crop monitoring based on remote sensing data for food security

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Project objectives

- providing a service mainly based on satellite data (and also weather data) to satisfy farmers needs.
- Farmers can use this service via web-based or mobile application and a lot of useful information about their farmland and make more optimized decision
- We convert raw meaningless satellite data to applicable and valuable products for farmers. In this way we use several technologies including satellite image processing techniques, geographical information systems and also artificial intelligence.

how using tools and data within cloud environments helped?

- COG format : The data provided by the Sentinel-Hub was cloud optimized geotiff. It means we can have only the region we need.

- OGC services : It is possible to run several analytical method as a OGC web map service. it make the development faster and easier.

Benefits to society

- Our application can be useful for agricultural role-players to monitor each farm land at different temporal and spatial resolutions.

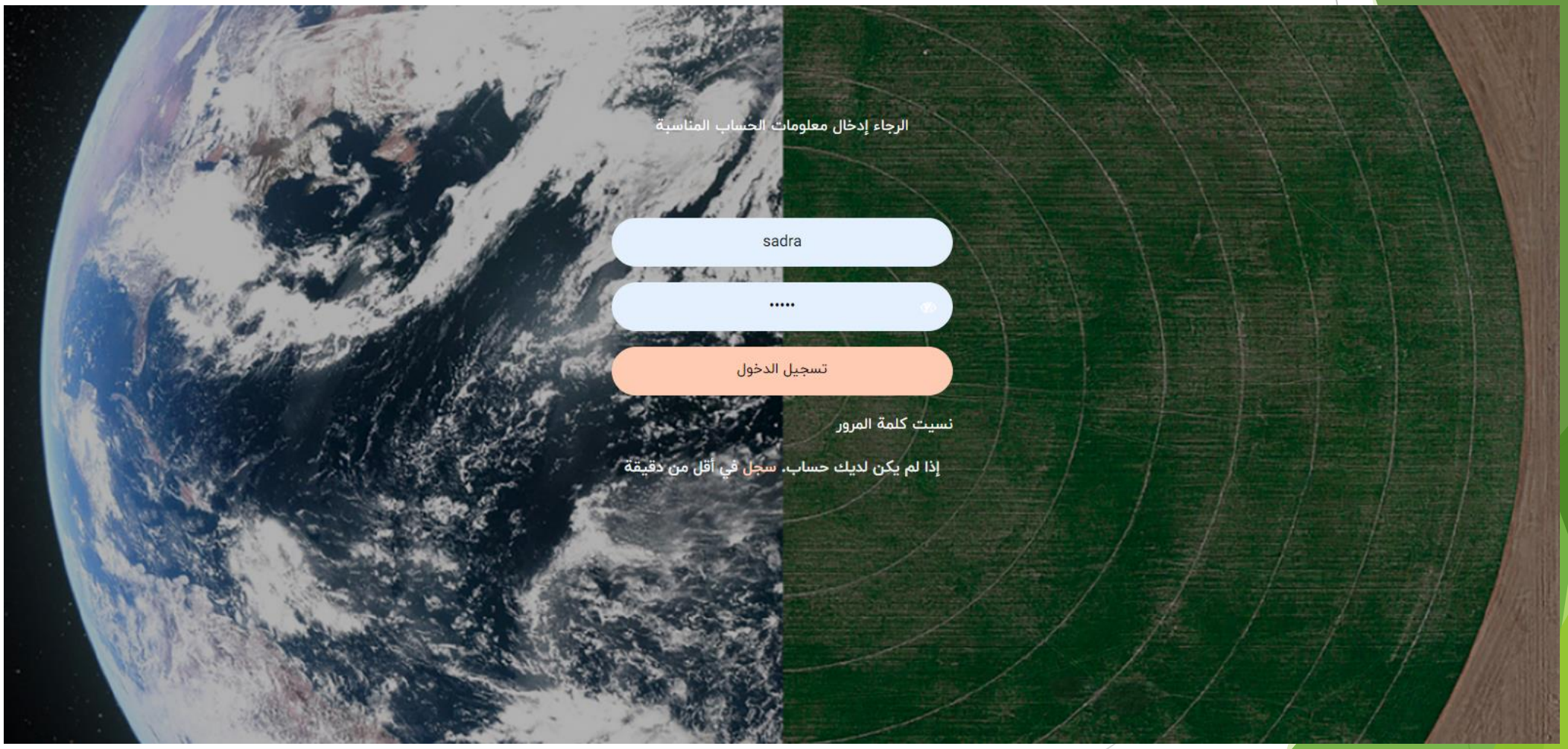
- In addition to that we provide useful information to them about current and future weather state.

* It should be noted that we have not still released our product as this was just to make a demo version.

