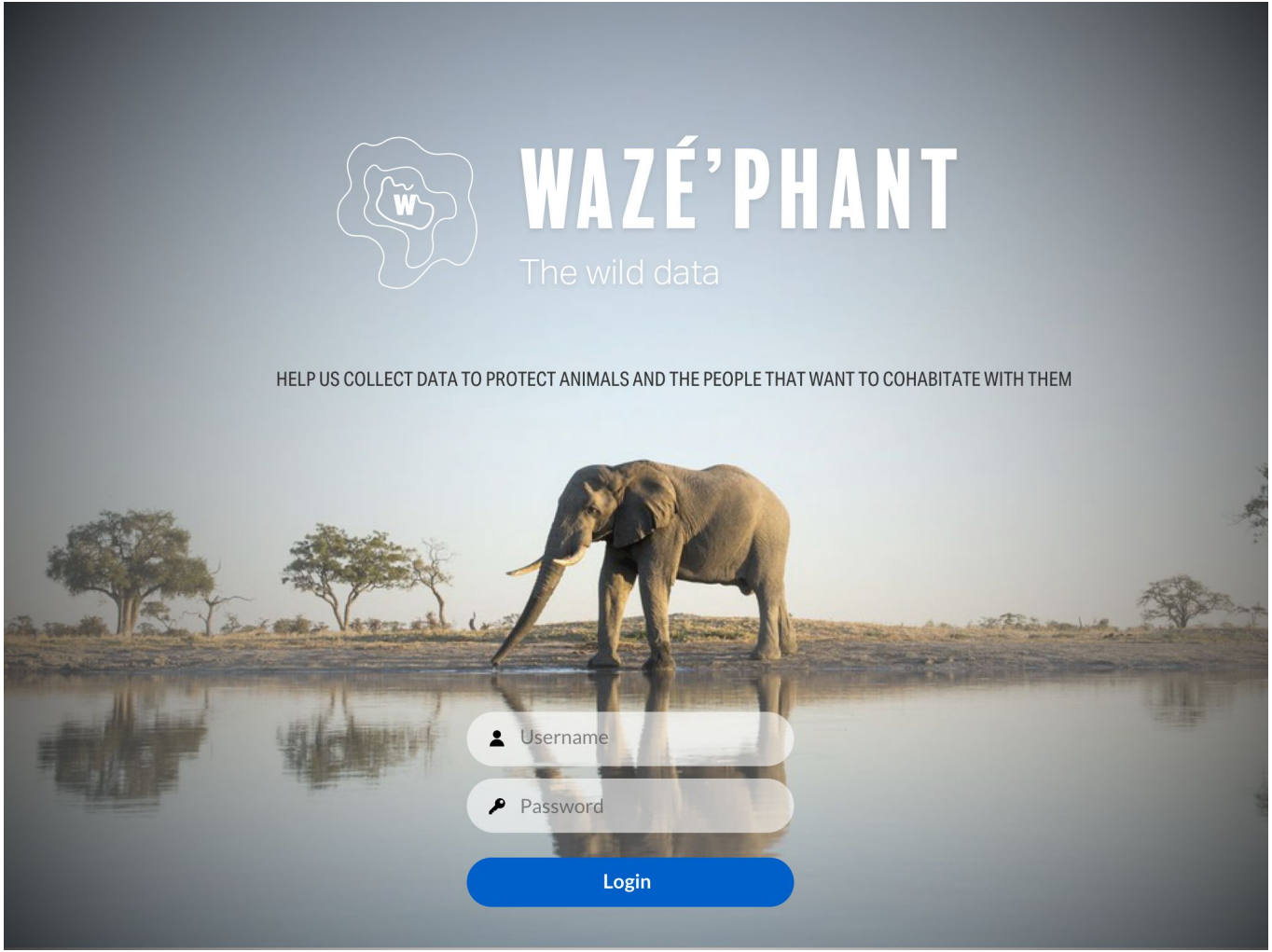
PHP is an Open Source script language, used to process data, access databases and return informations as a static web page. Fast and easy to use. This language was one of the first language for web programming. It also can be used for creating web API.

