



SPADE

THE INSIGHT

The screenshot shows a web browser window displaying the UltraHack website. The browser's address bar is empty, and the page features a dark navigation bar with the UltraHack logo and links for Hackathons, Services, and About Us. The main content area has a blue background with a cityscape illustration and various icons representing smart city technologies. It includes logos for MML (Maan-Mittaus-Laitos) and the Republic of Estonia Land Board. The central headline reads "LOCATION INTELLIGENCE FOR SMART CITIES HACKATHON" in large, bold, white letters. Below this, a sub-headline states "UPGRADE THE SMART CITY ECOSYSTEM BY USING GEOE3 LOCATION-BASED DATA AND HACK YOUR WAY TO A PRIZE POOL OF 10 000€!". At the bottom of the main section, there are two buttons: "REGISTRATION CLOSED" (disabled) and "BROWSE SUBMISSIONS" (active). A dark footer section contains a paragraph of text explaining the hackathon's focus on location-based data in smart cities.

ULTRAHACK HACKATHONS SERVICES ABOUT US

MML MAAN-MITTAUS-LAITOS

REPUBLIC OF ESTONIA LAND BOARD

LOCATION INTELLIGENCE FOR SMART CITIES HACKATHON

UPGRADE THE SMART CITY ECOSYSTEM BY USING GEOE3 LOCATION-BASED DATA AND HACK YOUR WAY TO A PRIZE POOL OF 10 000€!

REGISTRATION CLOSED BROWSE SUBMISSIONS

Smart city applications combine and utilize data from various sources to improve the lives of citizens. One important data source is location-based data collected through various sensors and remote sensing techniques. We believe that there is still a huge amount of unexplored potential in utilizing location-based data within the smart city ecosystem. Thus, we are thrilled to invite you to participate in this hackathon to explore the new and exciting solutions that the location-based data can offer us!

THE INSIGHT

ULTRAHACK

MM
MAAN
MITTA
LAITO

LOCAT CITIES

UPGRADE THE SMART CITY
WAY TO A PRIZE

REGISTRATION CLOSED

Smart city applications combine data collected through various sensors and IoT devices, utilizing location-based data with exciting solutions that the local government can use to improve the quality of life for its citizens.

WHO SHOULD JOIN?

Start-ups, SME, Public Sector Actors, Students

You should join in teams of 2-5 people.

RESOURCES

The applications or solutions must include data from the GeoE3-project (<https://geoe3.eu/>)

The data available through GeoE3 platform (<https://geoe3platform.eu/geoe3/>) includes:

- Climate data (temperature, windspeed, sunshine)
- 3-D buildings (Level-of-Detail 2 and/or Level-of-Detail 1)
- 2-D buildings
- Road data
- **DTM**
- DSM

The spatial coverage (countries/cities) of the data can be seen from the GeoE3 platform

