EPIC Online Technology Meeting on Agri-Photonics

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March 14th, 2022

CSEM at a glance – Close to **industry**

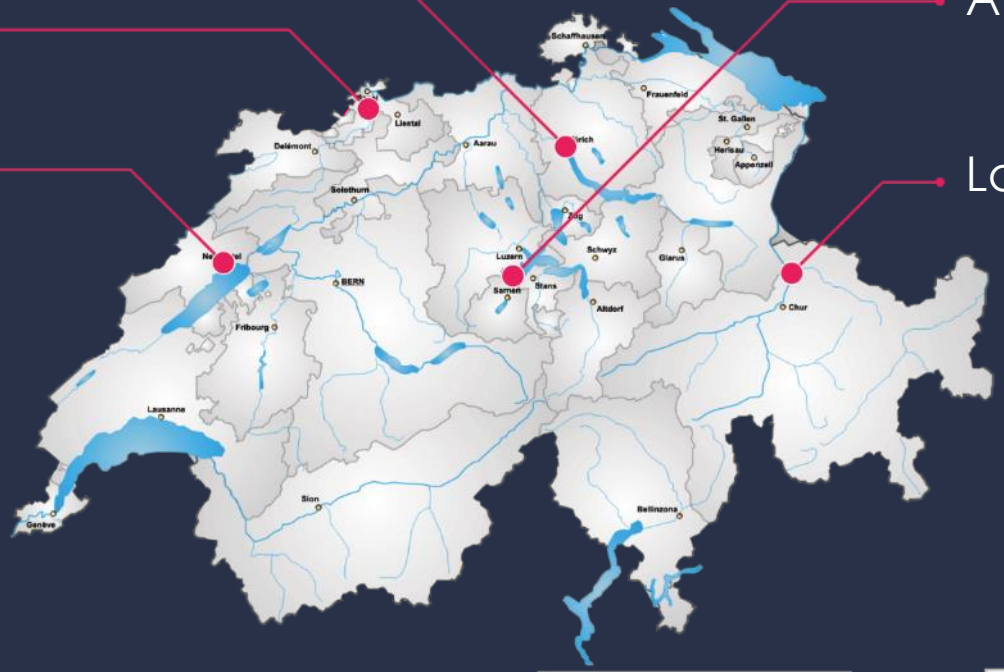
Zürich

Muttenz

Neuchâtel

Alpnach

Landquart



89.2
Turnover (mio CHF)

525
Persons

225
Industrial clients

82
European projects

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Tracteur

Problem

Reduce waste during field seeding

Solution

Intelligent vision system + valve control

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Agroscope

KTI/CTI

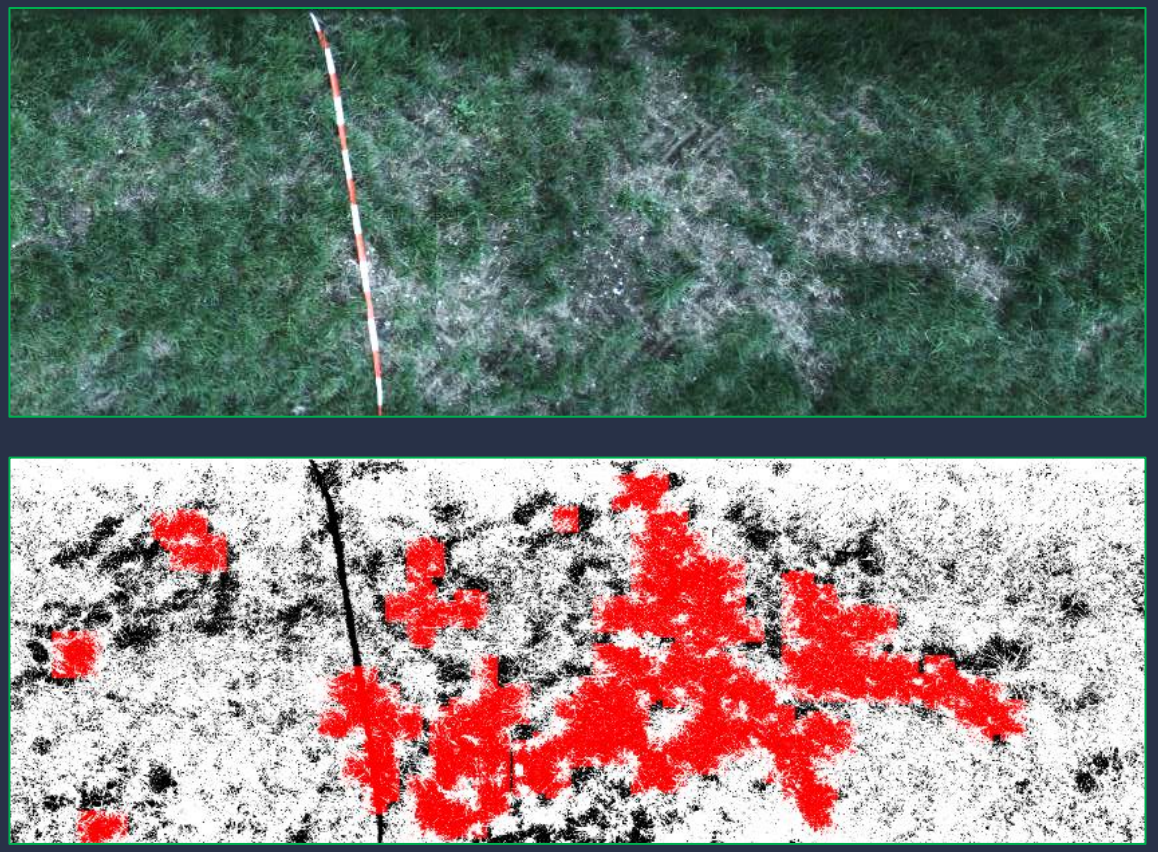
Tracteur

Challenges

- Uncontrolled illumination
- Inexhaustive dataset
- Digitalisation in agriculture
- Robust and simple system

Lessons learned

- Early involve subcontractor in project