Our Team

Allan COMMELIN - Alexis PORRAZ - Mathieu NIBAS - Sylvain CABIATI - Pierrick SABATIER - Ophélie ALZIEU

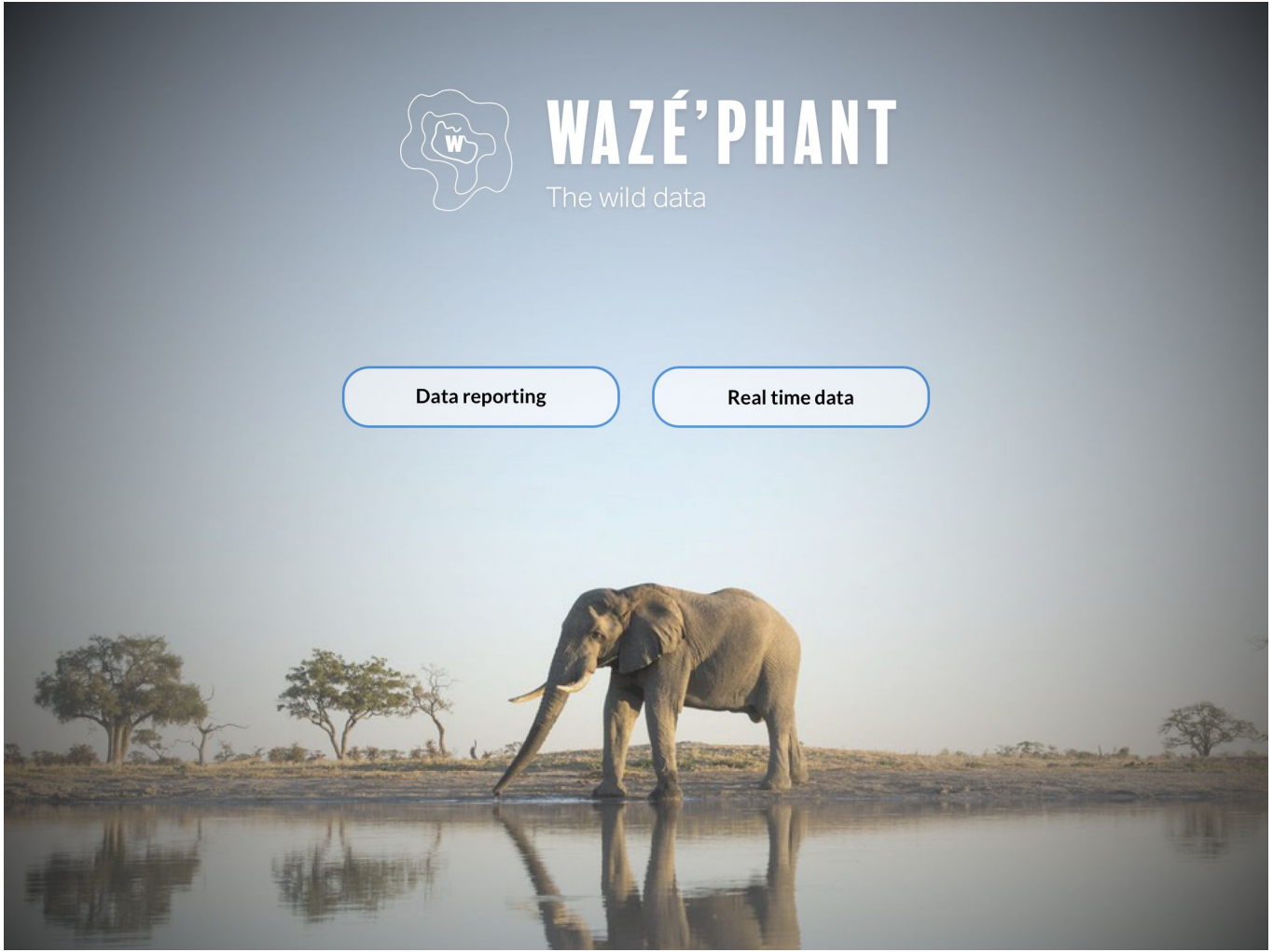