THE INSIGHT

ULTRAHACK

MM MAAN MITTA LAITTO

LOCATING CITIES

UPGRADE THE SMART CITY
WAY TO A PRIZE

REGISTRATION CLOSED

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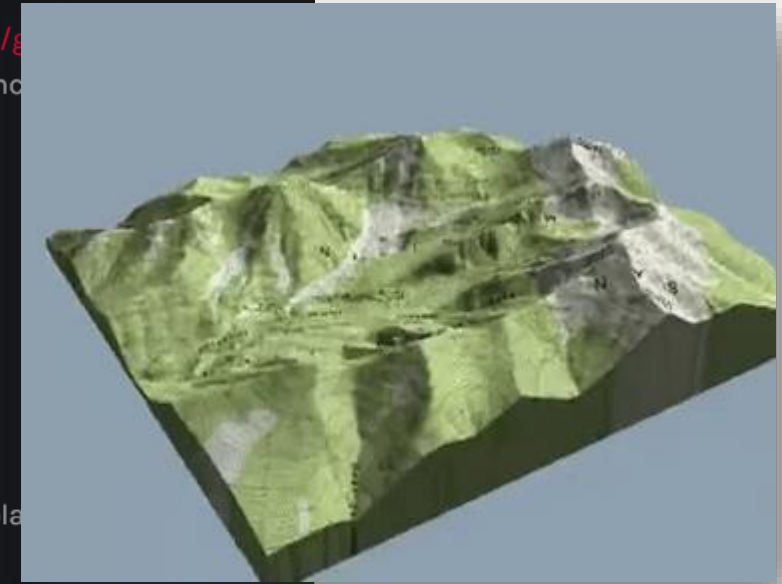
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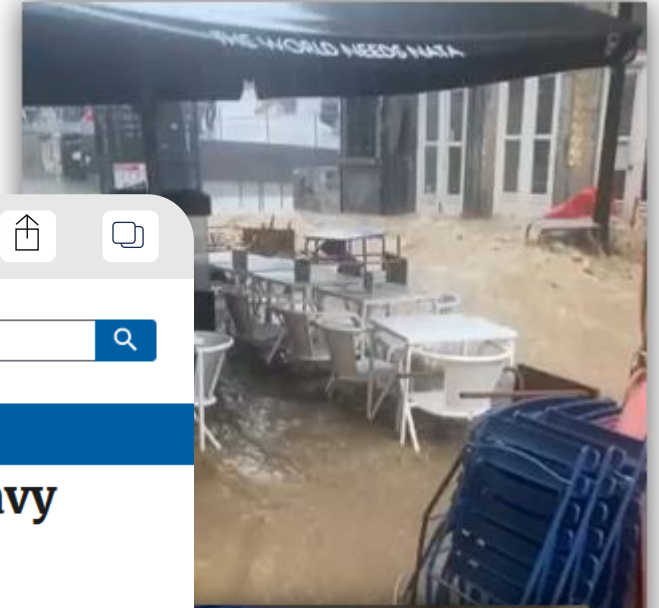


