Cable road layout planner

Seilaplan

Seilaplan is a tool that supports the design of cable roads for timber harvesting. It works as a QGis-Plugin.

Starting point of the calculation are terrain data (digital elevation model or field measurement data in CSV format), machine and cable road properties.
The program calculates the skyline tensile forces, the skyline sag, support saddle forces. By knowing the rope forces, critical constructions can be avoided.
This increases the safety at work.

Seilaplan includes an optimization algorithm that proposes the height and location of the supports. The load path of the skyline together with the terrain profile are displayed graphically and a construction manual is generated. Coordinates and saddle height of the supports can be saved as CSV and KML data so that they are electronically available for further planning steps.

The planning of cable road layout goes much faster. The calculated routing takes advantage of the natural terrain shapes and helps to reduce overall harvesting costs in mountainous regions and steep terrain.

DETTAGLI

ORIGINE DEL LEGNO

foresta

TIPO DI LEGNO

Fusto

TIPO DI LEGNO IN QUESTIONE

stemwood and full trees

IMPATTO SULL'AMBIENTE E LA BIODIVERSITà

The cost reduction will allow new, poorly accessible areas to be developed and additional timber to be harvested.
This has a positive effect on the protective function of the forest in the mountains and it promotes adaptation to climate change.

EFFETTO SUL REDDITO

Improved profitability of logging in steep terrain

POTENZIALE DI SFRUTTAMENTO

For forest owners and forest contractors

HUB

Polo Centro-Est

IMPATTO ECONOMICO

Reduced installation cost, improved profitability

POTENZIALE DI MOBILITAZIONE

> 100'000 m³ for Switzerland

POTENZIALE SOSTENIBILITà - VALORE

Molto positivo

FACILITà DI IMPLEMENTAZIONE

Very easy

FACILITà DI IMPLEMENTAZIONE - VALUTAZIONE

Very Easy

PREREQUISITI CHIAVE

Terrain data must be available or collected along the planned line.

TIPO DI EVENTO IN CUI QUESTO BPI è STATO PRESENTATO

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EFFETTO SUL LAVORO

Faster and saver skyline layout planing

I COSTI DI ATTUAZIONE (EURO - €)

100

CONOSCENZE SPECIFICHE NECESSARIE

Knowledge of QGis is necessary

Più DETTAGLI

SFIDA RISOLTA

5. Migliorare le prestazioni economiche e ambientali delle filiere forestali

DOMINIO

La gestione forestale, selvicoltura, i servizi ecosistemici, resilienza

TIPO DI SOLUZIONE

strumenti di consulenza e servizi per i proprietari di foreste

PAROLE CHIAVE

cable road

skyline

QGis plugin

mountain forest

SOLUZIONE DIGITALE

Sì

INNOVAZIONE

Sì

PAESE D'ORIGINE

Svizzera

SCALA DI APPLICAZIONE

Continentale

INIZIO E FINE ANNO

2012 - 2021

CONTATTI

PROPRIETARIO O AUTORE

Swiss Federal Institute for Forest Research WSL

Leo Bont

leo.bont@wsl.ch

https://seilaplan.wsl.ch/en/index.html

REPORTER

BFH Berne University of Applied Sciences

Thuer Peter

peter.thuer@bfh.ch

REFERENCES AND RESOURCES

SITO PRINCIPALE

https://www.wsl.ch/en/index.html

SITO WEB DEL PROGETTO

https://seilaplan.wsl.ch/en/index.html

PROGETTO DI RIFERIMENTO

Bont, L. G., Moll, P. E., Ramstein, L., Frutig, F., Heinimann, H. R., & Schweier, J. (2022).

RISORSE

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SEILAPLAN, a QGIS plugin for cable road layout design. Croat J For Eng. Bont, L. G., Ramstein, L., Frutig, F., & Schweier, J. (2022). Tensile forces and deflections on skylines of cable yarders: comparison of measurements with close-to-catenary predictions. International Journal of Forest Engineering, 1-22. https://www.dora.lib4ri.ch/wsl/islandora/object/wsl%3A30255/datastream/PDF/Bont-2022-Tensile_forces_and_defl

LOGO DELLE MIGLIORI PRATICHE

Swiss Federal Institute for Forest, Snow and Landscape Research WSL

LOGO DELLA PRINCIPALE ORGANIZZAZIONE

Bern University of Applied Sciences

PROGETTO NELL'AMBITO DEL QUALE QUESTA SCHEDA è STATA CREATA

Rosewood 4.0

DATA DI INSERIMENTO

25 Ott 2022

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No. 862681

A TOOL FROM ROSEWOOD 4.0, DESIGNED AND DEVELOPED BY