Appendix / **sketches**

Login Page



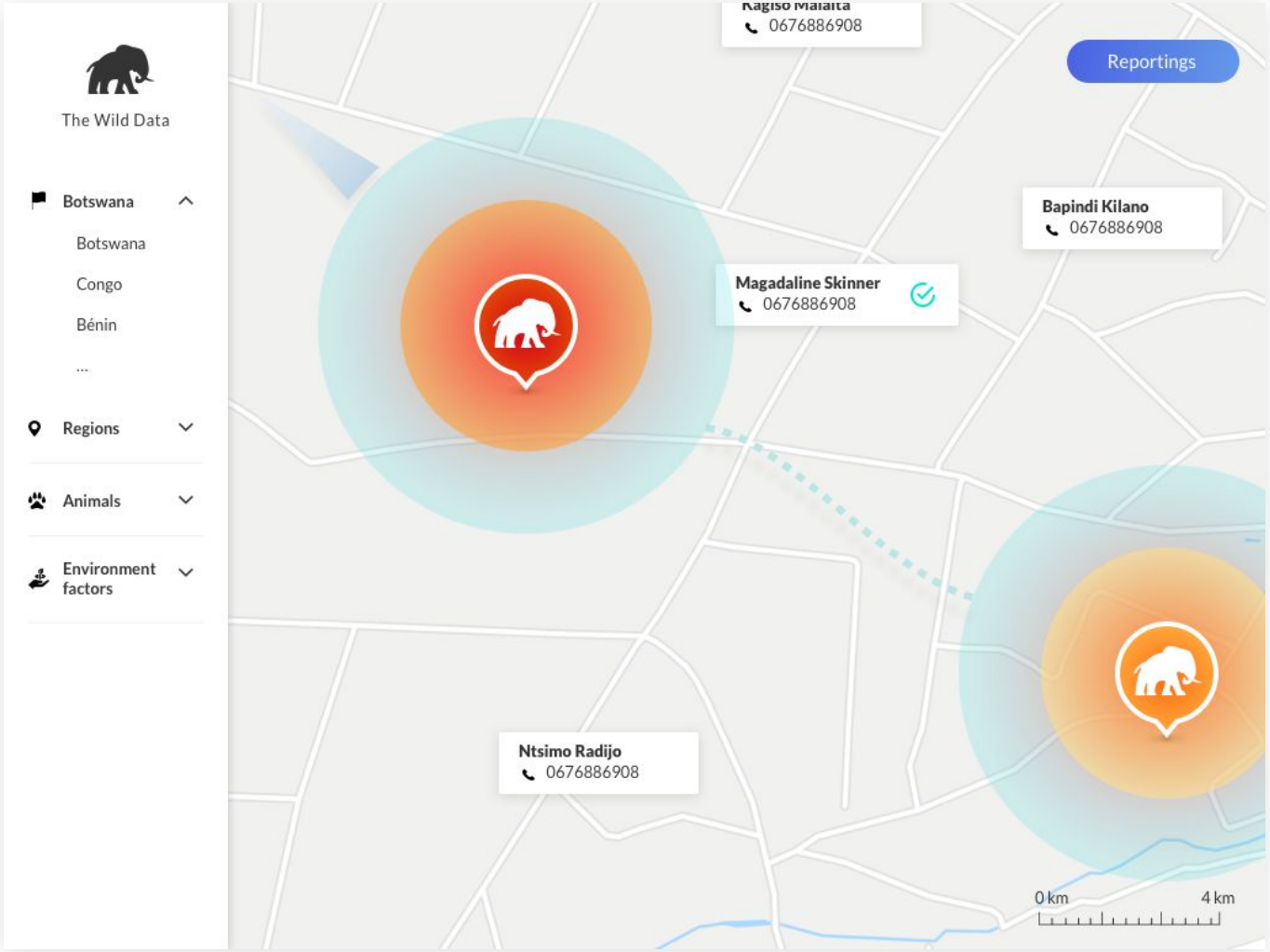
Appendix / **sketches**

Dashboard



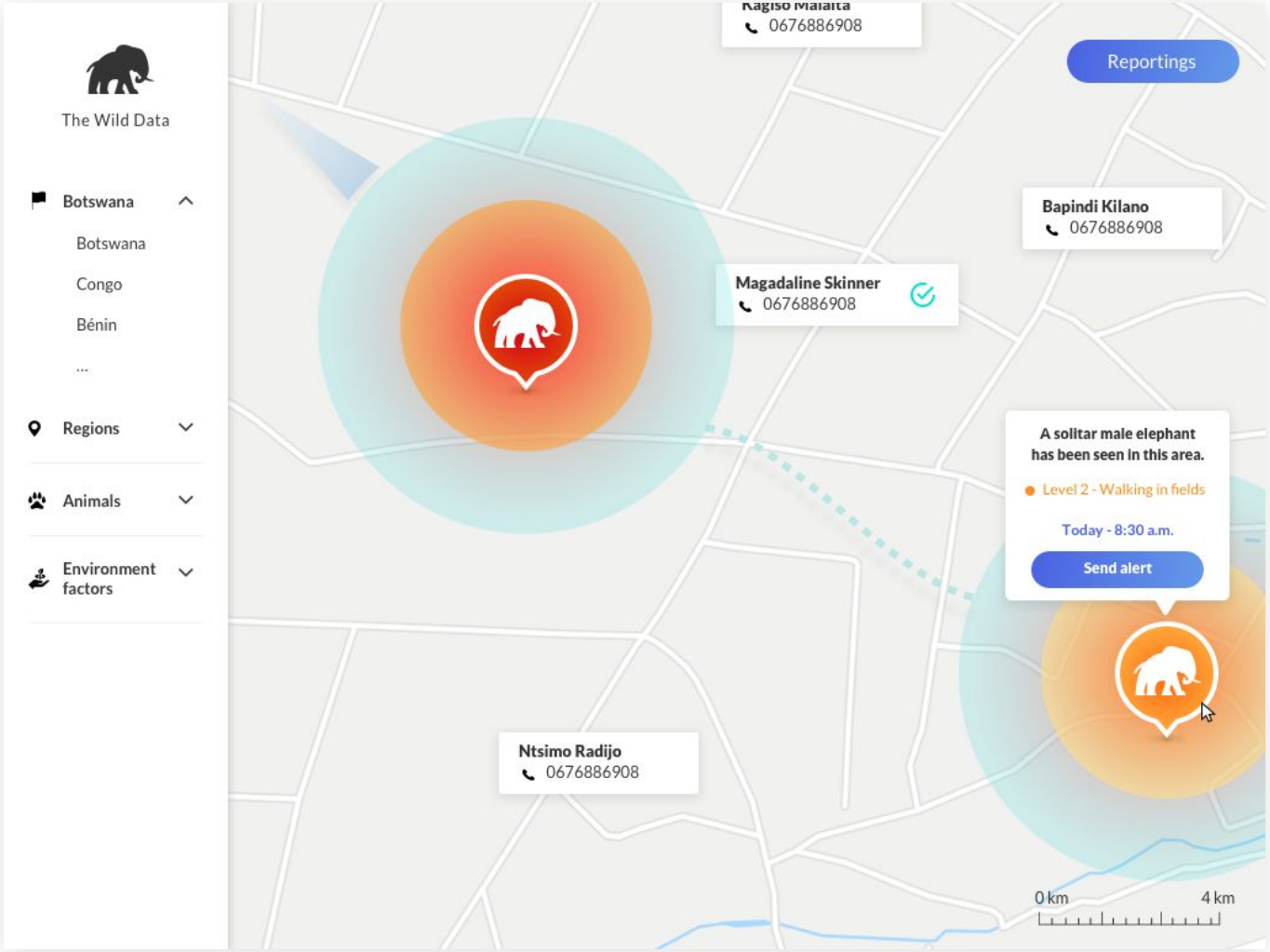
