



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

ISSUE HIGHLIGHTS

The 10th issue of the 5G!Drones newsletter presents the project activities during the period September - November 2021. This issue focuses on the latest 5G!Drones dissemination and communication activities, the trials performed, the upcoming deliverables, as well as the latest GA meeting.

5G!Drones activities in numbers:

- 8 Journal-Conference Papers
- 1 White Paper
- 6 Presentations
- 3 Panel Discussion
- 1 Trial Video
- 1 Demo in the Smart City Expo World Congress
- 1 3-days Trial in OULU University
- 2 5G-PPP Activities
- 3 Upcoming Deliverables
- 8th 5G!Drones General Assembly

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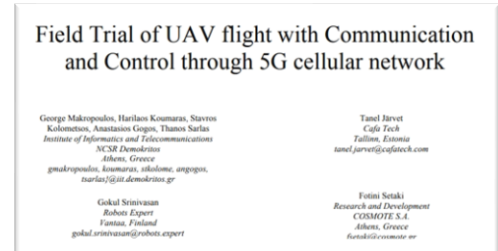


DISSEMINATION AND COMMUNICATION ACTIVITIES

JOURNAL AND CONFERENCE PAPERS

5G!Drones' partners, *Georgios Makropoulos, Harilaos Koumaras, Stavros Kolometsos, Anastasios Gogos and Thanos Sarlas (NCSR Demokritos, Greece); Tanel Järvet (CAFA Tech Ltd, Estonia); Gokul Srinivasan (Robots Expert, Finland); Fotini Setaki (COSMOTE Mobile Telecommunications S.A. Greece, Greece)*, released a conference paper entitled **"Field Trial of UAV flight with Communication and Control through 5G cellular network"** in the context of IEEE MeditCom 2021 which took place on 7-10 September 2021. You may access the paper online here:

<https://5gdrones.eu/wp-content/uploads/2021/09/m19816-makropoulos.pdf>



5G!Drones' partners, *Dimitrios Fragkos and Georgios Makropoulos (NCSR Demokritos, Greece); Panteleimon Sarantos (National Centre of Scientific Research, Greece); Harilaos Koumaras (NCSR Demokritos, Greece); Anastasios-Stavros Charismiadis (National And Kapodistrian University of Athens, Greece); Dimitris Tsolkas (Fogus Innovations and Services, Greece)*, released a conference paper entitled **"5G Vertical Application Enablers Implementation Challenges and Perspectives"** in the context of IEEE MeditCom 2021, on 7-10 september 2021. You may find the paper online here:

<https://5gdrones.eu/wp-content/uploads/2021/09/m15967-fragkos.pdf>

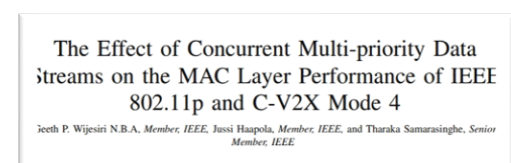


5G!Drones' partners, *Panos Matzakos (EURECOM, France); Harilaos Koumaras (NCSR Demokritos, Greece); Dimitris Tsolkas (Fogus Innovations and Services, Greece); Maria Christopoulou and George K Xilouris (NCSR Demokritos, Greece); Florian Kaltenberger (Eurecom, France)*, released a conference paper entitled **"An open source 5G experimentation testbed"** in the context of IEEE MeditCom 2021, on 7-10 September 2021. You may access the paper online here:

<https://meditcom2021.ieee-meditcom.org/program/demos/>

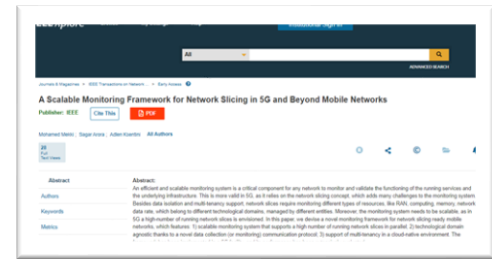


5G!Drones' partners, *G. P. Wijesiri N.B.A, J. Haapola and T. Samarasinghe*, published a research paper entitled **"The Effect of Concurrent Multi-priority Data Streams on the MAC Layer Performance of IEEE 802.11p and C-V2X Mode 4,"** in IEEE Transactions on Communications, You may find the paper in the parallel publishing repository, here: <http://jultika.oulu.fi/Record/nbnfi-fe2021102252047>





