NetWorld2020 SME Working Group

SME Success Story - 2020

WINGS ICT Solutions

The WINGS success stories are related to the engagement in international cooperations, including H2020 and 5G-PPP projects. Through these activities, and especially, 5G-PPP, vertical solutions that leverage on advanced wireless technologies have been conceived, while contributions have been made for the development and validation of various technology components.

WINGS has success stories in all the main vertical areas that it addresses: utilities, food security, smart city applications, and industry / logistics.

Figure 1. WINGS Nb-IoT based device for enabling smart water management, consumption monitoring/predictions and fault management

In the area of **utilities**, WINGS has collaborated with OTE and is deploying smart water management solutions in the South of Greece (e.g., Argos/Peloponnese, and elsewhere). First emphasis is on industrial areas, while residential deployments are also underway. The solutions provide the means for monitoring and predicting consumptions, as well as faults that may occur in the utility networks. The technology foundation comprises IoT (Internet of Things) devices encompassing local intelligence, cloud-based AI (Artificial Intelligence) algorithms for predicting/reasoning, and advanced wireless networks. Communications rely, firstly, on Nb-IoT; more advanced **5G**-based versions are being prepared/trialled (esp. in testbeds, as those provided by **5G-EVE**), so as to prepare for augmented experience and fast actuation, in the presence of a massive volume of diverse devices.

In the area 5G-powered food security, WINGS started the work from **aquaculture** installations, based on its AQUAWINGS platform and the **5G-Heart** project. Use cases addressed are water quality monitoring, the assessment of the health of the production, and the optimization of the feeding. Monitoring relies on multiple sensors, video cameras and underwater drones. The higher the video quality, the faster and more robust the identification of diseases and the designation of mitigation actions. Moreover, underwater drones are essential for checking the quality of the farm cages. Video streaming and drone manipulation rely on **5G** (and on underwater cables).

Figure 2. Camera to be installed underwater, for monitoring the production, and to transmit through cabling and 4G/5G.

Instrumental for WINGS, for developing further competences and solutions for the **industry**/logistics case, is the **Clear-5G** project. Based on use cases from Taiwanese partners, specific robotic and advanced-wireless solutions have been developed, for automating factory floor tasks. The solution is validated based on proof of concept activities (a final phase, in Taiwan, will be pursued with some delay, caused by the COVID-19-induced bans) and based on simulation (for considering larger production lines). Finally, through **5G-Tours** WINGS will enhance the **smart city** applications portfolio. WINGS will deploy a smart-parking and passenger security (evacuation) solution for the Athens International Airport. Moreover, there will be AR/VR applications targeted to high-school students, for the culture, tourism and safety fields, in cooperation with the partner institution EA (link, private institution providing primary, high-school and lyceum level education).

WINGS is honoured to be part of the journey of shaping emerging and future networking / cloud / application technologies, in cooperation with its partners, including world renowned multi-nationals, for the benefit of the European industry and citizen, while also having an eye to the world.