Appendix / **sketches**

Live Data



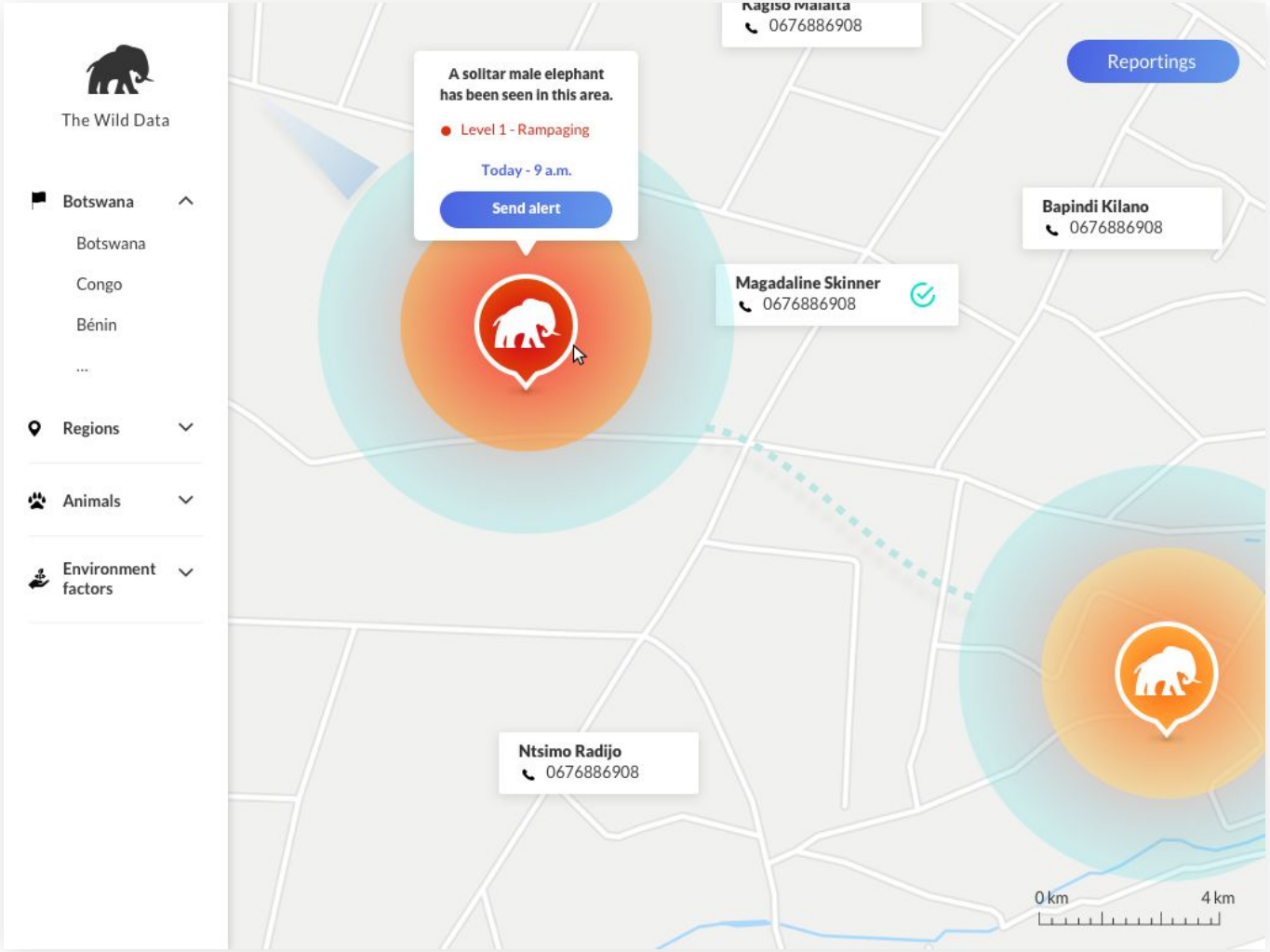
Appendix / **sketches**

Live Data
Click on position 1



