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CT successfully concludes the development of a smart agriculture web application focused on citrus cultivation

- **After three years of research and development, CT has successfully concluded the DITIPO project, an R&D initiative whose objective is to monitor the condition of orange groves by applying multispectral technology installed in drones.**
- **During the last phase of the project, CT completed the planned development of the web application after the incorporation of new capacities and the evolution of existing ones, the quality control of the application and the precise tests to complete the verification and validation process.**

Madrid, July 27, 2020,- CT, a leading engineering company in technological innovation throughout the product life cycle, has successfully completed DITIPO, an R&D project dealing with precision agriculture. The project, in which a consortium made up of Spanish and South Korean entities collaborated, focused solely on the cultivation of citrus fruits and its operational environment covered both the agricultural operation and the classification line

The main objective of DITIPO has been to develop hardware tools (multispectral camera) and software that, together, are able to: monitor the state of the plantation, evaluate the production on the tree, decide the optimal time for harvesting, analyze and classify the fruit according to defects and classes defined by applicable international standards.

In order to achieve the above objectives, it was necessary to expand the range of study beyond the near infrared (NIR-SWIR) and to deepen the knowledge of the most common spectrum environments (VNIR and UV). Consequently, new indices, algorithms and applications were researched and developed.

CT, responsible for the software development, has created a secure, cost-effective and user-friendly web infrastructure for data analysis and decision support, capable of centralizing the management of the plantation, the UAV, the images, the algorithms, the indexes, the classification line, the processed information and the exploitation of results.

After the progress achieved in the second year, CT explored and implemented new capabilities: the administrator user is able to add new cameras to the list of sensors already available, export the mission data generated by the web application, in a format compatible with MAVlink and editable with tools such as MissionPlanner. In addition, the level of information available for mission planning was increased, thanks to the integration of NOTAM, meteorological and KP index data sources, and improvements were achieved in the diagnostic competence of the pre-harvest phase, thanks to the incorporation of a new plant index: the PLS Regression (Citrus) Nitrogen Stress Index. In addition, through the laboratory and field tests carried out, the confidence level of the Maturity Index (MI) was optimized.

It should be noted that the diagnostic strength of the system lies in the number of indices used, linked to the pre-harvest phase or the fruit directly, key quality indicators that were carefully studied and selected during the first and second year of the project.

After the completion of the quality control of the application and the execution of the identified corrective actions, the consortium assesses its commercial potential, which is framed within the concept of technical consultancy. Its main audience could be citrus-producing horticultural corporations/cooperatives and/or intermediary companies focused on the marketing of agricultural engineering services.

About Ditipo

Ditipo is an acronym for Development of ICT fusion information acquisition & processing technology of smart farm for production & distribution of oranges. The University of Cordoba and the South Korean entities LiFEnTech, the National Chungnam University of Daejeon City and the Master Institute of Technology are participating in the materialization of this project. The three-year project has the Eureka quality seal that supports significant projects that develop technologies of great importance for European competitiveness. This research project has been financed by the CDTI (Centro para el Desarrollo Tecnológico Industrial) within its bilateral call with South Korea.

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About CT

CT provides engineering services in the aeronautical, naval, automotive, rail, energy, industrial plants, architecture and construction sectors. CT covers the entire life cycle of the products, from product design engineering, manufacturing engineering to post-sales support engineering. CT has more than 1,700 employees and a network of offices in Spain, France, Germany, Portugal, the United Kingdom, India and Brazil. CT is a supplier of engineering services in design, manufacturing, assembly and maintenance phases for the civil and military sector. CT is the only Spanish supplier of product engineering (E2S) and manufacturing (ME3S) for Airbus in the world and a preferred supplier of engineering for Navantia. Other relevant works stand out, such as the participation of the CT Architecture division in the La Sagrada Familia project or the Automotive Engineering division in the Medina-Mecca AVE.

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