



6/7

CURRENT TRL & TARGET TRL

+ 5%

INCREASE IN CROP YIELD

- 20%

USE OF PESTICIDES

+ 15%

IN DROP QUALITY

COUNTRIES

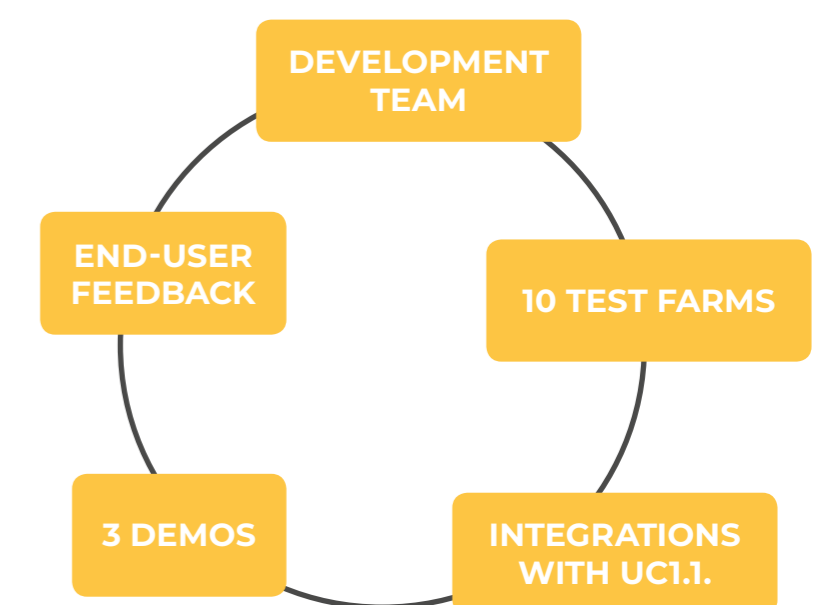


PARTNERS



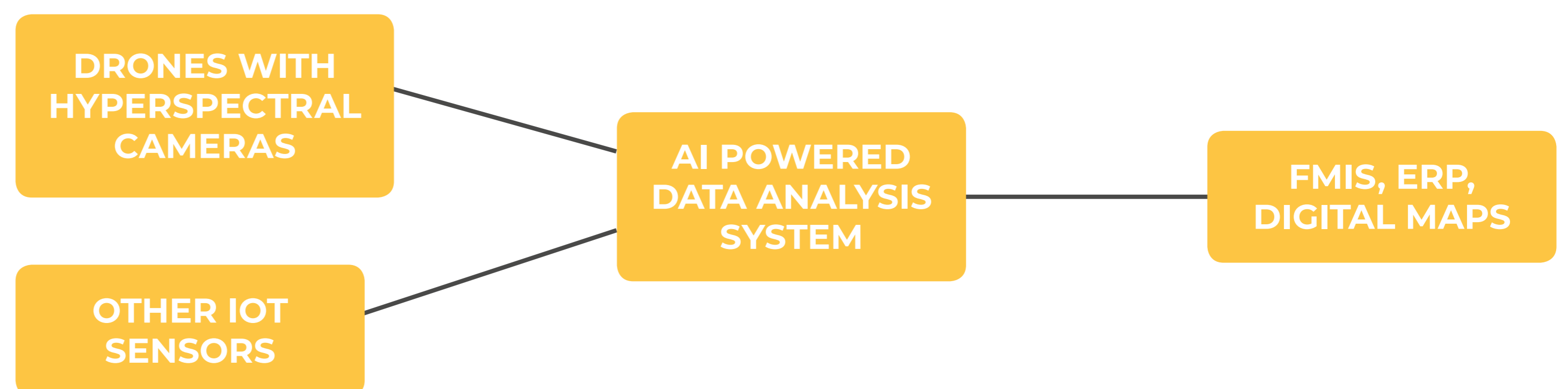
1.9 WITHIN-FIELD MANAGEMENT ZONING BALTICS

Spending on fertilisers and agrochemicals represents a considerable part of farmers' overall expenditure. By developing a remote sensing solution to determine which nutritional elements and how much of them a plant is lacking at different stages of its growth, such costs can be reduced. This use case demonstrates the added value of spectral data analysis and IoT technology for precise decision-making and optimised crop management in potato and winter wheat.



- ART21 LTD, VILNIUS, LITHUANIA**
- Provide Hyperspectral imaging sensors
 - Perform data processing
 - Manage data storage
 - Provide laboratory for reference plant/soil analysis
- LITHUANIA, KAUNAS, LITHUANIA (ZUR):**
- Organise test trial deployments in Baltic States (also responsible for test area selection)
 - Provide data processing, analysis services
- NATURE RESEARCH CENTRE, VILNIUS, LITHUANIA:**
- Provide plant and soil laboratory analysis services
 - Data analysis model validation services
- UC1.1 PARTNERS:**
- Implementation of primary UC1.1 test trials in Baltic States

TECHNICAL SOLUTION



Integration of advanced hyperspectral imaging and data analysis technologies to deliver a truly innovative solution to some of the most pressing issues for farmers. It uses Artificial Intelligence technologies (Machine Learning/Neural Networks) to perform complex analyses of crop field hyperspectral images. By analysing big amounts of spectral data the system learns to recognise various indicators or patterns, and identifies the composition of nutrients in crops. The solution integrates with FMIS for mapping of micro- and macronutrients in potato and winter wheat plants.

THE IMPACT

OUR OBJECTIVES

- Fast and cost-efficient way to detect the amounts of micro- and macro-nutritional elements needed in plants;
- Automatic recommendations for agrochemical application through non-invasive, remote sensing technology;
- Display the benefits of soil, crop and yield sensors for yield prediction, arable field management and chain optimisation;
- Demonstrate the added value of hyperspectral imaging and spectral data analysis at the farm level.

ECONOMIC IMPACT

- Yield increase (+5%);
- Field analysis time and cost (-70%);
- Early detection of plant stress and its causes;
- Soil fertility increase (+20%).

OTHER IMPACT

- Fertiliser use reduction (-30%);
- Classified data increase (x8);
- Stress reduction (+20%);
- Fertiliser cost reduction 40€ / ha
- User satisfaction (+33%).