

## NetworldEurope SME Working Group

### SME Success Story – October 2022



#### 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: environment, utilities & infrastructures, production systems, and service sectors.

#### AIRWINGS. Environment and Citizen Protection / Air quality management.

In the area of **environment**, **AIRWINGS** was enhanced **5G-EVE<sup>1</sup> project**. As a result, WINGS is deploying its **air quality monitoring solution at the forests of Volos city and Alonissos island**, in Central Greece. WINGS ICT Solutions was awarded contracts, following respective tenders, for delivering early fire detection systems in the forests of Volos and Alonissos, in Greece. The intelligent fire detection system will be installed by WINGS, in executing these contracts, in selected spots of the forests of Alonissos and Volos. The system will deliver early warnings regarding the emergence of fires, based on advanced IoT (including cameras) and telecommunications technologies, and based on AI (Artificial Intelligence) powered algorithms. Sensing information (images and others) will be processed, analyzed and evaluated for detecting hazardous phenomena. Alerts to control centres and authorities will be issued.



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**Στην WINGS ICT Solutions ανατέθηκαν έργα για την πυρανίχνευση στα δάση Βόλου και Αλοννήσου**

Ανάδοχος των συμβάσεων για την εκτέλεση του κρίσιμου έργου της έγκαιρης πυρανίχνευσης των δασών του Βόλου και της Αλοννήσου αναδείχθηκε, κατόπιν αντιστοίχων διαγωνισμών, η WINGS. Το ολοκληρωμένο ευφυές σύστημα πυρανίχνευσης που θα εγκατασταθεί από την WINGS σε εκτέλεση των συμβάσεων θα συμβάλει στην αντιμετώπιση των πυρκαγιών που θέτουν σε κίνδυνο τα δάση των δόλων.

Πιο συγκεκριμένα θα τοποθετηθούν περατροφερόμενες κάμερες μέσα στα δάση του Δήμου Αλοννήσου και του Δήμου Βόλου αντίστοιχα, που αποτελούν μέρος της λύσης AIRWINGS της WINGS ICT Solutions που αξιοποιεί τις πλέον προηγμένες τεχνολογίες IoT, τηλεπικοινωνιών και τεχνητής νοημοσύνης για να συγκεντρώσει εικόνες από κάμερες στα σημεία ενδιαφέροντος, να επεξεργαστεί, αναλύσει, αξιολογήσει και να ανιχνεύσει έγκαιρα επικίνδυνα φαινόμενα όπως καπνός ή φλόγα και στη συνέχεια να ειδοποιεί το κέντρο ελέγχου και τις αρμόδιες υπηρεσίες.

Η WINGS ICT Solutions με γνώμονα την προστασία των δασών και του φυσικού πλούτου της ελληνικής επικράτειας, ανέπτυξε έξυπνο σύστημα για την πρόληψη πυρκαγιών και την παρακολούθηση των δασών. Με εργασία τελευταίας τεχνολογίας όπως τεχνητές Νοημοσύνης, κάμερες, αισθητήρες IoT, το σύστημα AIRWINGS αποτελεί σημαντικό όπλο στην έγκαιρη ανίχνευση επικινδύνων φαινομένων όπως καπνός ή φλόγα, για την προστασία των δασών, την αποφυγή και καλύτερη απόκριση σε πυρκαγιές.

Μέσω των αισθητήρων και των καμερών του συστήματος λαμβάνονται σε πραγματικό χρόνο μετρήσεις και εικόνες του δάσους και αποστέλλονται σε λογισμικό όπου πραγματοποιούνται αναλύσεις των εικόνων και δεδομένων βάσει προηγμένων αλγορίθμων τεχνητής νοημοσύνης. Με αυτόν τον τρόπο, οι αρμόδιες φορείς ενημερώνονται ζωντανά για την κατάσταση των δασών, επιτρέπουν την πραγματική εικόνα και λαμβάνουν έγκαιρες ειδοποιήσεις σε ύπνοτα συμβάντα όπως ανάχνευση καπνού.

Τη σημερινή εποχή της κλιματικής κρίσης, που η θερμοκρασία ανεβαίνει συνεχώς, την Ήρασία και μειωμένη υγρασία κατά τους καλοκαιρινούς μήνες οι πυρκαγιές βρίσκουν εύφορο έδαφος καταστρέφοντας ολοένα και μεγαλύτερο μέρος των δασών. Με την χρήση προηγμένων τεχνολογικών μέσων, το σύστημα AIRWINGS μπορεί να αποτρέψει μεγάλες φυσικές καταστροφές και να βοηθήσει στην ευμερλία των δασικών οικοσυστημάτων και γενικότερα των ανθρώπων και του πλανήτη.

