

Title

FarmIT – smart farm management IT system

Company

- Sociedade Agrícola Casal da Cotovia, Lda
Family-owned grower of Blueberries. It operates 100% under organic agriculture principles and certifications. It has a strong compromise with sustainability: environmental, social, and economical.
- Instituto Nacional de Investigação Agrária e Veterinária, I. P. (INIAV)
The National Institute for Agricultural and Veterinary Research, I. P. (INIAV) is the State Laboratory, in the area of competences of Agriculture, Forestry and Rural Development, which develops research activities in the agronomic and veterinary areas. INIAV plays a central role in the field of promotion and conservation of national genetic resources in the animal and plant areas., <https://www.iniaiv.pt/>

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Project brief description

General objective: Efficient use of water and zero-waste agriculture.

Specific objective: Develop a low-cost digital assistant to farmers looking to be more sustainable and ethical.

Develop an integrated system able to manage the use of water, watering, and fertigation. Providing visual maps of the farm with production, amount of water and fertilizers used, etc, composed of:

1. connection to public weather forecasting platforms,
2. aggregate information from existing satellite imagery on the various platforms and cross-reference with data from field sensing,
3. meteorological stations,
4. soil moisture sensors: reliable, low cost, with long-distance radio communication, with low energy consumption,
5. fertilizer sensors in the soil: reliable, low cost, with long distance radio communication, with low energy consumption,
6. electro conductivity sensors of water and wastewater,
7. flow and pressure sensors in irrigation ducts,
8. water level sensors in tanks, ponds, and wells,
9. real-time monitoring of spray quality (number and size of drops inside the canopy at different heights),

10. monitor the spores of the main diseases using electronic spore sensors existing on the market,
11. development of image acquisition systems that make it possible to map flowers and fruits at each land parcel,
12. apply AI to improve the performance of the FarmIT application,
13. show data in augmented reality formats that increase the analysis capacity of agricultural managers.