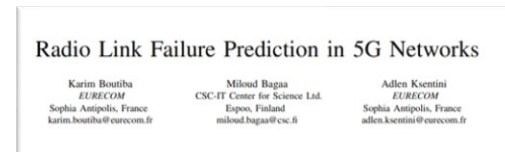
5G!Drones' partners, Mohamed Mekki, Sagar Arora, and Adlen Ksentini, published a research paper entitled **"A Scalable Monitoring Framework for Network Slicing in 5G and Beyond Mobile Networks"** in IEEE Transactions on Network and Service Management (TNSM), on 12th of October. You may find the paper here: <https://ieeexplore.ieee.org/document/9568642>



5G!Drones' partners, Karim Boutibaa, Adlen Ksentini, Bouziane Brikb, Yacine Challal, Amar Ballac, published a research paper entitled **"NRflex: Enforcing Network Slicing in 5G New Radio"** in the Computer Communications journal. You may access the paper here: <https://www.sciencedirect.com/science/article/pii/S0140366421003716>



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Karim Boutiba, Miloud Bagaa and Adlen Ksentini, 5G!Drones partners submitted (and was accepted) a paper entitled **"Radio Link Failure Prediction in 5G Networks"** for the GLOBECOM that takes place on 7-11 December 2021, in Madrid, Spain.



WHITE PAPERS

The "View on 5G Architecture" #4 5GPPP white paper has been released with 5G!Drones cotributions. You may access it online here: <https://5g-ppp.eu/5g-ppp-architecture-working-group-view-on-5g-architecture-4/>

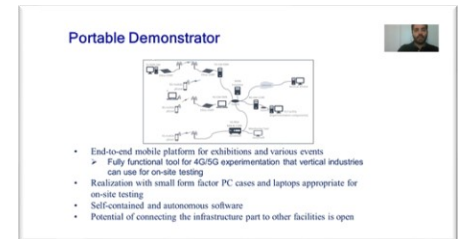




PRESENTATIONS

"5G VERTICAL APPLICATION ENABLERS IMPLEMENTATION CHALLENGES AND PERSPECTIVES" PAPER PRESENTATION

5G!Drones partner, *Dimitrios Fragkos (NCSR "DEMOKRITOS")*, presented the conference paper entitled **"5G Vertical Application Enablers Implementation Challenges and Perspectives"** on the context of IEEE MeditCom 2021, which took place in Athens, on 7-10 September 2021. You may learn more about the respective demo session here: <https://meditcom2021.ieee-meditcom.org/program/special-sessions>



"FIELD TRIAL OF UAV FLIGHT WITH COMMUNICATION AND CONTROL THROUGH 5G CELLULAR NETWORK" PAPER PRESENTATION

5G!Drones partner, *George Makropoulos (NCSR "DEMOKRITOS")*, presented the conference paper entitled **"Field Trial of UAV flight with Communication and Control through 5G cellular network"** on the context of IEEE MeditCom 2021, which took place in Athens, on 7-10 September 2021. You may find more information about the event here: <https://meditcom2021.ieee-meditcom.org/>



"AN OPEN SOURCE 5G EXPERIMENTATION TESTBED" PAPER PRESENTATION

5G!Drones partner, *Panos Matzakos (EURECOM)*, presented the conference paper entitled **"An open source 5G experimentation testbed"** on the context of IEEE MeditCom 2021, which took place in Athens, on 7-10 September 2021. You may learn more about the respective demo session here: <https://meditcom2021.ieee-meditcom.org/program/special-sessions>



