



European
Commission

Horizon 2020
European Union funding
for Research & Innovation

5GENESIS Newsletter – Final Issue

October - December 2021 - Issue 14

5GENESIS website: www.5genesis.eu/

INSIDE THIS ISSUE

1. 5GENESIS Overview
2. Dissemination and Communication Activities
3. Demonstrations
4. 5G PPP Activities
5. Deliverables
6. Last General Assembly Meeting



5GENESIS Project Overview

The 14th issue of the 5GENESIS newsletter, which is the final one since the project reached its end, presents the project activities and achievements during the period October-December 2021. This last issue focuses mainly on the final period of 5GENESIS. In this issue you may find the final dissemination and communication activities, the deliverables that are planned to be published, the final demonstration events, as well as the details of the 14th GA plenary meeting, which was hosted virtually, due to the coronavirus pandemic, on 14-16 December 2021.

5GENESIS activities in numbers for the October- December 2021 period:

- 4 Publications
- 1 White Paper
- 11 Online Articles
- 1 Online Conference
- 2 Presentations
- 15 Demonstration Activities
- 5GPPP Activities
- Submitted Deliverables
- Last GA meeting

Communication Channels



<http://www.5genesis.eu>

info@5genesis.eu



Dissemination and Communication Activities

Dissemination and Communication activities of 5GENESIS during October - December 2021, cover a great number of initiatives such as publications, articles, presentations and final demonstrations.

Journal-Conference Papers

5GENESIS partners, Navaneetha Manjappa, Lara Wimmer, Nebojsa Maletic, Eckhard Grass, submitted a conference paper entitled “Real-time Physical Layer Secure Key Generation in a mmWave Communication System”, on 17th International Symposium on Wireless Communication Systems (ISWCS), in Berlin. You may access the paper here:

<https://ieeexplore.ieee.org/document/9562194>

5GENESIS partners, Nebojsa Maletic, Eckhard Grass, published a research paper entitled “Modelling Power Amplifier Impairments in mmWave Phased-Array Systems” in the context of IET Electronics Letters, 57 (13). You may access the paper here:

https://5genesis.eu/wp-content/uploads/2021/09/el_phaa_clean.pdf

5GENESIS partners Deli Rico, Maria del Mar Gallardo, Pedro Merino (UMA), submitted a conference paper entitled “Modeling and verification of the Multi-connection Tactile Internet Protocol” in the context of 17th ACM International Symposium on QoS and Security for Wireless and Mobile Networks Q2SWinet'21, which took place on 22-27 of November 2021 in Alicante, Spain.

You may access the conference paper here:

<https://dl.acm.org/doi/abs/10.1145/3479242.3487328>



Book Chapter Publication

Instituto de Telecomunicações 5GENESIS partner has contributed in the "Enabling 6G Mobile Networks" chapter of the "Drive Towards 6G" book. You may find more information about the chapter here:

https://link.springer.com/chapter/10.1007%2F978-3-030-74648-3_1



You may also read all about the latest 5GENESIS publications online at the 5GENESIS website: <https://5genesis.eu/research-papers/>

White Paper

The 5G PPP Initiative and the 5G-IA released a new white paper entitled “View on 5G Architecture”. In this Release, the Architecture Working Group provides a consolidated view of the architectural efforts developed in the projects of the 5G PPP and other research efforts, including standardization. This serves not only to review the current state of the 5G architecture, but to also identify promising trends towards the next generation of mobile and wireless communication networks, namely 6G. You may access it and read the 5GENESIS contributions online at: <https://5g-ppp.eu/5g-ppp-architecture-working-group-view-on-5g-architecture-4/>



Website Articles

Malaga Platform Website Articles

The following articles refer to the demo trials that took place on Malaga platform on October:

