CHAMELEON

FIRECOM

Fire Propagation Risk Assessment and Compliance at Urban-Forest Interfaces

Axtron

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Objectives

Objectives of FIRECOM

1 Objetives

- *The main objective of this sub-project was to develop and test a tool to assess the risk of fire propagation at urban-wildland interfaces*

- *Portuguese law 10/2018 determines mandatory buffer zones around roads and buildings in rural areas, where trees and vegetation must be managed*

- *The goal of sub-project was to implement a tool capable to use drones to capture high-resolution aerial imagery of designated areas, and then automatically determine whether these buffer zones comply with the law, using the CHAMELEON bundles*

2

The Team

The team

Natércia Santos

Project Manager

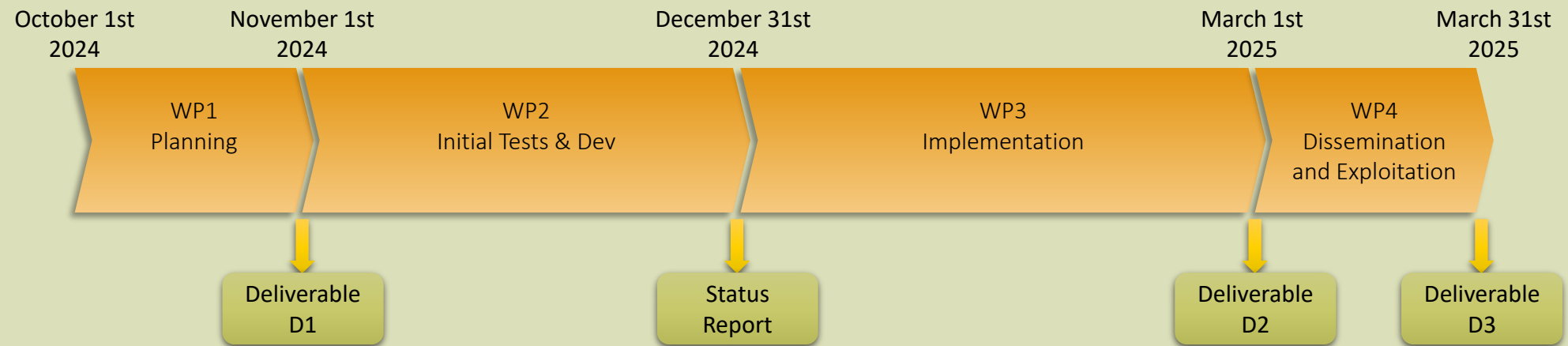Osvaldo Santos

Technical Coordinator

Bruno Miguel

Developer

3

Timeline

Timeline

Global overview of the sub-project's timeline

October 1st 2024	November 1st 2024	December 31st 2024	March 1st 2025	March 31st 2025
WP1 Planning	WP2 Initial Tests & Dev	WP3 Implementation	WP4 Dissemination and Exploitation	

Deliverable D1

Status Report

Deliverable D2

Deliverable D3

4

Results

1 Results

AI (CNN) building detection

- *AI (CNN) is used to detect the contour of buildings*

- *The buffer zones are then calculated from the building contour*

- *Two different buffer zones are calculated*
  - A 10 m buffer zone near the building
  - An additional 40 m buffer zone

2 Results

Drone Mission Planner

- *Calculates the flying path and waypoints where photos should be taken*

- *Determines the flying height to comply with resolution requirements*

- *Creates a KMZ file, which can be exported to drones, to fully automate the flight and photo capture*

Results

3

3D point cloud and orthophoto

- *A high-resolution orthophoto is created from the photos captured by drone*

- *A 3D point cloud is also created from those photos*

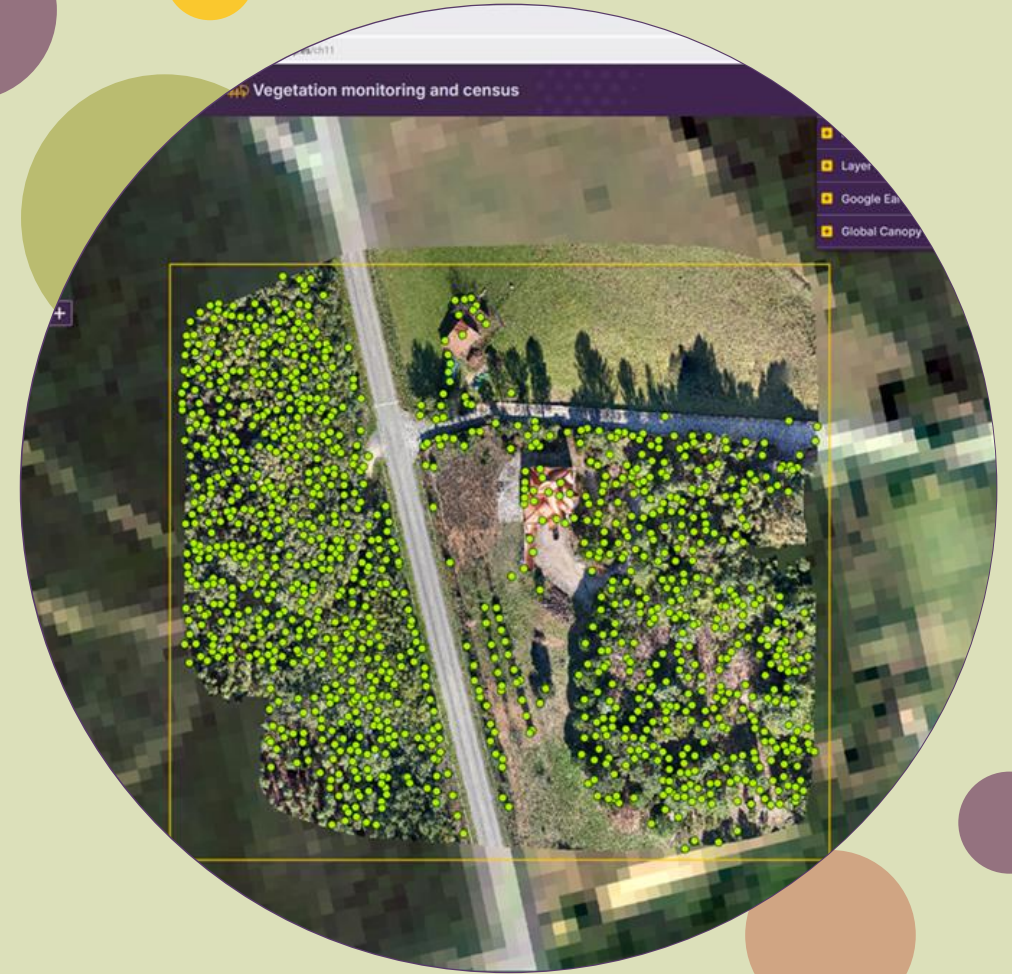- *These two files are then processed by the CHAMELEON bundles*

