



Unmanned Aerial Vehicle Vertical Applications' Trials Leveraging Advanced 5G Facilities

ISSUE HIGHLIGHTS

The third issue of the 5G!Drones newsletter presents the project activities during the period December 2019 - February 2020. This issue focuses on the latest 5G!Drones dissemination and communication activities, the use cases defined in D1.1, the deliverables that have been published as well as the general assembly meeting details.

5G!Drones activities in numbers:

- Three Presentations
- One Journal paper
- Two articles
- One Poster session and Two Panel Participations
- Two Deliverables
- One General Assembly Meeting

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DISSEMINATION AND COMMUNICATION ACTIVITIES

PRESENTATIONS

5GENESIS GA MEETING (26-28/11/2019, BERLIN, GERMANY)

Dr. Harilaos Koumaras (NCSR Demokritos) during the 6th 5GENESIS GA meeting at Fraunhofer FOKUS in Berlin, presented 5G!Drones project explaining how 5GDrones will use the 5GENESIS Athens 5G experimental platform



Dr. Harilaos Koumaras presenting 5G!Drones at 5GENESIS GA Meeting

PRINSE'20 (29/01/2020, OULU, FINLAND)

Juha Hannula (NOKIA) presented 5G!Drones at Session 1: Opening and Keynotes at Prinse'20, 29/01/2020, Oulu, Finland.

Additional information is available at:

<https://www.printocent.net/tapahtumat/prinse20-printocent-industry-seminar/#areas>



AIX & FCAO EVENT (06/02/20, TAMPERE, FINLAND)

5G!Drones partner Robots Expert had the opportunity to present the use case of detection of wildfire using 5G network and drones at the AIX & FCAO Event (06/02/2020) at Tampere, Finland. During the presentation, Robots Expert talked about 5GDrones project in the slide deck.



Robots Expert at the AIX & FCAO Event

PAPERS

A Eurecom journal paper entitled "Towards Slicing-Enabled Multi-Access Edge Computing in 5G" has been accepted for publication in IEEE Network Magazine. Read the paper via the official website at:

<https://5gdrones.eu/wp-content/uploads/2020/01/Towards-Slicing-Enabled-Multi-Access-Edge-Computing-in-5G.pdf>



ARTICLES

Adlen Ksentini (Eurecom) was interviewed by IMT (Institut Mines Telecom) and talked about drones and 5G in the interview entitled "Les drones à l'épreuve de la 5G." The interview can be found at <https://blogrecherche.wp.imt.fr/2020/02/19/les-drones-a-lepreuve-de-la-5g/>





A news article on 5G!Drones presentation during the 6th 5GENESIS GA meeting at Fraunhofer FOKUS in Berlin, is available at the 5GENESIS website under News section. More details are available at <https://5genesis.eu/6th-5genesis-ga-meeting-presentation-of-ict-19-5gdrones-project/>

PANEL PARTICIPATIONS AND POSTER SESSION

EASA TECHNICAL WORKSHOP (5-6/12/2019, AMSTERDAM)

5G!Drones partners DroneRadar & Frequentis participated at a panel discussion, at the EASA Technical workshop on U-Space services of the High Level Conference on Drones (Drone week) in Amsterdam on 5-6/12/2019, presenting innovative ideas of the synergy between UTM and 5G network and their applicability to 5G!Drones corresponding use cases.



DroneRadar and Frequentis
at EASA

FINNISH SATELLITE WORKSHOP AND REMOTE SENSING DAYS (20-22/01/20, HELSINKI, FINLAND)

Mika Jarvenpaa (Nokia) participated at the Finnish Satellite Workshop and Remote Sensing Days 2020(20-22/01/20, Helsinki, Finland) with a 5G!Drones project poster and a panel participation.

Read more at: <https://spaceworkshop.fi>



Mika Jarvenpaa (Nokia) at the
Finnish Satellite Workshop and
Remote Sensing Days

AERCOMM WORKSHOP AND IEEE WCNC 2020 ARE POSTPONED

IEEE COMSOC has announced the postponement of WCNC 2020 (6-9 April 2020, Seoul) to a later date due to the developing Coronavirus outbreak. Consequently, also the Aerial Communications in 5G and Beyond Networks (AERCOMM) workshop co-organized by 5G!Drones and EU-Korea PriMO-5G project, co-located with IEEE WCNC 2020, is also postponed.