- Validate each part of the system separately



Apple counting

+ AI

- Apple counting based on smartphone photo + machine learning
- Average diameter measurement
- Yield forecast based on cultivar growth curves

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Raw image

Human annotation

AI result

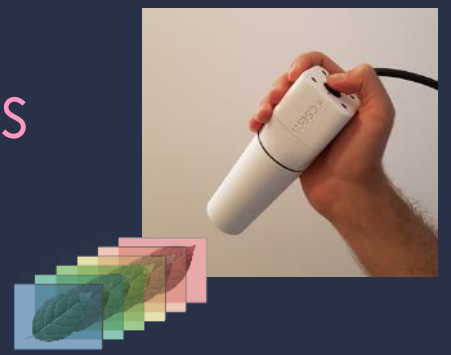
Apple type	False Positive	False Negative	Total error
 Gala	10%	18%	7.6%
 Golden	17%	14%	3.2%

False Positive: Zones where system detects a non-existant fruit
False Negative: Zones where system does not detect a fruit that exists

Our expertise

Multispectral

Chemometrics



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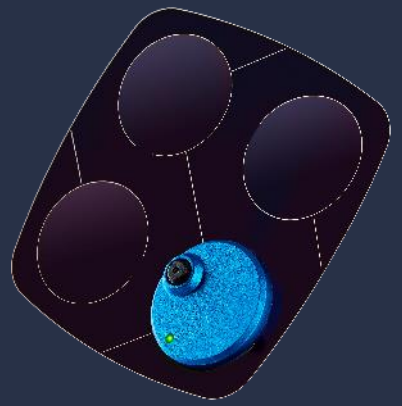
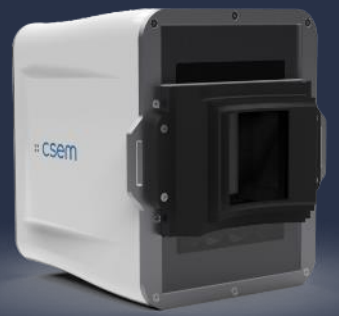
Ultra low power



Edge AI



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