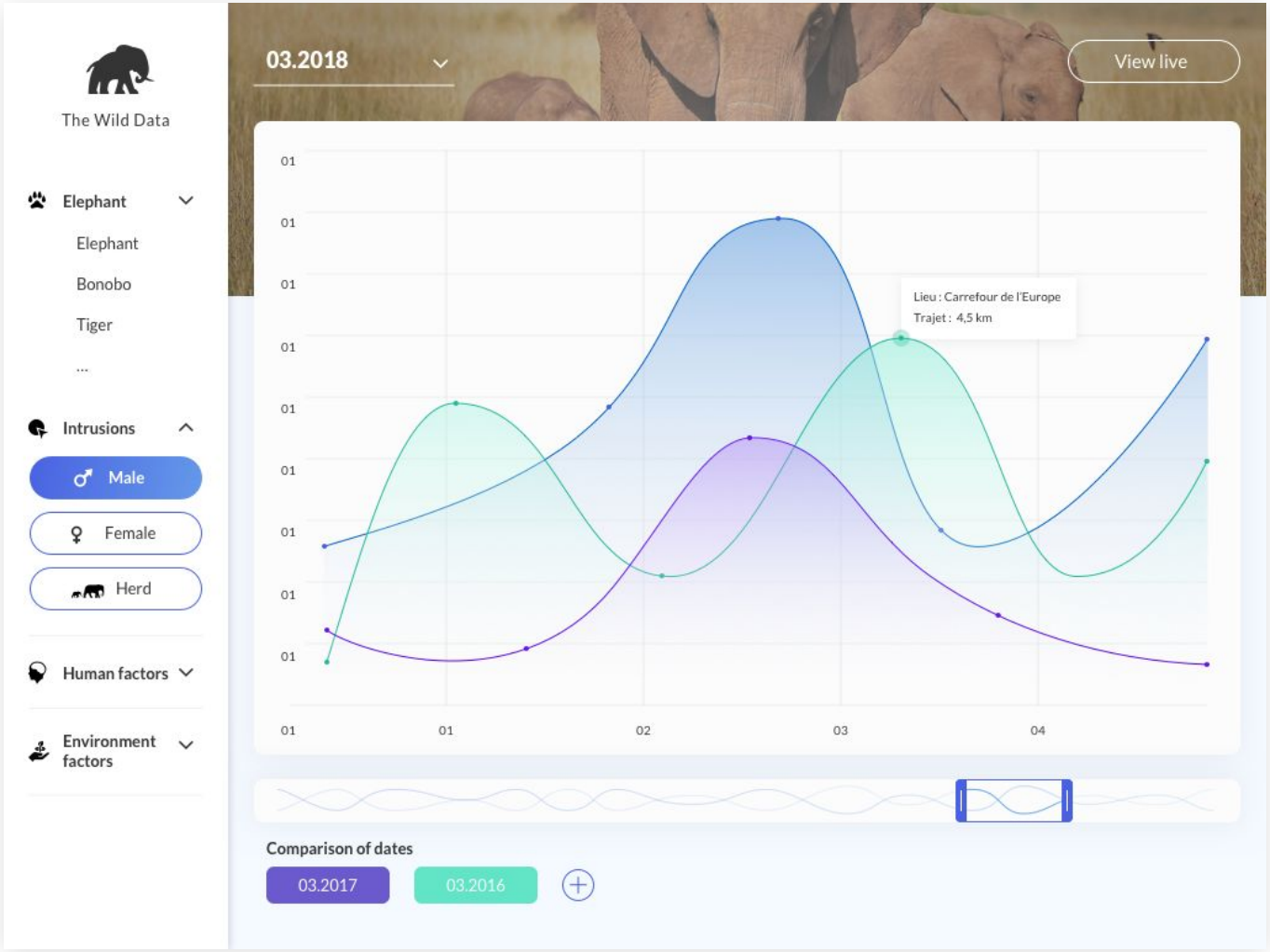
Appendix / **sketches**

Live Data
Click on position 2



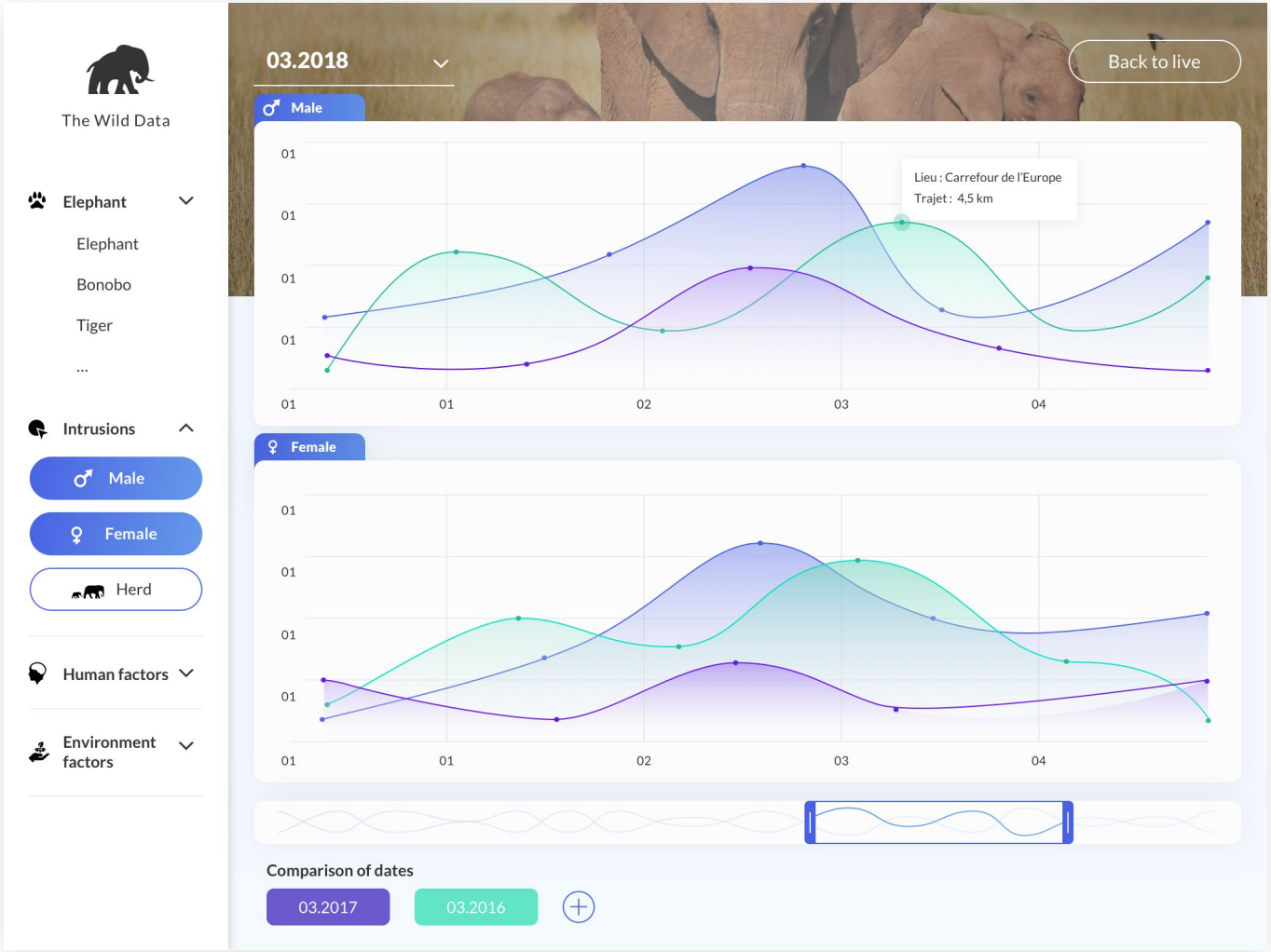
