CHAMELEON

Timber stack Inventory for Logging Operations with UAVs

Sub-project TILO

PANOimagen

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1

Main goal and objectives

1 _Main goal and objectives_

**TILO** aims to address the remote monitoring of Logging Operations in isolated and rural areas, by assessing the advancement of the exploitation on a regular basis via UAV flights

OBJECTIVES

- Automation of geographic surface monitoring and logging operation progress

- Automation of the quantification of logs stacked post-logging

- Reduction of task complexity and time required

2

Functionality

2 *Functionality*

Task	User input data	Output results
Geographic surface monitoring and logging operation progress	Drone imagery → Digital Surface Model (DSM)	Image resulting from the height difference of the DSM images
Stacked logs volume quantification	Terrestrial imagery → Point cloud	Numerical value of volume

3
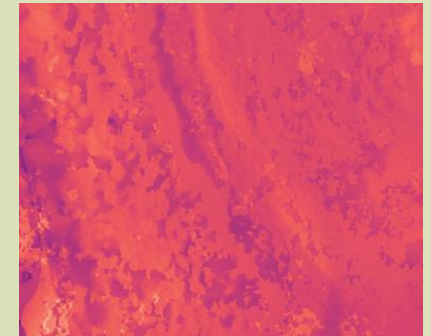
Implementation

Implementation

Data capture

Automated identification
of felled areas

Automated stacked
timber volume
quantification

3 Implementation

Data capture

Test location

Active forest exploitation area in La Rioja (Spain)

Aerial images from drone flights

Same geographical area

Several captures over the exploitation period

Terrestrial recordings with Lidar (iPad)

Stacked logs have been recorded on all visible sides

Width, length and height measurements for validation

3 **Implementation**

Automated identification of felled areas

🐚 Digital Surface Models generation and verification

🐚 Registration of DSM models against base capture (0-day) and calculation of height differences

🐚 Validation with corresponding orthophotos/on site validation

Barranco del Redajo

3 Implementation

Automated stacked timber volume quantification

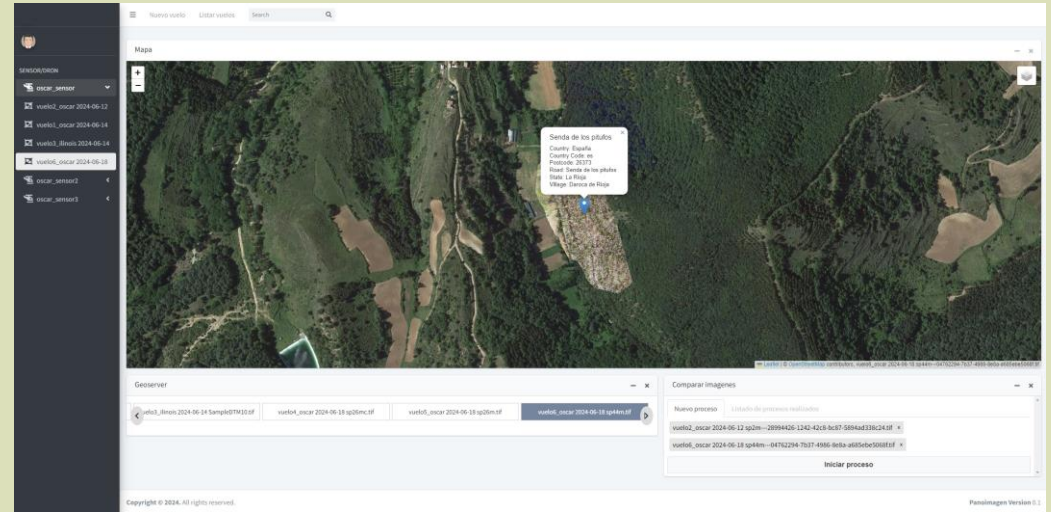- 3D models reconstruction and verification

- Calculation of timber volume

- Validation with on-site measurements and true estimated volume

3 _Implementation_

🐌 Integration of the bundle with the **CHAMELEON** platform

🐌 Development also integrated within Diametree, PANOimagen's own platform

CHAMELEON

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

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