Updates on new date and potentially new location will be shared as soon such information is available.



USE CASES

The 5G!Drones project has identified four broad UAV-based use case categories that would benefit from the large-scale deployment of 5G networks. Within each of the four 5G!Drones use cases, the 5G!Drones project has determined twelve scenarios (including three sub-scenarios) as candidates to be trialed over the available 5G test facilities for testing and validating 5G KPIs with drones.

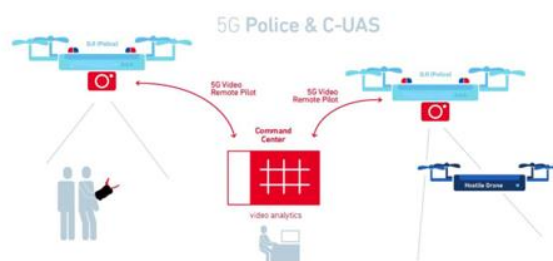
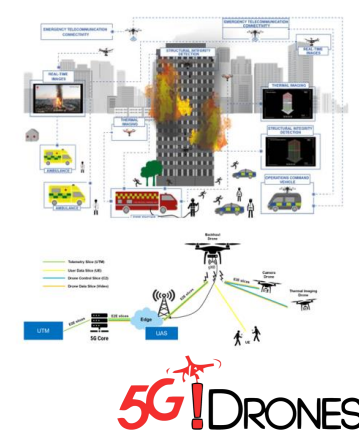
1ST USE CASE

The first use case of the 5G!Drones project is based on UAV traffic management. Its first scenario aims to demonstrate a UAV traffic command and control application, which will manage a certain number of flying drones. The second scenario of the UAV traffic management use case is the 3D mapping and supporting visualization/analysis software for UTM. In this scenario, a set of new technologies will be used for visualizing the real time operation of drone fleets. The third scenario of the UAV traffic management use case is UAV logistics. The purpose of this scenario is to demonstrate how UAVs through 5G network capabilities can provide logistics solutions



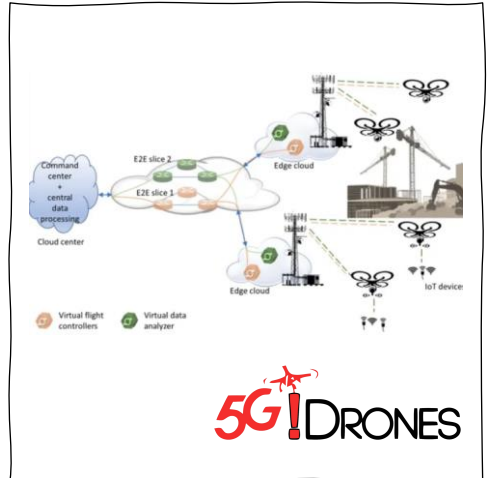
2ND USE CASE

The second 5G!Drones use case is based on public safety/saving lives. The first scenario on this use case is monitoring a wildfire. Drones can play significant roles in this type of scenario when integrated into fire fighters communication system. The second scenario of the public safety/saving lives use case is the disaster recovery. The purpose of this scenario is to demonstrate how UAVs through 5G network capabilities can help first response teams during disaster situations such as fires, earthquakes, flooding among others. The third scenario of the public safety use case is 5G-Police and C-UAS. The purpose of this scenario is to demonstrate how a remotely piloted UAV and video analytics can be used for police tasks, including C-UAS activities using 5G communication.