THE INSIGHT

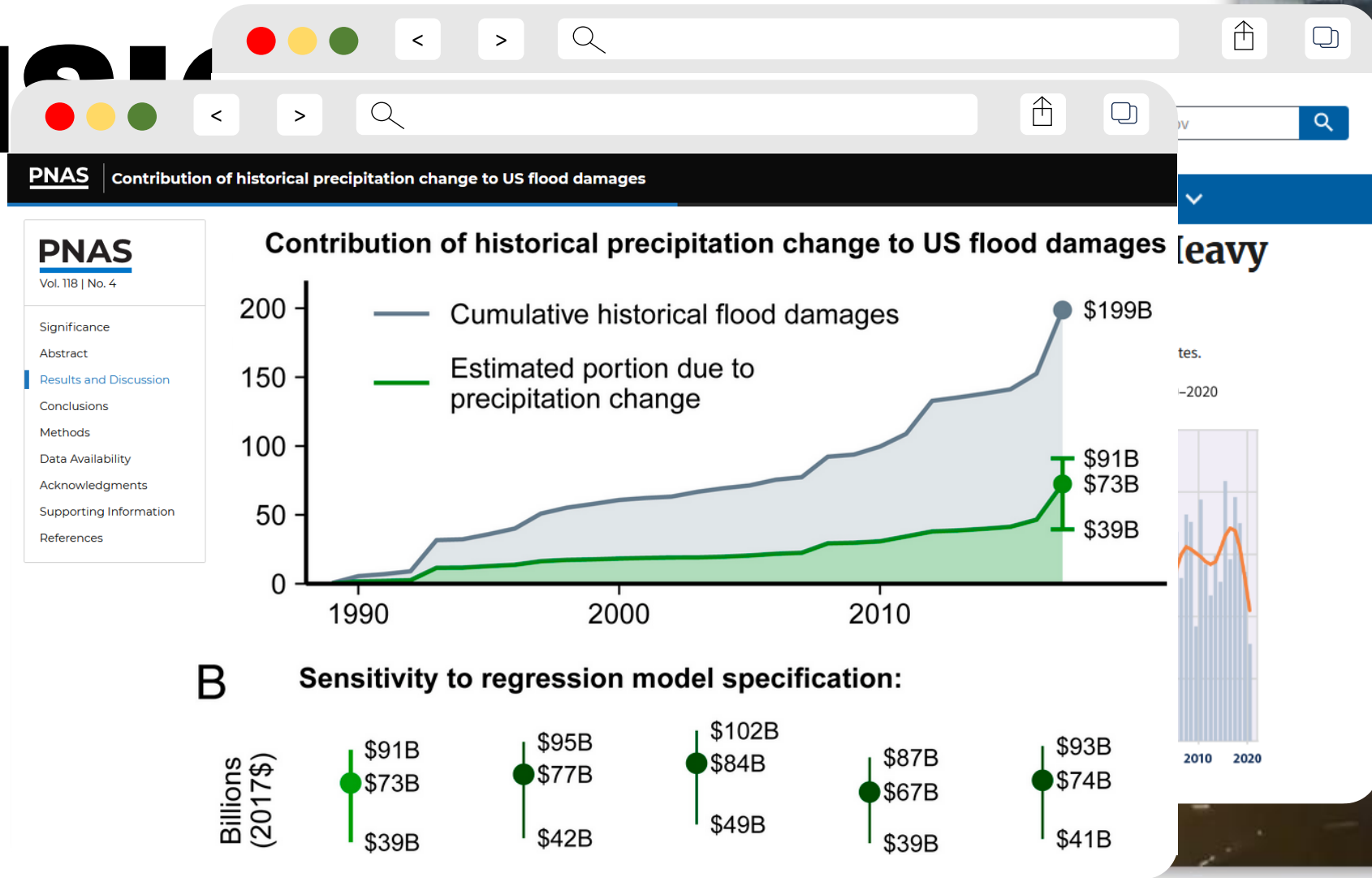
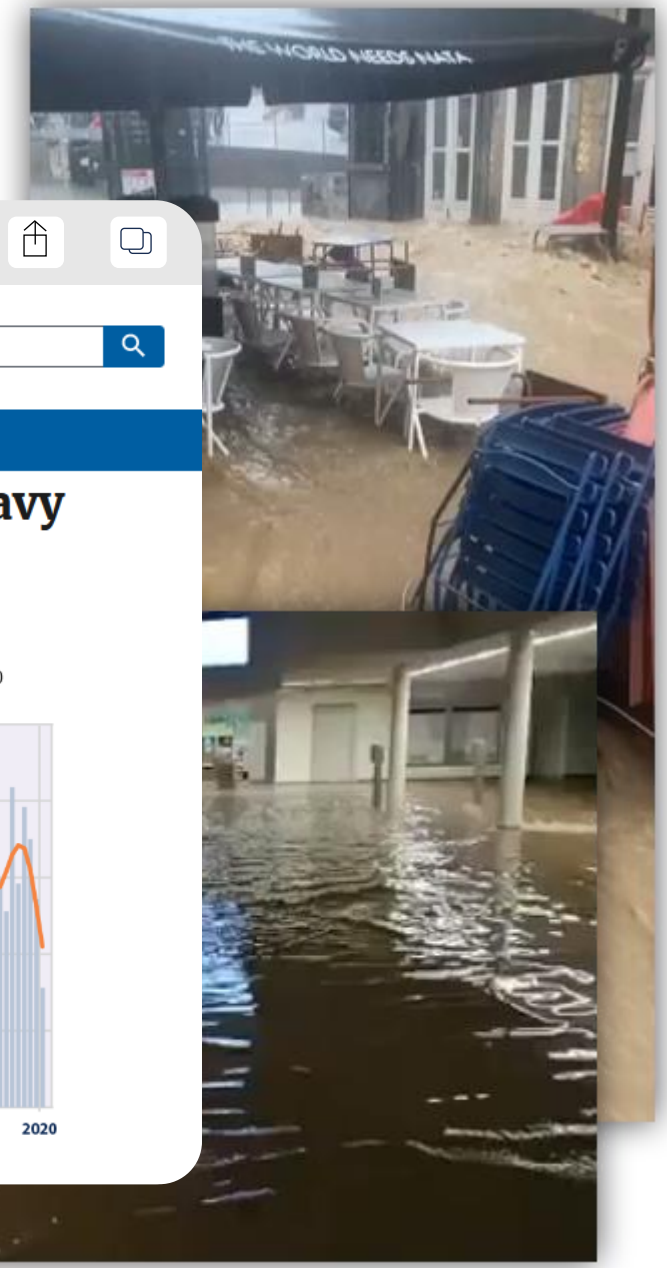


THE INSIDE

The screenshot shows the EPA website interface. At the top, there's a search bar and navigation links for 'Environmental Topics', 'Laws & Regulations', 'Report a Violation', and 'About EPA'. The main heading is 'Climate Change Indicators: Heavy Precipitation'. Below this, a text block states: 'This indicator tracks the frequency of heavy precipitation events in the United States.' A caption reads: 'Figure 1. Extreme One-Day Precipitation Events in the Contiguous 48 States, 1910-2020'. The graph shows a fluctuating orange line representing the percentage of land area, with a notable peak around 2010-2015. The y-axis is labeled 'Percent of land area' and ranges from 0 to 25. The x-axis is labeled 'Year' and ranges from 1910 to 2020.



