R&D PROJECT

COMSA INDUSTRIAL · IQS PERSONA CIENCIA EMPRESA UNIVERSITAT RAMON LLULL

BUSINESS AREA
Technical and Innovation R&D
Area COMSA INDUSTRIAL

DURATION
3/11/2021 al 30/11/2022

BUDGET
COMSA Industrial:
297.770 €

KEYWORDS
Electric towers, fires,
prediction, Machine Learning

COORDINATOR
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(COMSA Industrial)

UNIÓN EUROPEA

GOBIERNO DE ESPAÑA MINISTERIO DE ASUNTOS ECONÓMICOS Y TRANSFORMACIÓN DIGITAL · red.es

**Fondo Europeo de Desarrollo Regional
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CONVOCATORIA 2020
SOBRE DESARROLLO
TECNOLÓGICO BASADO
EN INTELIGENCIA ARTIFICIAL
Y OTRAS TECNOLOGÍAS
HABILITADORAS DIGITALES,
C007/20-ED

Title of the project

Artificial intelligence in cloud computing for the prevention of forest fires of electrical origin

Acronym

PREVIACC

Project Content

The project arises from the need to control the growth of vegetation around the electrical towers that transport high voltage electrical energy, since the uncontrolled growth of this is a significant risk of fires or other electrical accidents related to nature.

General objectives

To develop and validate a new method and autonomous system of high performance, low consumption and low cost to recognize and predict the vegetation levels around the electrical towers, as well as the mechanical stress and the deflection of the catenaries, by means of the analysis of images in real time and the use of Machine Learning algorithms.

Project phases

PT1 Development and verification of the artificial visit monitoring system.
PT2 Data transfer and storage in cloud applications.
PT3 Data acquisition, Machine Learning algorithm verification and model validation.

Results and conclusions

The main objective of this project was to develop a vegetation monitoring system for power lines that would allow detecting the growth of the thickness and the mechanical tension in the cables. The components of the device were carefully selected to guarantee its autonomy and resistance in adverse conditions, a software based on convolutional neural networks was developed to process the captured data and its effectiveness was verified through tests in real situations. The result was a model capable of reaching a 76.43% Intersection over Union (IoU) in the detection of vegetation. These advances can significantly contribute to the prevention of forest fires and improve the security of the electricity supply.