Smart security access for the Port of Bilbao

Objective: Use of artificial vision technology based on deep learning algorithms, applied to the real-time recognition of the signage of vehicles accessing the Port of Bilbao, for an automated access control.

Description: The digital transformation in ports entails the automation of their processes, in this case the automatic readings at the access to the port facilities, process managed by the Port Authority of Bilbao for the control of vehicles and goods accessing the port.

Using the same cameras already deployed today in the port, and thanks to Telefónica's network and Edge computing, where algorithms for artificial vision based on Deep learning are executed, more accurate real-time readings are achieved for number plates, dangerous goods plates and even the type of the vehicle accessing the port. This automatic process saves waiting times for vehicles at the access gate.

Deep Learning is a field of machine learning, based on deep neural networks. In the field of image recognition, these models can obtain greater precision and accuracy than even human vision. The use of edge computing provides great processing capacity in both execution and training of the AI models needed to carry out this use case. It also brings computing and storage capacity closer to customers facilities in multiple geographical areas, Bilbao city in this use case.

Two direct benefits for the Port Authority of Bilbao are obtained with this automatization:

- Optimization of the access process to the port facilities and improvement of the traceability processes involving the port authority as well as the other agents that are part of the operation activities of the port (consignees, terminal, customs). The solution implemented represents an estimated saving of 8,096 hours/year in vehicle and goods identification time at port access.

- Savings in CO2 emissions: by reducing the waiting times of vehicles, CO2 emissions are reduced, which are also higher when it comes to idling engines, thus aligning Bilbao Port with the new guidelines set by the EU for the reduction of pollutant emissions in the ports all across European Union. Estimated savings in CO2 emissions generated by land transport are 75,657 kg of CO2/year.

Press release
Smart Industry transformation handbook

Edge Computing   Baja Latencia   Machine learning

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