26TH FINNISH NATIONAL CONFERENCE ON TELEMEDICINE AND EHEALTH PRESENTATION

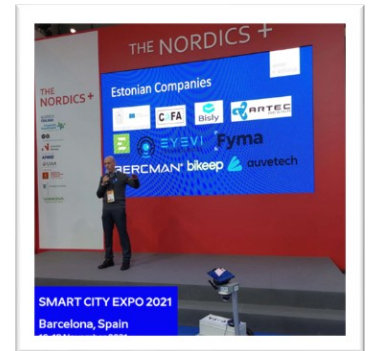
The NOKIA team, 5G!Drones partner, presented during the 26th Finnish National Conference on Telemedicine and eHealth, the role of telcos and latest technologies in eHealth. The presentation entitled **"Telco shaking hands with eHealth"** featured also 5G!Drones and it was conducted by Liinamaa Olli, Hannula Juha and Jyrkkä Johannes. You may learn more about the event here: <https://www.telemedicine.fi/en/national-conferences/ehealth2021-international-conference-2021>





SMART CITY EXPO WORLD CONGRESS

Tanel Järvet (CAFA) participated in a panel discussion, moderated by the TalTech - Tallinn University of Technology Smart City Centre of Excellence and featuring CAFA Tech, Fyma and Envelope, during the Smart City Expo World Congress where aspects and results of the 5G!Drones project and its use cases were also discussed and presented. You may learn more about the event here: <https://www.smartcityexpo.com/agenda/?type=scewc-digital>



5GTECHRITORY PRESENTATION

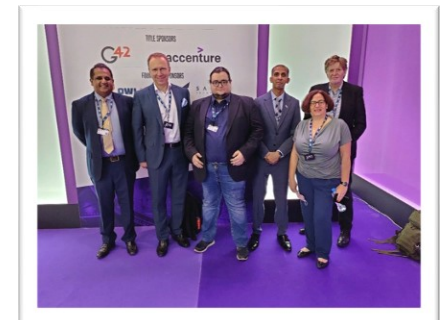
5G!Drones partner, Srinivasan Gokul (RXB) participated and presented 5G!Drones Architecture and Use Cases, at 5G Techritory - Europe's Leading 5G Ecosystem Forum, which took place at November 22-25, 2021. You may learn more about the event here: <https://live.5gtechritory.com/agenda>



PANEL DISCUSSIONS

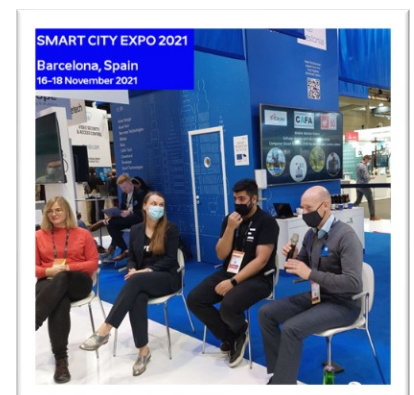
DUBAI AIRSHOW

5G!Drones partner Gokul Srinivasan (robots.expert) presented the 5G attributes in the context of UAVs and 5G!Drones in a panel discussion of the Dubai Airshow. You may find more information about the event and the registration form, here: <https://www.dubaiairshow.aero/>



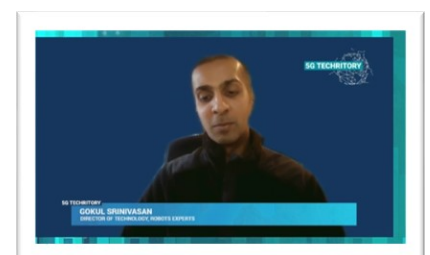
SMART CITY EXPO WORLD CONGRESS

Tanel Järvet (CAFA) participated in a panel discussion, Moderated by the TalTech - Tallinn University of Technology Smart City Centre of Excellence and featuring CAFA Tech, Fyma and Envelope, during the Smart City Expo World Congress where aspects and results of the 5G!Drones project and its use cases were also discussed and presented.