- UMA - "Demuestran en directo durante La Magna cómo el 5G permite detectar situaciones de riesgo en grandes aglomeraciones" <https://www.uma.es/sala-de-prensa/noticias/demuestran-en-directo-durante-la-magna-como-la-tecnologia-5g-permite-detectar-situaciones-de-riesgo-en-grandes-aglomeraciones/>
- "5GENESIS - Control de cámaras en directo de las calles del Centro con tecnología 5G", <https://www.diariosur.es/semana-santa/control-cameras-directo-procesion-magna-20211030202139-nt.html>
- "5GENESIS - La Universidad probará la tecnología 5G durante la magna para controlar aglomeraciones", <https://www.diariosur.es/malaga-capital/uma-malaga-5g-magna-20211029142207-nt.html>
- "Un proyecto de la UMA durante la Magna permitirá detectar situaciones de riesgo en grandes aglomeraciones", https://www.malahoy.es/malaga/proyecto-UMA-Magna-riesgo-aglomeraciones_0_1624339150.html
- "Un proyecto de la UMA durante la procesión magna permitirá detectar situaciones de riesgo en grandes aglomeraciones", <https://www.europapress.es/andalucia/malaga-00356/noticia-proyecto-uma-procesion-magna-permitira-detectar-situaciones-riesgo-grandes-aglomeraciones-20211029160950.html>
- "Un proyecto de la UMA durante la magna permitirá detectar situaciones de riesgo en grandes aglomeraciones", <https://www.20minutos.es/noticia/4873519/0/un-proyecto-de-la-uma-durante-la-magna-permitira-detectar-situaciones-de-riesgo-en-grandes-aglomeraciones/>
- "La Policía del futuro patrullará este sábado en Málaga por la procesión magna gracias al 5G", https://www.elespanol.com/malaga/malaga-ciudad/20211028/policia-futuro-patrullara-sabado-malaga-procesion-gracias/622688584_0.html
- "Un proyecto de la UMA durante la magna permitirá detectar situaciones de riesgo en grandes aglomeraciones", <https://www.noticiasde.es/andalucia/malaga/un-proyecto-de-la-uma-durante-la-magna-permitira-detectar-situaciones-de-riesgo-en-grandes-aglomeraciones/>
- "Un proyecto de UMA durante la magna permitirá detectar situaciones de riesgo en aglomeraciones", <https://www.101tv.es/noticia.aspx?id=51487&title=Un-proyecto-de-UMA-durante-la-magna-permitira-detectar-situaciones-de-riesgo-en-aglomeraciones>
- "El uso de la tecnología 5G para cámaras móviles es un buen ejemplo, en conjunto con la Policía Local de Málaga y Telefónica", <https://diarioecija.com/malaga/el-proyecto-uma-detectara-escenarios-de-riesgo-en-grandes-multitudes-durante-la-marcha-de-magna/>
- "Comprueba en la Procesión Magna de Málaga que el 5G permite detectar situaciones de riesgo", <https://novaciencia.es/comprueba-en-la-procesion-magna-de-malaga-que-el-5g-permite-detectar-situaciones-de-riesgo/>



European
CommissionHorizon 2020
European Union funding
for Research & Innovation

Online Conference and Presentation

InfoCom World 2021

Dr. Haris Koumaras, 5GENESIS (NCSR "DEMOKRITOS") project coordinator, presented "5GENESIS: The GENESIS of a 5G experimentation Facility" in the "The Infrastructure - 5G Experimentation and Trials" session of InfoCom World 2021, on 26 November 2021. You may learn more about the event here: <https://infocomworld.gr/>



Presentations/ Webinars

5GTechrity 2021

Dr. Haris Koumaras (NCSR "DEMOKRITOS"), 5GENESIS project coordinator, presented the "5GENESIS key findings" during the 5G PPP Infrastructure Projects-Key findings session at 5G Techrity Europe's Leading 5G Ecosystem Forum, on 22nd of November 2021. You may learn more about the event here: <https://www.5gtechrity.com/>. You may also find the presentation video in the 5GENESIS YouTube channel here: https://www.youtube.com/watch?v=4ctCZc05I_c



Panel Discussions

5GWORLD 2021

Prof. Perdro Merino (UMA), 5GENESIS technical manager, participated in discussions during the "5G World - Putting 6G in perspective" panel which took place in the context of 17th Annual 5G World on 21-23 September 2021. You may learn more about the event here: <https://tmt.knect365.com/5gworldevent/>



5GTECHRITORY 2021

Dr. Harilaos Koumaras from NCSR DEMOKRITOS, 5GENESIS project coordinator, participated in the panel discussion "5GPPP infrastructure Projects - Key Findings 5GENESIS" in the context of 5GTECHRITORY 2021. He shared information about the demos and the final trials of 5GENESIS project.



