

Social Forest Planning project : summary of results 2010-2012

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The overall objective of the Social Forest Planning project is to develop and demonstrate a novel system for forest management planning and updating of present plans. The system combines images from cellular phones with remote sensing data to predict forest variables. The variables are input to a Planner Engine that outputs forest resources information for every forest stand and feeds them into a Geographical Information System (GIS). The GPS location tag in the images makes it possible to use them easily as in-situ reference data. The main technical development goal of Social Forest is to develop automatic and interactive methods for the cell phone image analysis. The automatic methods were presented in Remote Sensing Days 2010 [2], and interactive delineation of tree stems for computing basal area in Remote Sensing Days 2011 [3]. This paper gives an overview of results of the whole processing chain, including :

- methods for automatic and interactive tree stem detection from the cell phone images
- methods for the transmission and archiving of the cell phone images through the internet
- methods for the processing and analysis of UAV images
- use of the cell phone-based data as reference to UAV and satellite image analysis to predict the forest variable values wall-to-wall
- system introducing the stand-wise predictions of forest variables and the cell phone plot data into the Planner Engine that outputs the forest management plan.

Latest results include stand-wise predictions of forest variables from satellite and cell-phone images and analyzed cell-phone images as a reference data.

References

- [1] W. Bitterlich, "The Relascope Idea: Relative Measurements in Forestry", 1984, Commonwealth Agricultural Bureaux, Farnham Royal.
- [2] T. Häme, I. Korpela, A. Hovi, I. Hippi, J. Rasinmäki, M. Molinier, K. Andersson, "Social Forest Planning", presented at the *Finnish Remote Sensing Days 2010*, November 2010, Espoo, Finland.
- [3] M. Molinier, T. Häme, K. Andersson, I. Korpela, A. Hovi., "Interactive Basal Area Estimations from Mobile Phone Images", presented at the *Finnish Remote Sensing Days 2011*, November 2011, Espoo, Finland.