5GTECHRITORY

During 5G Techritory, 5G!Drones partner Srinivasan Gokul from Robotics Experts, participated in a panel discussion discussing aspects related to 5G, UAVs and 5G!Drones use cases.





TRIALS VIDEO

5G!Drones partners NCSR "DEMOKRITOS" and COSMOTE conducted UAV trials in the COSMOTE Academy premises in Athens earlier this summer. The trials took place on the context of Use Case 4. You may watch the video on 5G!Drones official Youtube channel here:

<https://www.youtube.com/watch?v=7Dj3ehOxQog>



SMART CITY EXPO WORLD CONGRESS DEMO

CAFA Tech, 5G!Drones partner, participated in the Estonian Joint Stand at the Smart City Expo World Congress in Barcelona, which took place on November 16th -18th . More than 400 companies were represented at the fair, introducing innovative solutions to create a better urban life for people and enable more efficient and inclusive urban services. CAFA tech presented the CAFA Worker robot and the 5G cellular drone at the fair and introduced 5G!Drones project and its initial results. More information available here:

<https://www.smartcityexpo.com/agenda/?type=scewc-digital>

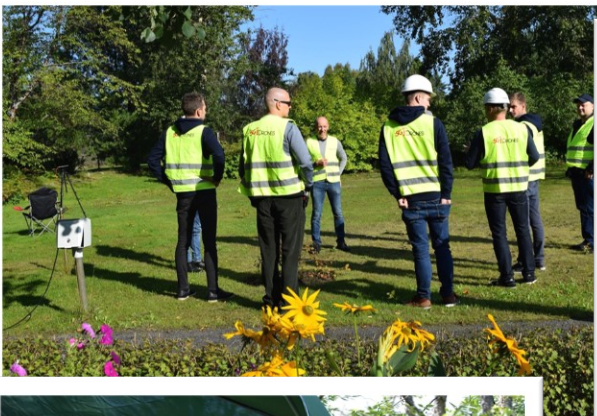




TRIALS

OULU UNIVERSITY TRIALS

5G!Drones partners University of Oulu, Nokia, CAFA Tech, Hepta and Alerion with the remote participation of Drone Radar, INVOLI and Frequentis conducted trials at Oulu, Finland on 24-26 August 2021. Integration Rel.1 tests in Oulu (Webportal1 and UO WebPortal2 components). Setting up and testing 5G network coverage and Edge server solutions in Botanical Garden area. 4 operators connecting to the network and sharing the 5G network and the airspace, video streaming over 5G for near real-time search, UTM over 5G, C2 link over 5G, and several other system critical functionalities were tested.





5G-PPP ACTIVITIES

NEWSLETTER ISSUE

The latest Newsletter Issue, #25 for July-August 2021, of the 5g-ppp is available at the 5g-ppp website:
<https://5g-ppp.eu/newsletter-25-july-august-2021/>

NEWSFLASH ISSUES

The latest newsflashes issues of the 5g-ppp are available here:

- Newsflash Issue 63 (August 2021): <https://5g-ppp.eu/newsflash-august-2021/>

You may also read about the latest 5GPPP upcoming events here:
<https://5g-ppp.eu/event-calendar/>