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Figure 1: Article on AIRWINGS deployments in Volos and Alonnisos (in Greek)

<sup>1</sup> H2020-ICT-2018-20 5G-EVE, <https://www.5g-eve.eu/>

**ARTEMIS. WINGS** awarded with the first prize, in the competition of the “Athens Water Supply and Sewerage Company” (EYDAP).

In the area of **utilities & infrastructures**, WINGS has further developed its **water management solution by developing algorithms that can accurately predict and indicate faulty / defective water meters, engaged in**



Figure 2: The First Prize Award Ceremony from the Athens Water Supply and Sewerage Company

**the respective smart gateways which were also validated, in the context of the 5G-EVE project.** As an outcome, we are proud and honored to have been awarded with the first prize, in the competition of the “Athens Water Supply and Sewerage Company” (EYDAP), which was administered in conjunction with MITEF (MIT Enterprise Forum) and HCAP (Hellenic Corporation of Assets and Participations).

**WINGSPARK** converts the Space of the Old Municipal Market of Lamia to a Modern Parking Lot.

In the area of **utilities & infrastructures**, WINGSPARK was enhanced in the context of 5G-TOURS<sup>2</sup>. As a result, WINGS deployed its smart parking solution at a municipality in Central Greece. The WINGSPARK solution provides the means for effective real-time

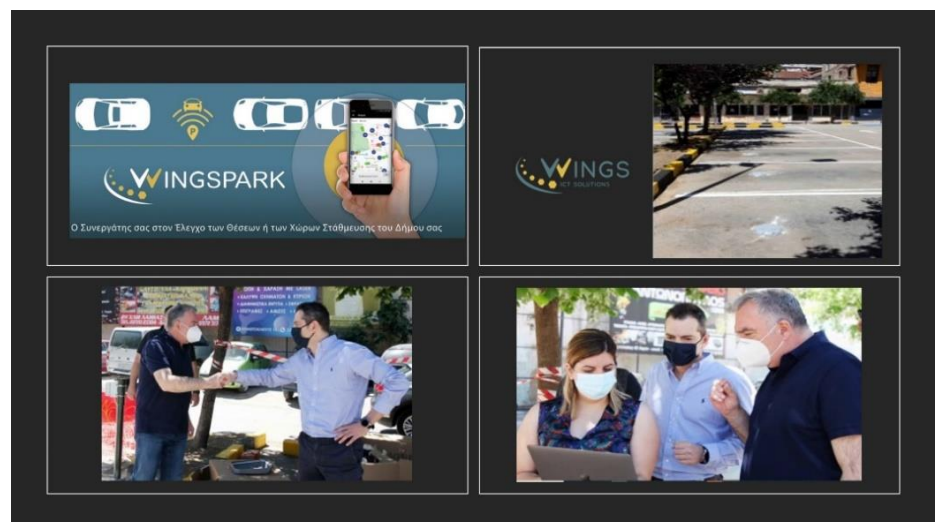


Figure 3: WINGS Smart Parking device deployment in Lamia, Central Greece

monitoring and management of on-street parking slots, and municipal as well as private parking lots. WINGSPARK now improves the convenience and efficiency for the citizens of Lamia, by converting the Space of the Old Municipal Market to a Modern Parking Lot. The system will monitor the parking infrastructure, in order to enable the acquisition of insights, the realization of predictions, and the derivation of parking instructions/policies. In this way, there will be the minimization of crucial factors, like delays and the environmental impact, in conjunction with the optimization of the accessibility of the market and of the experience of the visitors. The WINGS platform relies on AI-powered knowledge generation mechanisms and

<sup>2</sup> H2020-ICT-2018-20 5G-TOURS, <https://5gtours.eu/>

on a set of parking sensors, capable of operating with NB-IoT and other protocols of the 5G family. At a next phase drivers will be provided with an application to direct them to the parking spot.