Demonstration Events

Cross Platform & Online

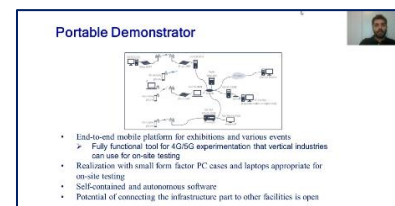
An Experimentation Platform for Automated Assessment of Multimedia Services over Mobile Networks

This demonstration refers to the 5GENESIS portable platform with FOGUS test cases integrated, related to the assessment of multimedia services using the open 5GENESIS suite. It was presented in the IEEE International Conference on Computer Communications 10-13 May 2021 (Virtual Conference).



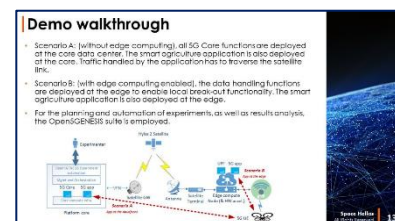
An open source 5G experimentation testbed

5GENESIS portable demonstrator was presented by Panos Matzakos (EURECOM) under the title “An open source 5G experimentation testbed” in the context of IEEE MeditCom 2021 which took place in Athens on 7-10 September 2021.



5GENESIS Limassol platform public demo

This was a main public demo event, where most features of the Limassol platform were demonstrated, including 5G SA access, satellite backhauling and edge computing with local break-out. The demo was presented in the context of IEEE MeditCom 2021 which took place in Athens on 7-10 September 2021.



Cross-platform Mission Critical Services Showcasing

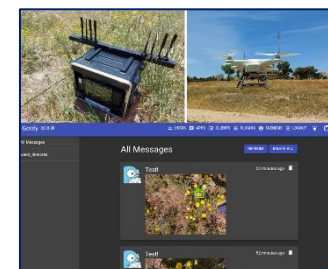
A cross-platform experiment was showcased involving MCS services at both 5GENESIS Málaga and Athens platforms. The two platforms have been interconnected in order to deploy MCS services in each platform that will allow local teams of first responders to collaborate among each team members as well as among the different teams. The scenario demonstrated 5GENESIS facility capability to coordinate a cross-platform attended experiment with the participation of personnel in real-life environment.



Athens Platform

5G rural applications field trials.

In this trial, the objective was to evaluate in the field 5G edge computing for IoT/rural applications. A drone platform was used for capturing crop images, transmit it over 5G to the edge node where AI was employed for automatic crop detection.



Video surveillance aided by Drone

This is an event where 5GENESIS and 5G!Drones (ICT-19) projects collaborated to showcase the use of 5G for control and video transmission over a drone. The event took place in the OTE Academy premises, Athens, Greece during last summer.

You may access the corresponding video here:

https://www.youtube.com/watch?v=btjQr_s1x6s



Big Event multimedia coverage showcasing event

In this demo the Athens platform demonstrated the use of Open5GENESIS suite for the deployment of 5G and vertical application components required for the scenario realization in order to offer 360o video coverage (a related video camera was used) to local as well as remote attendees. The event took place on 23-24 November 2021, inside the Egaleo Football Stadium, in the city of Egaleo (Athens suburban area), Greece.