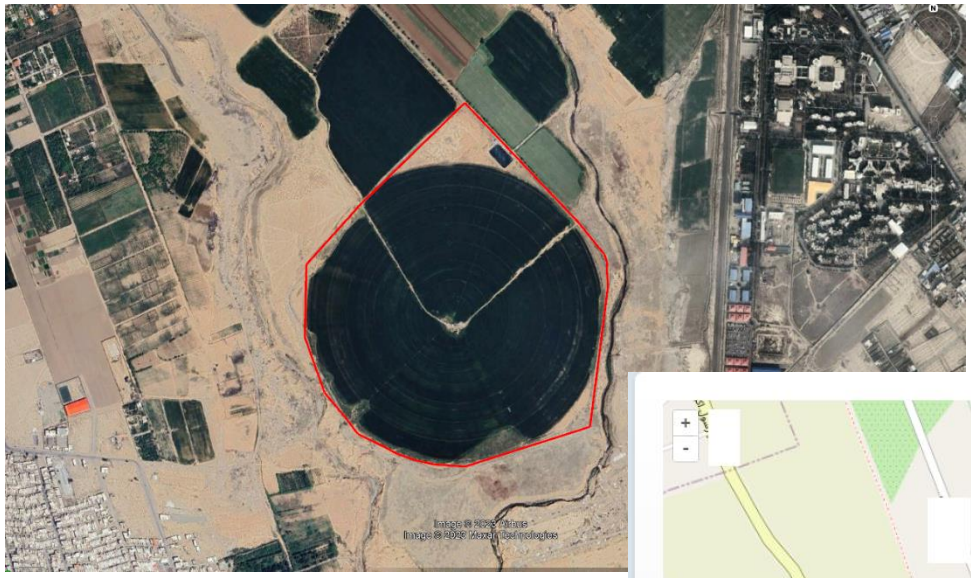
Planned features In the future

- Using more advanced techniques for the farmlands. Unfortunately one of disadvantages of Sentinel-Hub was that we couldn’t apply our arbitrary deep learning algorithm easily. Because they did not provide Iaas.
- Although we implemented to use Pleiades satellite imagery in our software, but we believe it should be studied more and need more time.
- We also plan to add some non-remote sensing features to our system like providing some features which help farmers to manage this activities.
- Develop a Rest API for our application and develop mobile app based on that (although PWA is also another option)

Web application (Signing in)



Web application (importing farmland)



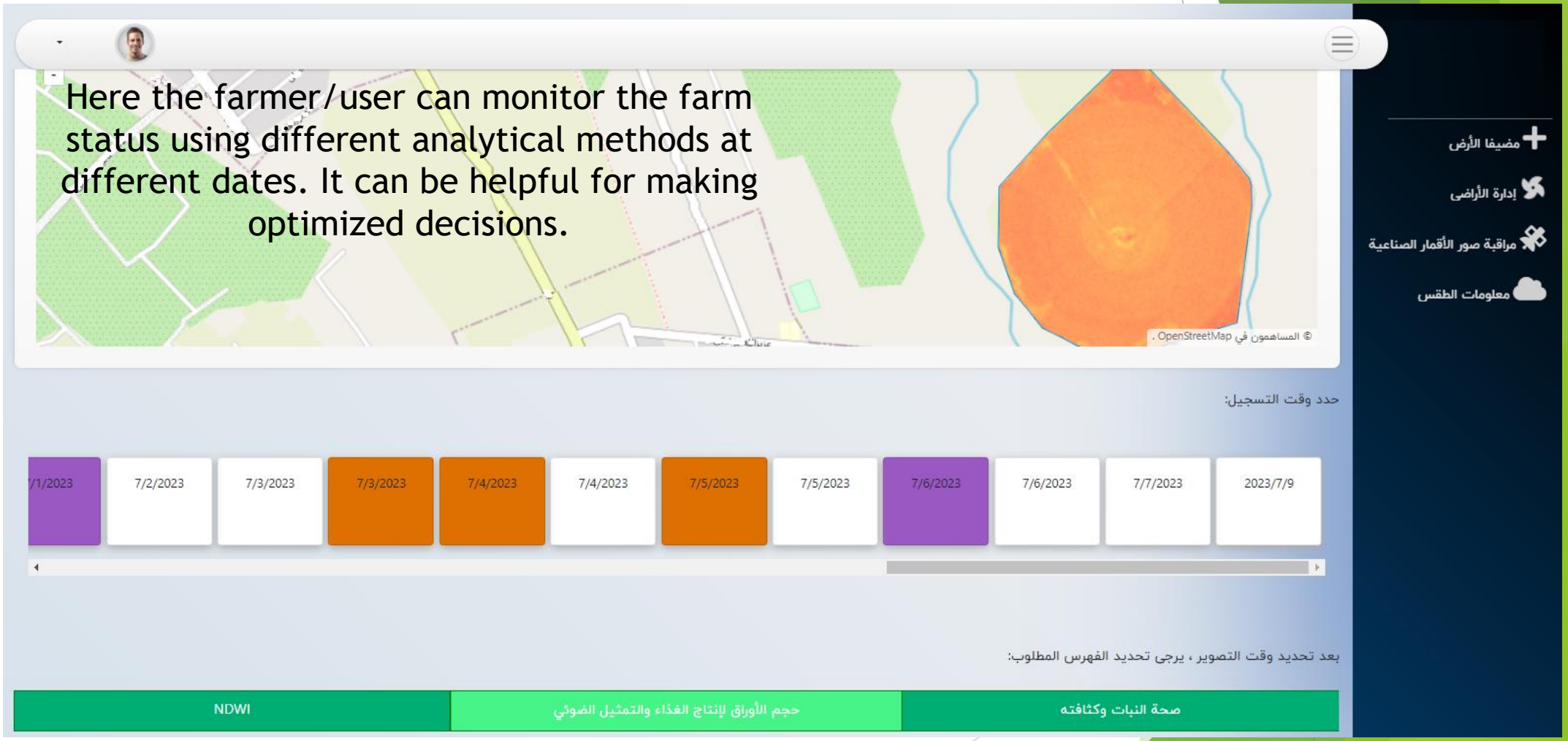
Here the farmer/user uploads or draws the farmland and also select crop type(here is popcorn as an example)

Web application (Satellite monitoring)

Pleiades 1

Planet Scope

Sentinel 2



Web application (Weather monitoring)

Here the farmer/user can monitor the weather status. It can be helpful for making optimized decisions.