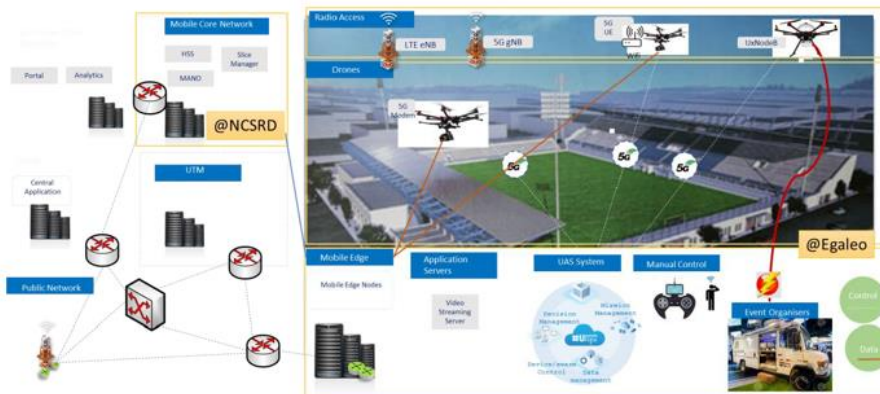
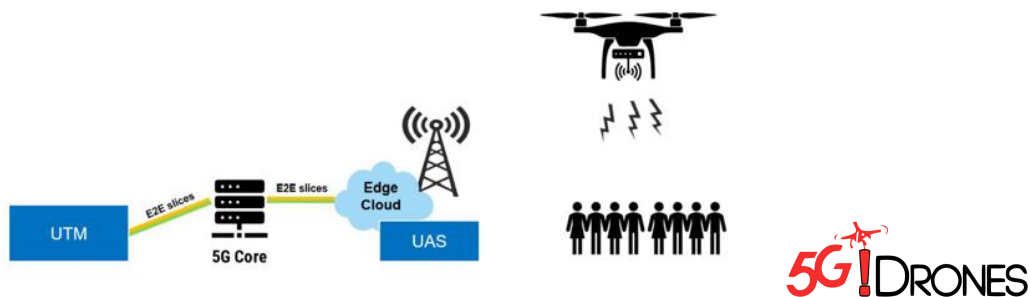
3RD USE CASE

The third 5G!Drones use case is situation awareness. The first scenario of this use case is the infrastructure inspection. When the 5G signal drops significantly due to various obstructions then base stations in 3D need to be planned for best 5G coverage. The second scenario of the Situation awareness use case is the UAV-based IoT data collection in which drones will be used to collect IoT data from height. This will be performed by the IoT devices which will be on-board of the drones. The third scenario of the Situation awareness use case is Location in non-GPS environments. This scenario is created for the UAV positioning needs when the GPS or Global Navigation Satellite System (GNSS) are not available or there is interference due to nearby high buildings/obstacles.



4RTH USE CASE

The fourth 5G!Drones use case is the “Connectivity during crowded events” offering connectivity extension and offloading. The purpose of this scenario is to demonstrate how UAVs through 5G network capabilities can improve connectivity services in a highly crowded environment e.g. during large events.





DELIVERABLES

Two deliverables have been submitted to EC during the period December 2019 - February 2020:

D1.3 5G!Drones system architecture initial design: First version of the 5G Architecture which will be used for 5G!Drones trials of use cases.

D4.1 Integration plan: This deliverable presents a guide for integrating all architecture and use case components into the full 5G!Drones system over the selected 5G facilities.

UPCOMING 5G!DRONES DELIVERABLES

D1.4 Report on UAV business and regulatory ecosystem and the role of 5G: This deliverable presents a report which contains a high level analysis of the UAV market, business and legal ecosystem within the newly formed 5G environment.

D1.5 Description of the 5G trial facilities and use case mapping: This is an updated report (release B) which contains a detailed description of the supported features and identified requirements of 5G test sites to deploy 5G!Drones, as well as a mapping of use case components.

D2.1 Initial definition of the trial controller architecture, mechanisms, and APIs: This deliverable contains the detailed architecture of the trial controller, including the trial execution and management API definitions.

D6.1 Annual Report year 1: This is project's annual report which describes the state of the project and the administrative details.

READ OUR DELIVERABLES

If you wish to learn more on the 5G!Drones deliverables you may visit the official 5G!Drones website on the corresponding Deliverables page <https://5gdrones.eu/deliverables/>





GENERAL ASSEMBLY MEETING

The 3rd GA meeting of 5G!Drones was organized in Eurecom premises, in Sophia-Antipolis, France at 28-30 of January 2020. Representatives of 5G!Drones partners met and worked together to set the project plans and actions for the next period. The GA's Meeting Agenda included presentations, discussions as well as planning of the next actions that will take place over the coming months.



5G!Drones partners at the Eurecom premises, Sophia Antipolis, France

The next GA meeting will be hosted by Frequentis in Vienna, Austria at 25-26 May 2020.



5G!Drones 3rd GA meeting at Eurecom premises, Sophia-Antipolis, France



Communication Channels



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Topic: ICT-19-2019
Type of action: R&I
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Start date: 1/6/2019