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.

PODROBNOSTI

IZVOR LESA
Gozd

TIP LESA
Okrogli les

VRSTA OBRAVNAVANEGA LESA
stemwood and full trees

VPLIV NA OKOLJE IN BIODIVERZITETO
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.

VPLIV NA PRIHODKE
Improved profitability of logging in steep terrain

POTENCIAL IZKORIŠČANJA
For forest owners and forest contractors

VOZLIŠČE
Srednje-vzhodno vozlišče

GOSPODARSKI VPLIV
Reduced installation cost, improved profitability

POTENCIAL ZA MOBILIZACIJO
> 100'000 m³ for Switzerland

TRAJNOST - VREDNOST
Zelo pozitivno

ENOSTAVNOST IZVEDBE
Very easy

ENOSTAVNOST IZVEDBE - OCENJEVANJE
Very Easy

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

VRSTA DOGODKA, NA KATEREM JE BIL PREDSTAVLJEN TA BPI
--

VPLIV NA DELOVNA MESTA
Faster and saver skyline layout planing

STROŠKI IZVEDBE (EURO - €)
100

POTREBNO SPECIFIČNO ZNANJE

Knowledge of QGis is necessary

VEč PODROBNOSTI

IZZIV	DOMENA	TIP REŠITVE
5. Izboljšanje gospodarske in ekološke učinkovitosti gozdne oskrbovalne verige	Gojenje gozdov, gospodarjenje z gozdovi, odpornost, ekosistemske storitve	Svetovanje in storitve za lastnike gozdov
KLJUČNE BESEDE	**DIGITALNE REŠITVE**	**INOVACIJA**
cable road skyline QGis plugin mountain forest	Da	Da
IZVORNA DRŽAVA	**OBSEG UPORABE**	**ZAČETNO IN KONČNO LETO**
Švica	Kontinentalno	2012 - 2021

KONTAKTN PODATKI

LASTNIK OZ. AVTOR

Swiss Federal Institute for Forest Research WSL

Leo Bont

leo.bont@wsl.ch

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

POROČEVALEC

BFH Berne University of Applied Sciences

Thuer Peter

peter.thuer@bfh.ch

REFERENCES AND RESOURCES

SPLETNA STRAN

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

SPLETNA STRAN PROJEKTA

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

REFERENCA PROJEKTA

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

VIRI

--

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

LOGOTIP DOBRE PRAKSE

Swiss Federal Institute for Forest, Snow and Landscape Research WSL

LOGOTIP GLAVNE ORGANIZACIJE

Bern University of Applied Sciences

PROJEKT, V OKVIRU KATEREGA SO BILI ZBRANI OSNOVNI PODATKI

Rosewood 4.0

DATUM OBJAVE

25 Okt 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