Berlin Platform

5G playground – 5G portable node

To extend a network capacity to a specific location, one of the most attractive use cases is to make the network portable or mobile, enabling private local communication as well as efficient backhauling to a central location or to edge nodes. This was the target of a field trial in Frankfurt/Oder IHP, on November 30, 2021. The event was an attempt from 5GENESIS project (Berlin Platform) to prove that a portable network can be installed and configured at the specific use case location in a matter of minutes and remain in use for a specific duration of time of the use case (such as for fairs or for construction sites). You may find the trials video here: <https://www.youtube.com/watch?v=EgnCqWgHqEo>



Limassol Platform

Maritime Communications

The maritime communications demo was carried out on board of the MARAN GAS KALYMNOS vessel. In this trial, the 5GENESIS team tested 5G SA operation on-board, satellite backhauling, indoor propagation and evaluated the maritime application specifically developed for this purpose (Real-time rust detection using AI and augmented reality).



Malaga Platform

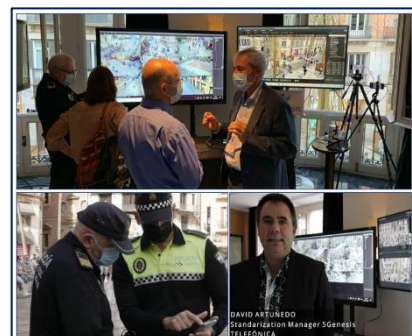
Police Wireless Video and Mission Critical Services – first responders

This event served as a first demonstration to Málaga Police of the use cases integrated in the 5GENESIS Málaga Platform. In this trial, the Malaga platform validated the progress in both the video and the MCS use cases and its correct performance outside of the laboratory environment. The related video is also available here: <https://www.youtube.com/watch?v=9H6OkjX74iw>



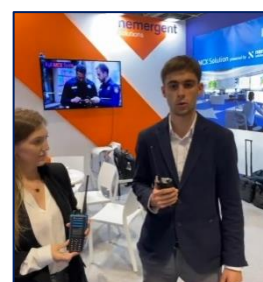
Police Wireless Video use case showcase during Málaga's "The Magna Procession"

UMA, Telefónica and Málaga Police deployed a remote mobile control center for the video surveillance of a large-scale event taking place in Málaga in October, The Magna Procession. The Police Wireless Video use case of the platform was completely demonstrated in a big real-life event, including the reception in 5G UEs of video from fix police cameras in the city and also the transmission of video from 5G UEs in real-time to the control center, greatly enhancing the surveillance capabilities of the police thanks to 5G and the 5Genesis Málaga Platform. You may access the demo video here: https://www.youtube.com/watch?v=qleB8w_ZaVc



3GPP MCPTT calling over a 5G network

Nemergent R&D team, 5GENESIS partner and member of 5GENESIS Málaga platform use cases, demonstrated the integration of 3GPP MCPTT calling over a 5G network, and enabling interconnection with DMR talkgroups. This demo took place at the Nemergent booth in the Critical Communications World (CCW2021) conference and exhibition, Madrid, Spain, 3-5 November 2021. You may learn more in the video here: <https://www.youtube.com/watch?v=Qp0aZksG5HU>



Mission Critical Services use cases showcase

The two Mission Critical Services use cases envisioned for the 5GENESIS Málaga platform was the target of this showcase, which replicated a real-life scenario in which first responders need to communicate using the MCS services integrated in the platform. The most updated versions of the MCS services (from Airbus) were used and their functionalities are demonstrated, such as MCPTT private and group calls, MCVideo calls, and MCX-DMR interoperability.



Police Wireless Video use case at Málaga's Thyssen Museum

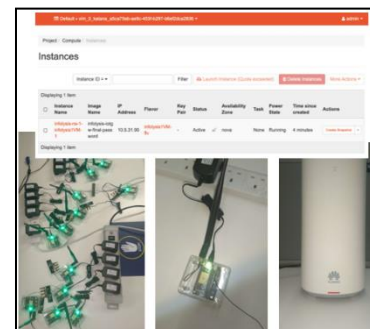
This demo event focused on the Police Wireless Video use case. A similar (but reduced) setup as the one deployed for "The Magna Procession" event was demonstrated in the Thyssen Museum showcasing the wireless video capabilities of 5G and the Málaga Platform.



