SCAPI: Sensors for crop quality in greenhouses

The SCAPI project develops a sensor that measures the evolution and quality of greenhouse crops.

- **The sensor has been designed for use in greenhouses, with a technology validated in vine tomato crops located in the province of Almeria.**
- **The onTech Innovation cluster coordinates this industrial research initiative, developed by two of the most innovative companies in the sector, together with the benchmark technology centre in agribusiness.**
- **The initiative is funded by the Ministry of Industry, Trade and Tourism.**

Sensors for non-invasive crop development and quality monitoring

The SCAPI project has designed and built a sensor system that allows the evolution and quality of crops to be monitored non-invasively, on a large scale, continuously and with precision at the individual plant/fruit level. A sensor aimed for use in greenhouses, with a technology that will maximise the return on investment, as it makes it possible to determine the optimum moment of ripening of the fruit and estimate its production.

It is a system made up of two different technologies. A hyperspectral camera is responsible for obtaining images of the fruit, together with a series of climate sensors that collect data on temperature, humidity and radiation. All this is attached to a platform in continuous movement, which, by means of an aerial rail, makes it possible to collect all this information in the different locations of the crop. In addition, the system's software is equipped with artificial intelligence algorithms for processing the data collected, and an interface that allows real-time online visualisation of the results and the current state of the crop.

The development tests and validation of the system are being carried out at Tecnova's experimental farm in Viator, Almeria, where an aerial mobile platform has been installed to move the SCAPI sensor system throughout its greenhouses, dedicated to the cultivation of vine tomatoes.

During the execution of the project, it was considered that the design stage and subsequent construction of the auxiliary structure required significant execution times, which took up a large part of the project planning, as well as taking into account the fact that we are working with plants in which the life cycle and its associated times must be respected. Thus, as an alternative and in order to align Tecnova's developments with the rest of the companies that make up the consortium, it was decided to create a motorised slider (a mechanism used to analyse controlled trajectories). This device took on the role of the mobile platform while it was being installed in the greenhouse, which has allowed the

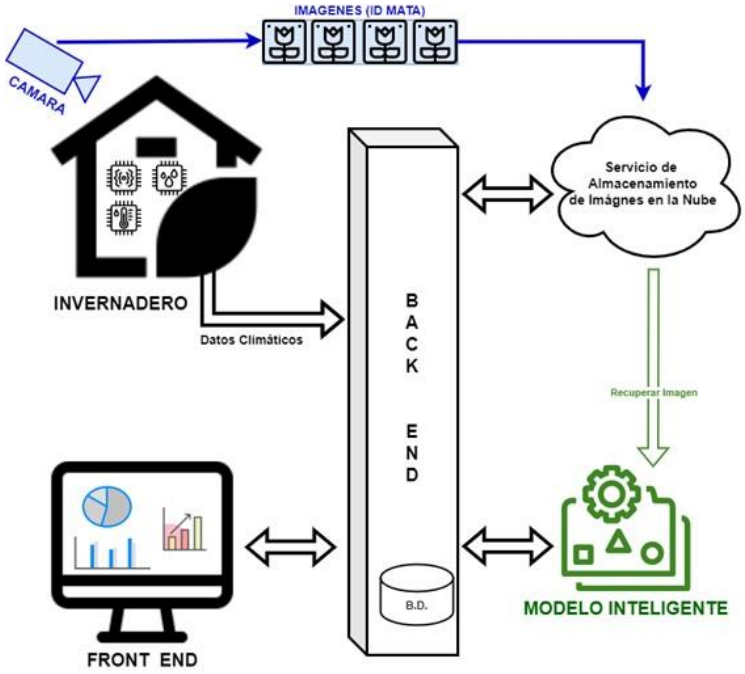
generation of the image database for the models, an activity of great importance for the software part of the system.

Entities participating in “SCAPI”

The project "Design and construction of a complex agronomic sensor for precision agriculture in greenhouses" is an industrial research initiative coordinated by onTech Innovation, the largest digital economy business organisation and the largest technology and biotechnology cluster in Andalusia.

The initiative is funded by the Ministry of Industry, Trade and Tourism of Spain, as part of the Recovery, Transformation and Resilience Plan, with Next Generation EU funds from the European Union. The most cutting-edge companies in the sector are participating in its development: Soltel, a company specialising in Information Technology with offices in Spain, Mexico and Colombia; Tecnova, the Technological Centre for the Auxiliary Industry, Post-harvest and Fruit and Vegetable Packaging based in Almeria; and Cenit, a strategic consultancy focused on modernisation, digital transformation of organisations and the governance of Artificial Intelligence.

SOME PICTURES...



AURORA PROJECT AT A GLANCE

Aurora project is implemented by the following partners:

Project Coordinator:

Lola NICOLAS
European Project Officer
Lola.Nicolas@pole-valorial.fr
+33 (0)6 75 38 05 11

Project Communication:

Christophe JAN
Communication & BI Manager
Christophe.Jan@pole-valorial.fr
+33 (0)6 42 97 92 92

Follow us on social media:

LinkedIn: Aurora Project Agrifood

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