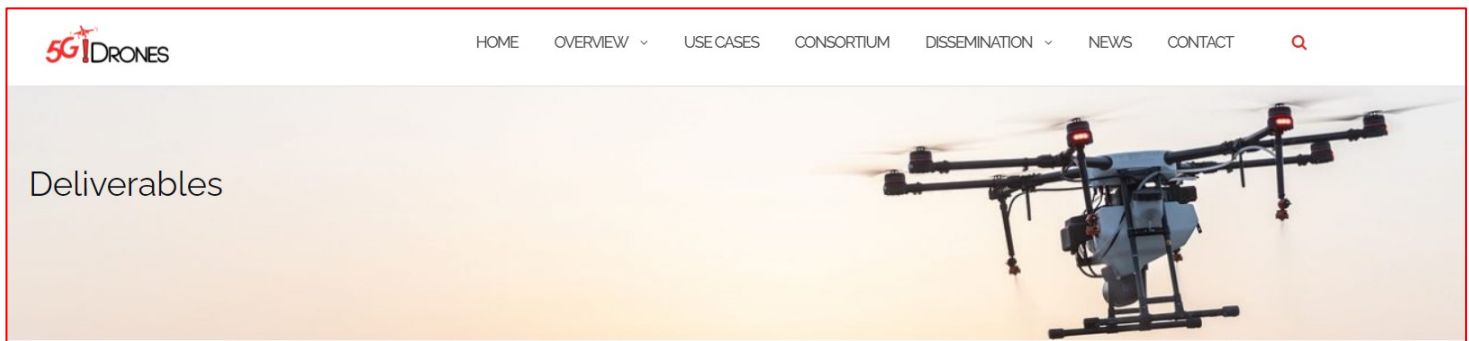




UPCOMING DELIVERABLES

D2.5 Trial controller software final release - M33: This deliverable will provide the full implementation of the trial controller to be used in the trials.

D2.6 Data analysis and visualisation software implementation - M33: This deliverable is regarding the software that will be used in WP4 for data analysis and visualisation.



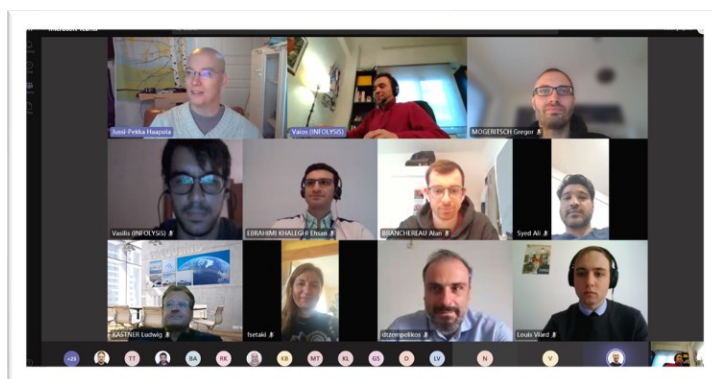
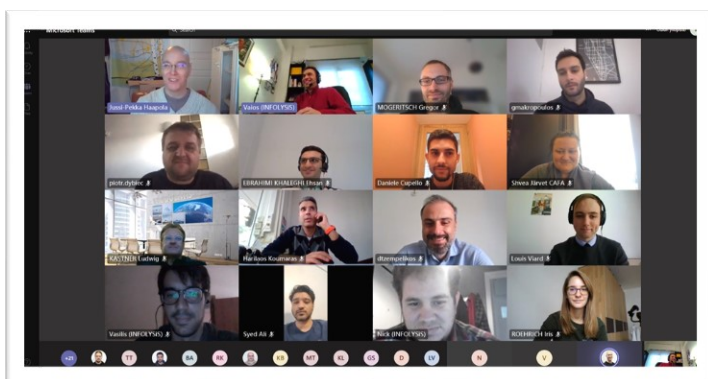
If you wish to learn more about the submitted and upcoming deliverables of 5G!Drones, you may visit the official website on the corresponding deliverables' page, using the following link: <https://5gdrones.eu/deliverables/>





8TH 5G!Drones GENERAL ASSEMBLY (22-23 NOVEMBER 2021)

The 8th 5G!Drones GA plenary meeting was organised remotely due to safety restrictions that apply worldwide for covid-19 precautions! This virtual GA meeting run for 2 days on 22-23 November 2021 enabling discussion about the project' progress, latest review comments, WPs/tasks latest activities, the upcoming deliverables, the use cases and trials as well as the new goals to be met over the next period.



Communication Channels



<https://5gdrones.eu/>

e-mail: info@5gdrones.eu



This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 857031

Call: H2020-ICT-2018-2
Topic: ICT-19-2019
Type of action: R&I
Duration: 42 Months
Start date: 1/6/2019