Appendix / **sketches**

Data Reporting



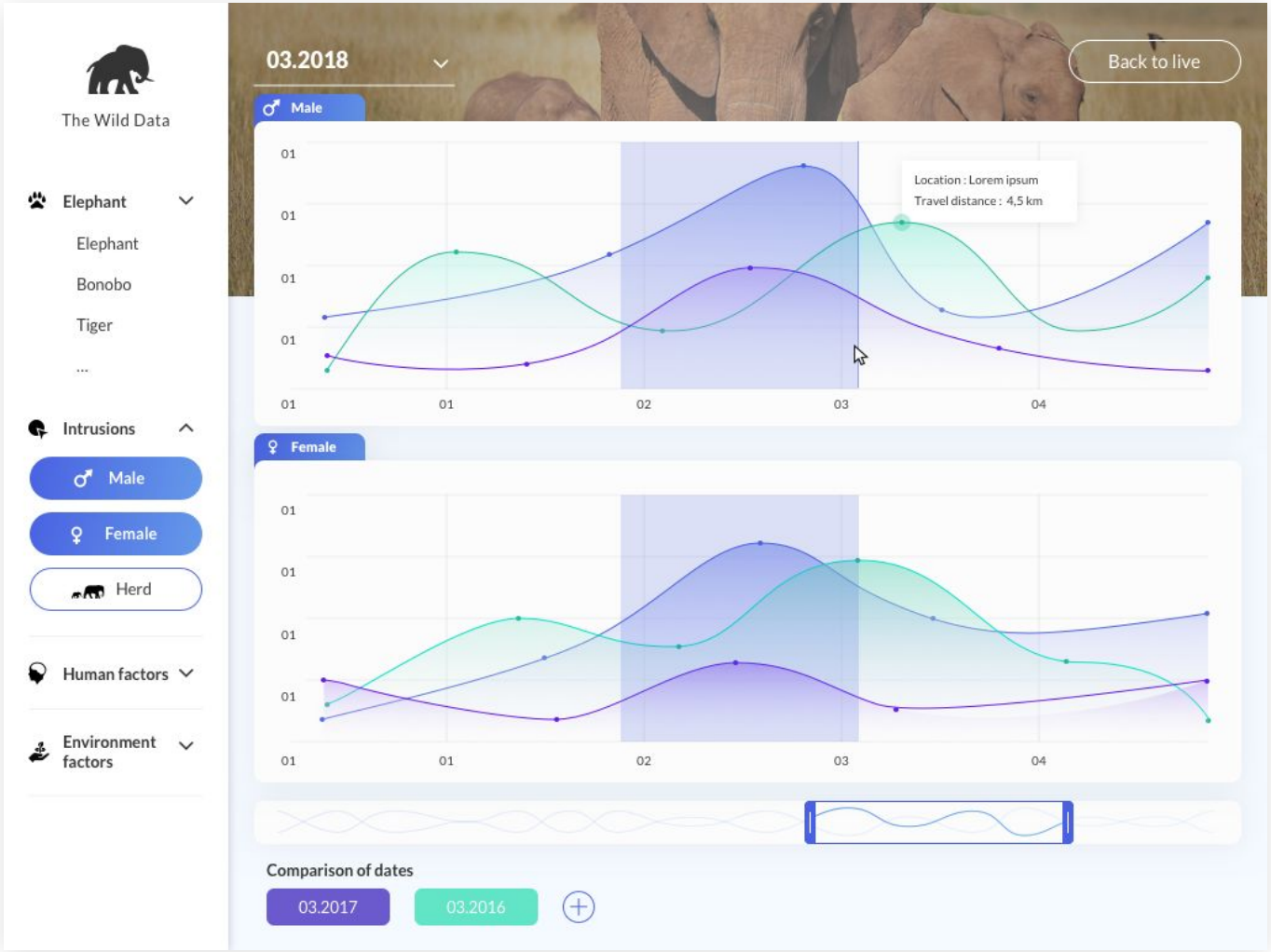
Appendix / **sketches**

Data Reporting
Comparate two data



