Detecting fire with drones

Ema, Nikola, Isabel and Alba Coding (ENIAC)
womENcourage 2018, Belgrade
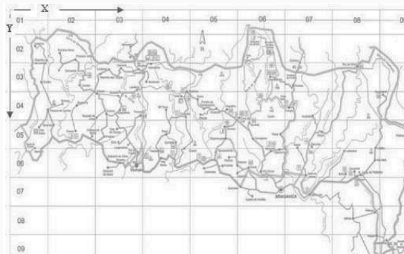
Prevent fires by:

- Providing **tools to help forest guards**.
- Using drones to **automatically patrol vulnerable areas**.

https://upload.wikimedia.org/wikipedia/commons/9/98/Simi_Valley_fire_California_USA.jpg
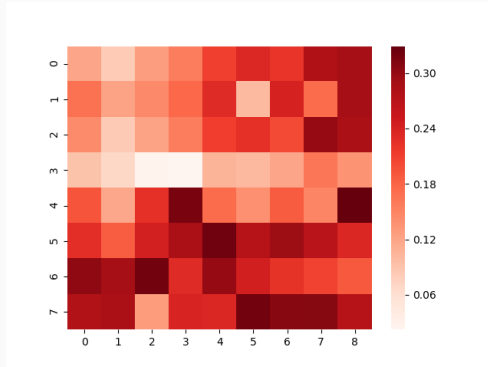
Step 1 – Build a model

- Find a dataset. **Montesihno Park** contains:
  - Historic information of fire and weather characteristics.
  - Data distributed in a grid.

- Use supervised machine learning (linear regression) to infer a function for the **probability of fire**.

Use the **model** and the information from the **sensors** in the park to **build a risk map** with probability of fire.

To be used by forest guards to:

- **distribute available resources**,
- **clean the area** (e.g., remove dry plants),
- ...

The **drone** uses the probability of fire to **patrol automatically the most vulnerable areas**.

DEMO

The **drone** uses the probability of fire to **patrol automatically the most vulnerable areas**.

DEMO

Future work:

- **take pictures**, to be checked by the forest guards.
- **recognize fire** in the pictures using image recognition algorithms.

- **Found a dataset** of fires in Mountesihno Park.
- **Processed** the data.
- **Built a model** of the **risk of fire**.
- Built a **visualization tool** for the forest guards.
- Programmed a **patrolling algorithm** (using ROS).