THE INDIAN



THE PROJECT

SPADE

Simulator for
Predicting
Accumulation and
Drainage through
Elevation

**THE
PROJECT**

PATH ALGORITHM



GEOE3
A GEOSPATIALLY ENABLED
ECOSYSTEM FOR EUROPE

PATH ALGORITHM



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Porto topographic map

Click on the map to display elevation.



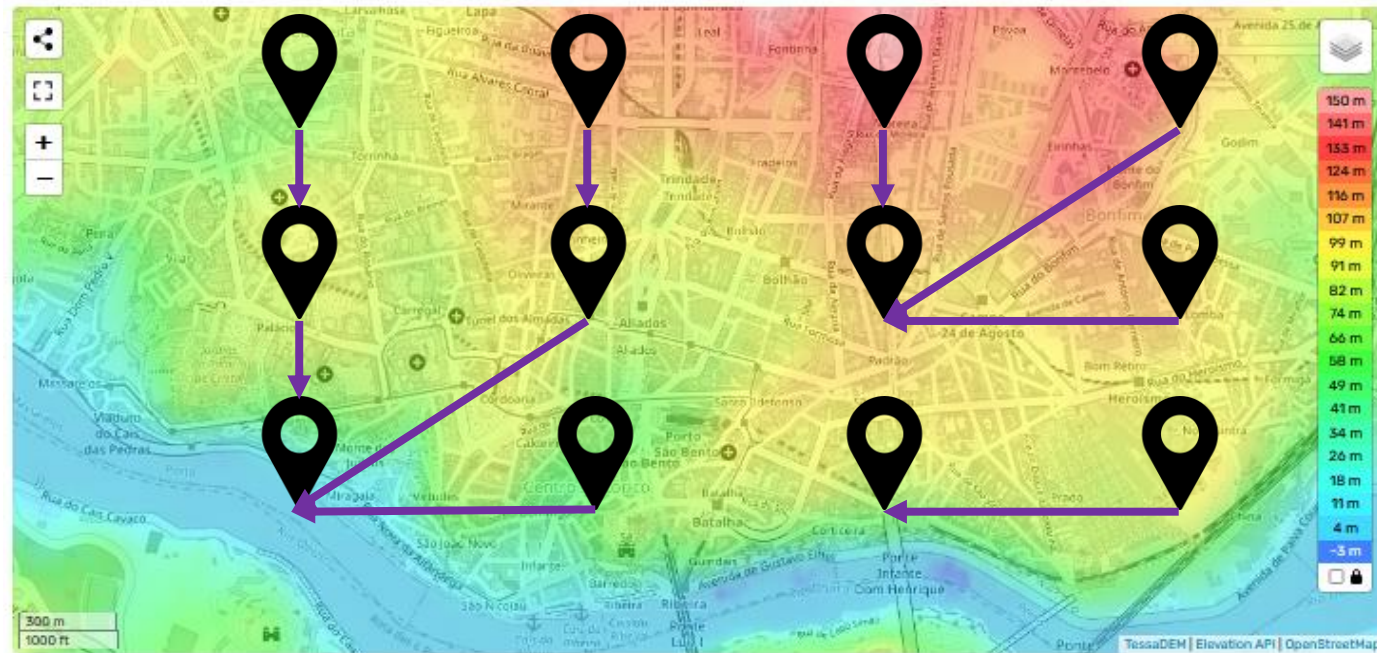
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PATH ALGORITHM



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Click on the map to display elevation.

