Customer specifications (summer 2021)

Domain
- Seedlings in trays in greenhouses
- Leaf stage: up to LAI of 1,3

Product specifications
- Drone hardware
    - Drone including 3 batteries, charger, controller and protector
    - Drone Box
- Drone software
    - Automatically flying drone according to flight plan with manual take-off
- Web application (on computer and smartphone)
    - Making a flight plan or flight location:
        - Indicate which hoods, hoods complete or specific subjects
        - Flight route calculation
    - Execute flights in the greenhouse via 'start flight' button in application
    - Enter variables (batch ID, tray properties, number of sown
- Reporting (folder in cloud or file by mail)
    - CSV with batch information (batchID, number of trays, total number of plants and germination percentage, flight time, section-cut location as entered in web application)
    - CSV with tray information (per tray batchID, total number of plants and germination percentage)
    - CSV with plant detection (per plant leaf area in mm2 and in which tray it is located)
    - 1 image per tray (contains no detection)
    - Seed percentage per tray histogram (image)
    - Leaf area histogram (image)
    - Estimate selection (classification) 1, 2, 3 and dropout
- Application specification
    - Marking greenhouse and batches
    - Visible markers hang on the greenhouse legs in the greenhouse;
    - User ensures sufficient distance between the batches (minimum 20 cm);
- Flight:
    - User ensures that more than 1 marker comes into view for initial position determination.
    - User presses 'start flight' in the mobile app
    - Drone flies according to flight plan and then ensures only relevant batch is fully visible
- Charging:
    - Not automatic, user changes the batteries and puts the battery in the charger
- Wifi connection:
    - For uploading data after flight
    - User puts drone in charger and initiates WiFi connection

Computer vision & AI

%usable
#leafs

LAI
stress
volume

#branches
#buds
∅ flowers

CUTTING | GROWTH | MARKET

tray detection

plant detection

leaf area

tray detection

marker ID detectie

grid and plant detection

GERMINATION RATE per tray for batch(139951793)

LEAF AREA per plant for batch(139951793)