Results

4

CHAMELEON bundles

- *The CHAMELEON bundles extract valuable insights about trees and vegetation*

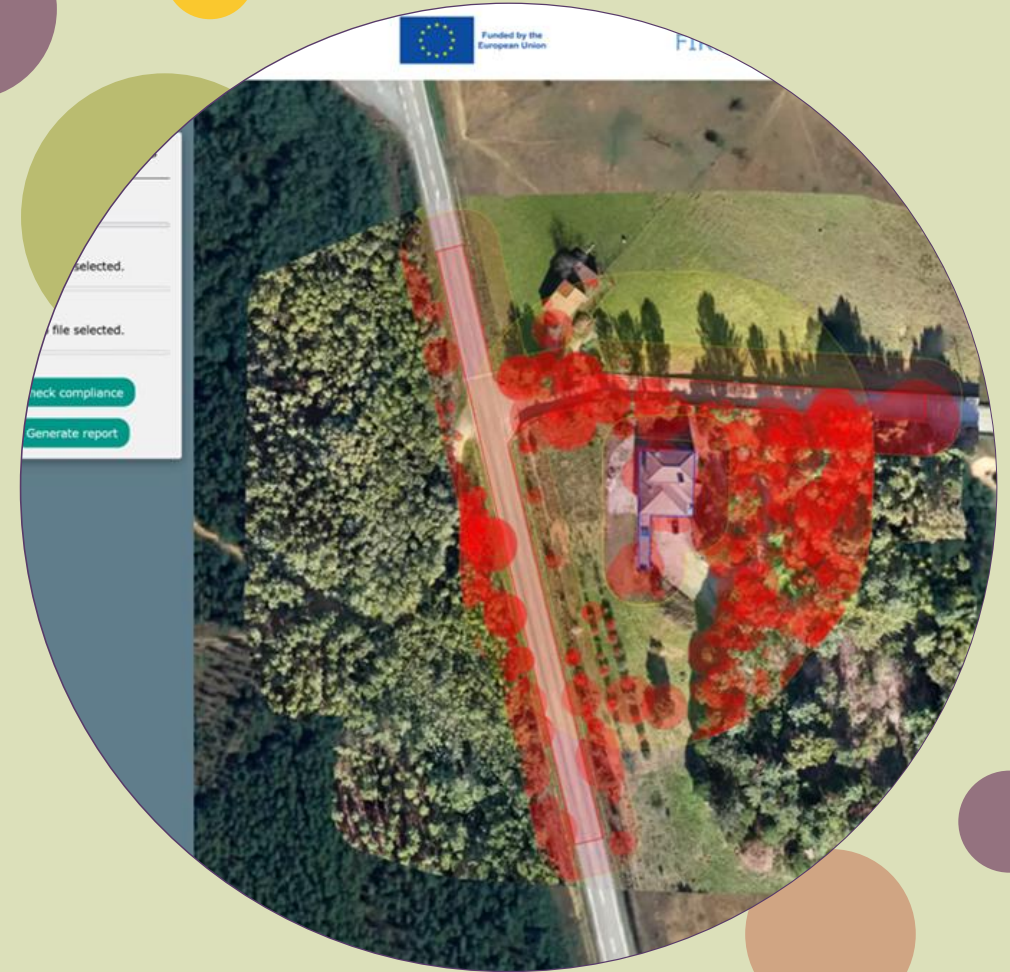- *Here, an example of the output of bundle BC1 - Vegetation Monitoring and Census*

5 Results

FIRECOM output

- *The FIRECOM WebGIS uses the output generated by CHAMELEON bundles to identify trees and vegetation inside the buffer zones*

- *Here, the red areas indicate trees and vegetation inside the buffer zones that must be cut down to comply with the law*

6 Results

Overview

- *The objectives of the sub-project have been achieved*

- *The tool developed under this sub-project uses the CHAMELEON bundles to identify trees and vegetation inside the buffer zones*

- *The tool generates a report that identifies the biomass within buffer zones that must be cut down to reduce the risk of fire propagation*

- *This tool is now offered as a commercial service at Axtron Systems*

ndatory buffer zones around roads and buildings. We use drones to capture high-resolution aerial imagery of the
ass fuel should be managed.

here trees and vegetatiom should be cut down to comply with the legislation.

free demo

CHAMELEON

Thank you for your attention!
Do you have any questions?

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