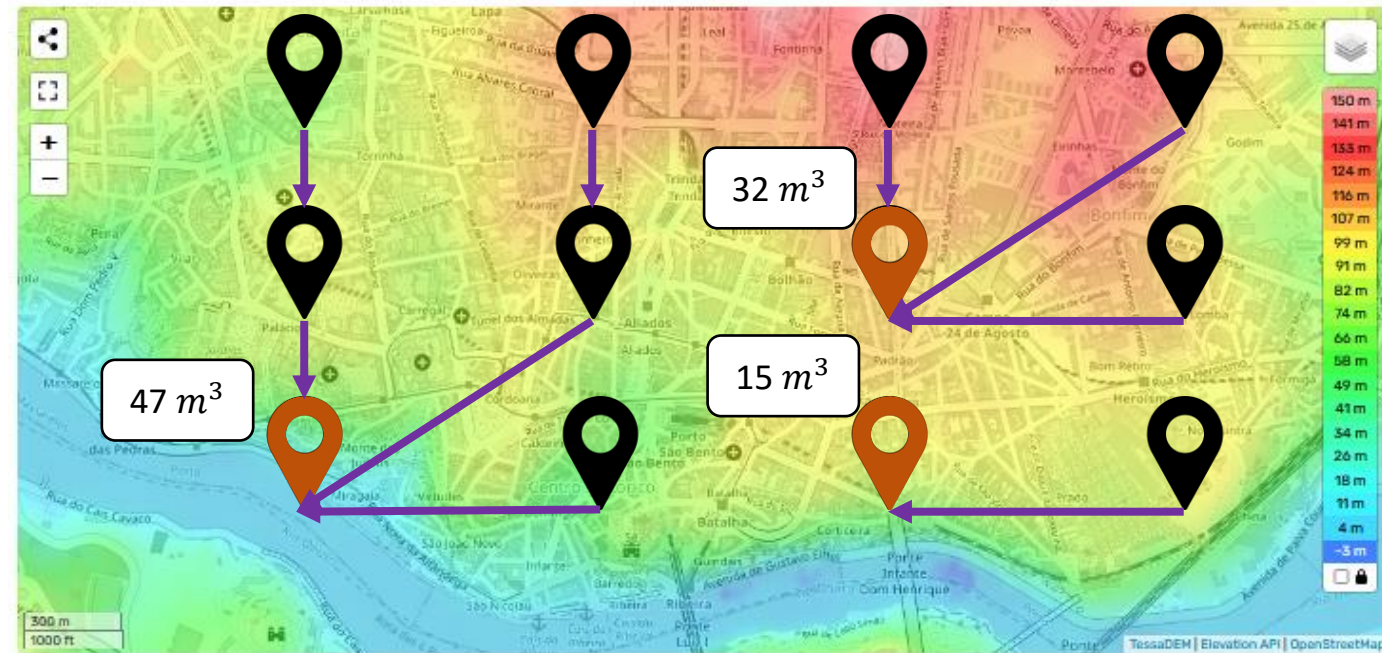
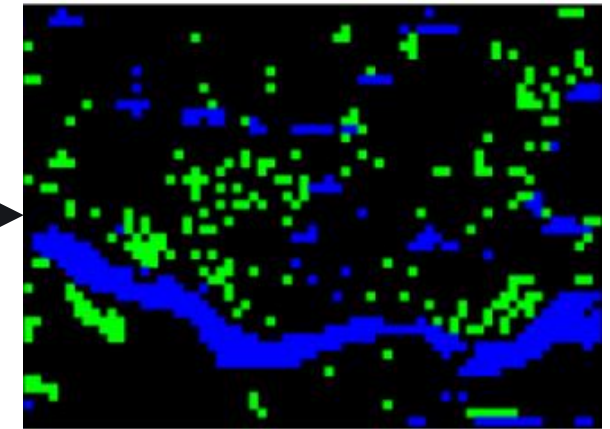
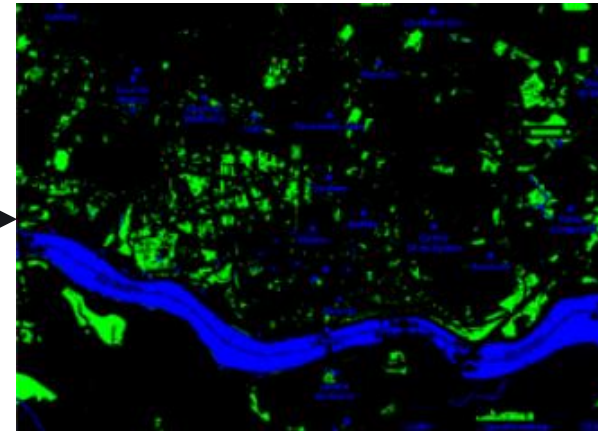