**Further exciting projects in the area of transportation and smart mobility are about to begin.**

### AQUAWINGS installation in Epidaurus.

In the area **production systems**, 5G enabled the enhancement of the WINGS offering in **aquaculture**, namely the capabilities of the AQUAWINGS platform, through the **5G-Heart<sup>3</sup>** and **UNITED<sup>4</sup>** project. AQUAWINGS device was installed for video streaming in the area of



Figure 4: AQUAWINGS Epidaurus deployment

Epidaurus in Selonda Bay, Greece. AQUAWINGS delivers sustainable aquaculture and manages aquatic ecosystems, at large, powered by IoT, 5G and AI. AQUAWINGS innovates through real-time data from underwater cameras and sensors, and AI-powered algorithms that give unprecedented insights, such as biomass estimation, feeding optimization, fish wellness and disease detection and more. The adoption of advanced technologies in the field of fish farming, such as the application AQUAWINGS of WINGS ICT Solutions, can optimize the daily life of fish farmers. We are currently progressing further deployments in more places.

### AGNES. Installation of AGNES components in a cotton field in the Larissa region.

AGNES was enhanced by extending our work in **5G-Heart** project, as well as in the context of the Projects **SOILGUARD<sup>5</sup>** and **DiTECT<sup>6</sup>** (blockchain)innovates through real time data from heterogeneous sensors (soil, meteorological) and AI-powered algorithms that enable the farmer to optimize the irrigation, in



Figure 5: AGNES deployment in Larissa, Central Greece

<sup>3</sup> H2020-ICT-2018-20 5G-HEART, <https://5gheart.org/>

<sup>4</sup> H2020-BG-2018-2020 UNITED, <https://www.h2020united.eu/>

<sup>5</sup> H2020-SFS-2018-2020 SOILGUARD, <https://soilguard-h2020.eu/>

<sup>6</sup> H2020-SFS-2018-2020 DiTECT, <https://ditect.eu/>



terms of water saving and optimal plant growth. As a result, WINGS completed a reference installation of AGNES components in a cotton field in the Larissa region, which is a particularly demanding area as it faces serious problems of water scarcity.

### WINGSChariot platform.

WINGSChariot enhances automation and provides intelligence, to increase efficiency and reduce costs in Industry 4.0 sites, logistics warehouses and smart transportation. Moreover, WINGSChariot provides means for cleaner, secure/safe and trustworthy freight transportation over EU corridors, in an end-to-end, integrated fashion, leveraging on our experience and work through



Figure 6: WINGSChariot overview

**VITAL-5G<sup>7</sup> Project.** We continue to add new features and enrich our solutions with key technological tools and services that are competitive advantages of our WINGSChariot product. Moreover, in the context of the Project **AI-PRISM<sup>8</sup>** WINGS has started collaborating with **Athens Brewery**. Further exciting projects in the context of **beer industry and fish transfer** are about to begin.

**STARLIT.** WINGS platform was enhanced through the project 5G-TOURS and has developed further strategic partnerships towards commercial exploitation. Moreover, through **TRIALSNET project**, WINGS will develop and experiment with B5G/6G-powered applications in the areas of (a) mobility / transportation infrastructure management and (b) health and wellness.

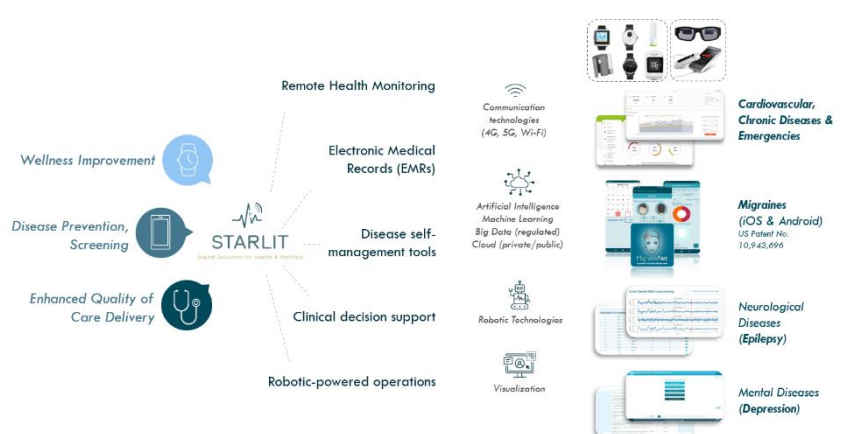


Figure 7: WINGS offering through STARLIT platform

<sup>7</sup> H2020-ICT-18-2018 VITAL-5G, <https://www.vital5g.eu/>

<sup>8</sup> HORIZON-CL4-2021 AI-PRISM