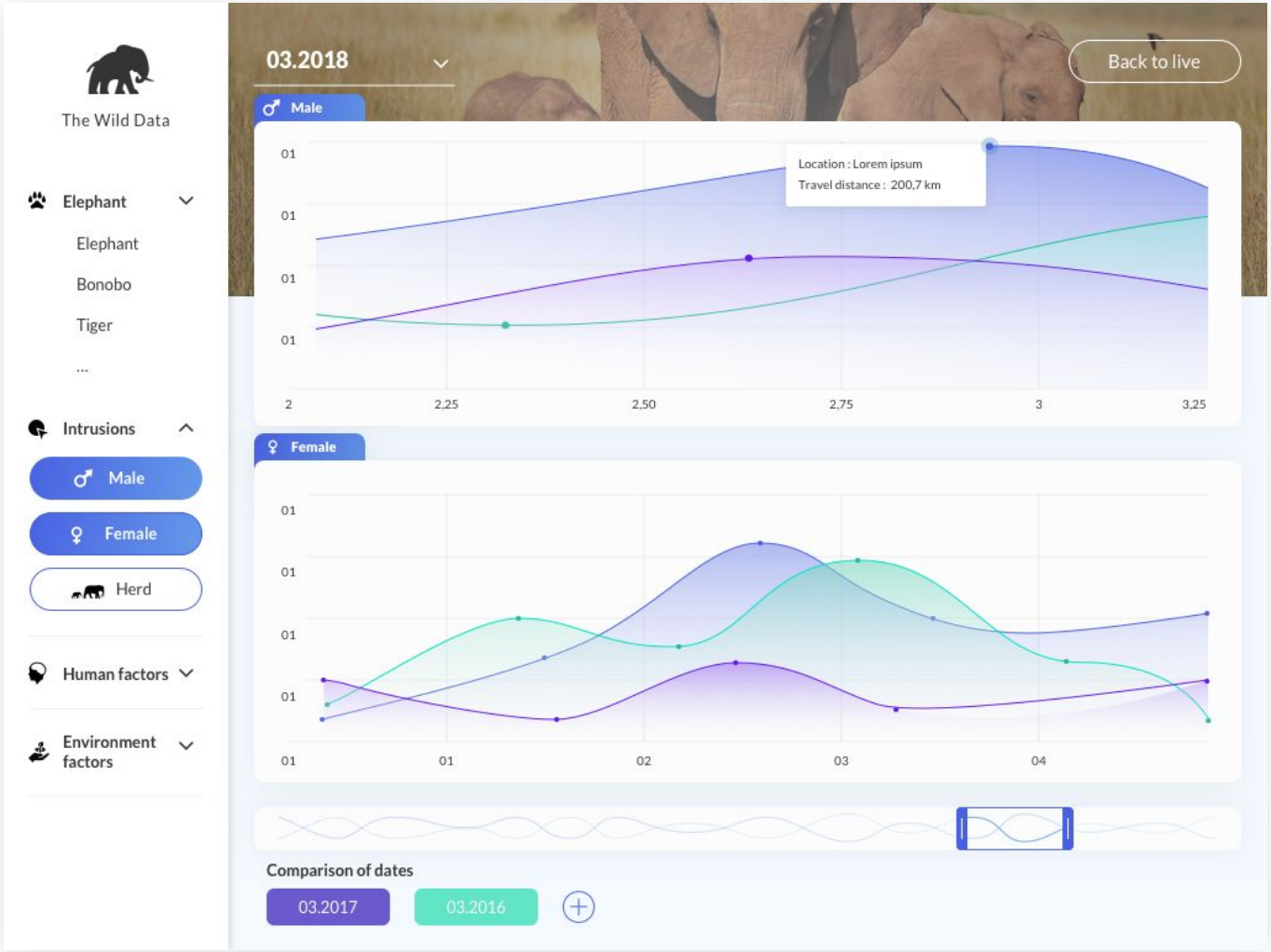
Appendix / **sketches**

Data Reporting
Comparate two data and zoom



Appendix / **sketches**

Data Reporting
Comparate two data and zoom



Appendix / **sketches**

Recyclable data reporting for other species to protect not only the elephant of Botswana.