IMAGE PROCESSING ALGORITHM

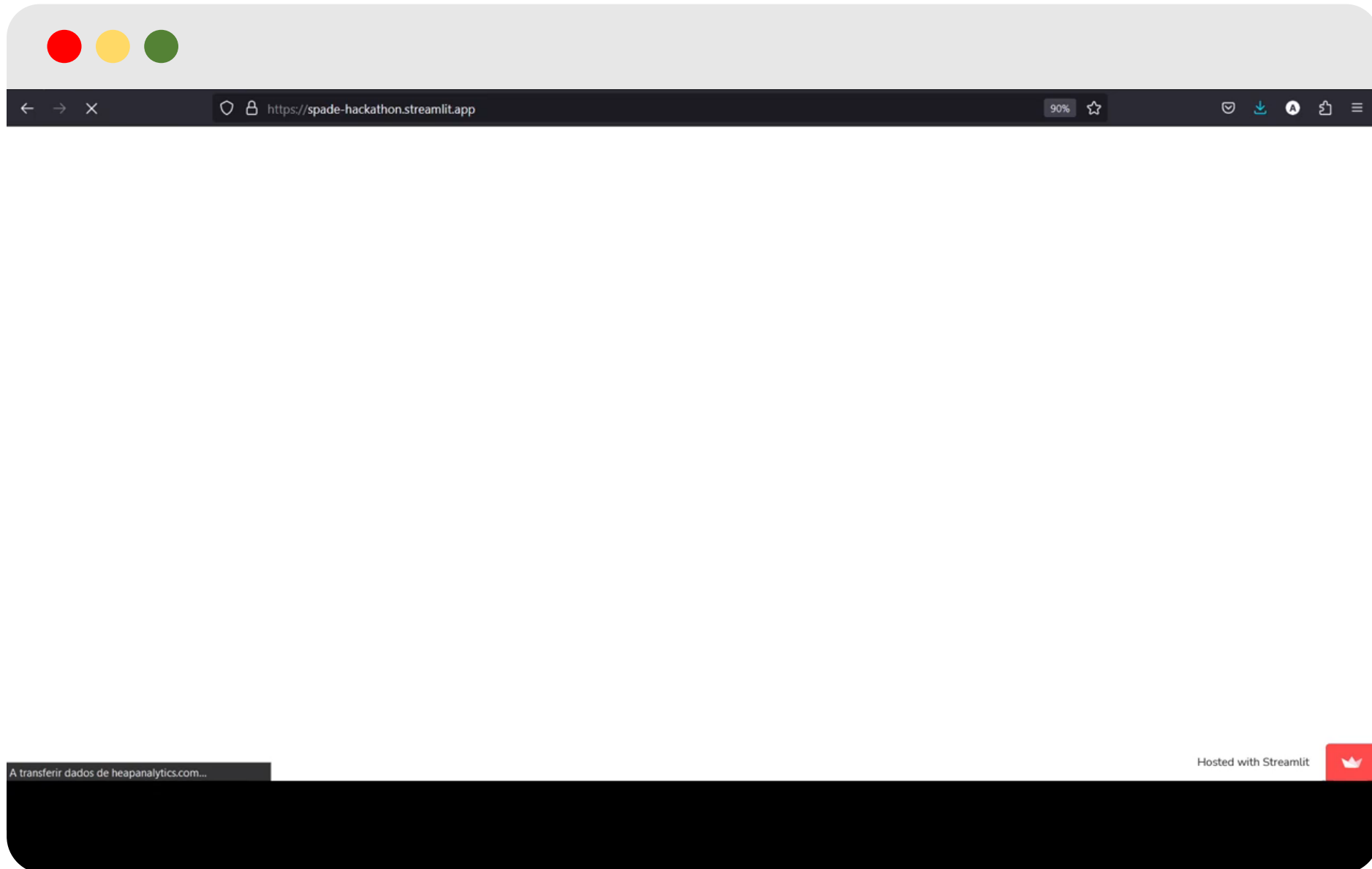


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255	255	255	255	255	255	...
195	216	255	202	187	227	...
230	211	255	232	228	209	...
239	209	255	245	217	239	...

HSV
Filter



DEMO



FUTURE FEATURES

- **Expand SPADE coverage area;**
- **Drainage impact;**
- **Water elevation prediction;**
- **Enhanced image recognition**
- **Pipeline for uploading user data.**

THANK YOU