Surrey Platform

Multi-RAT support for sensor measurements

In November and early December 2021, the final demonstration of the Surrey Platform IoT use case took place in the building of the University of Surrey 5G Innovation Centre (5GIC), which is the host of the Surrey Platform. Within the context of this use case, 30 Pycom/Pysense boards were deployed in the 5GIC building. The experiment consisted of reading sensor values and sending them -in JSON format- relying on various protocols, namely HTTP, MQTT and CoAP, through WiFi and 5G, with the use of a CPE device, to an IoT-vGW, developed by INFOLYSIS partner.

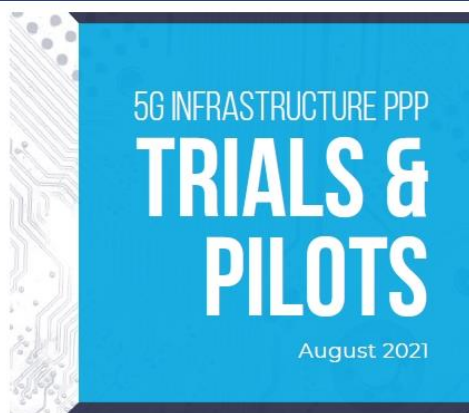


5G-PPP Activities

The 5G PPP Infrastructure Trials and Pilots brochure #3

5GENESIS partners, Almudena Díaz Zayas (University of Málaga), Pedro Merino (University of Málaga), Maria del Mar Morero (University of Málaga), Iván González (University of Málaga), Ricardo Fernández (Municipality of Málaga), Jose Manuel Ternero (Municipality of Málaga), David Artuñedo (Telefónica), contributed in the “5G PPP Infrastructure Trials and Pilots brochure #3”. This brochure contains the 5GENESIS trial “5GENESIS: Mobile Video Public Safety” of the 5GENESIS Malaga platform (page 10).

You may access the brochure online here: <https://5g-ppp.eu/the-5g-ppp-infrastructure-trials-and-pilots-brochure-3-is-out/>



The 5G PPP Infrastructure Trials and Pilots brochure #3 is out

Deliverables

Submitted Deliverables - Period October-December 2021 (M40-M42)

D6.3 Trials and experimentation (cycle 3) (M42): This deliverable will include the trials and experimentation results on 5GENESIS platform that has resulted from the third integration cycle, emphasizing on the 5G KPI validation through the described use cases.

D6.4 Multiplatform trial and interworking experimentation (M42): This deliverable will include the execution of experiments, which involve the 5GENESIS facility as a whole, i.e., involving several interconnected platforms, in order to validate the interoperability of the 5GENESIS platform and access the developed east/west-bound open APIs developed in the project.

D7.4 Dissemination, communication and ecosystem engagement activities (Release C) (M42): Dissemination, communication and ecosystem engagement activities, including 5G PPP contributions and synergies with other research projects.

D7.7 Standardisation and regulation (Release C) (M42): This report will elaborate on the achieved results w.r.t standards and regulatory bodies engagements, and it will be released in an annual basis

D7.10 Innovation and exploitation activities (Release C) (M42): Report of the innovation program run within the consortium. A plan of the activities till project end will be created.

All 5GENESIS public deliverables are available online from downloading at:

<https://5genesis.eu/deliverables/>

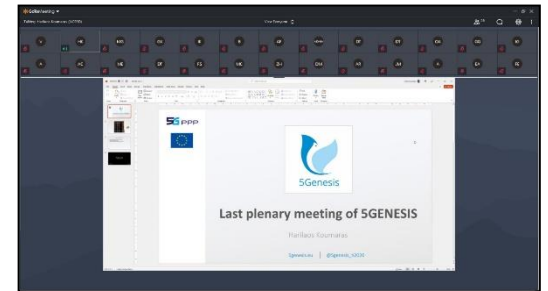


Deliverables

GA Meeting

5GENESIS 14th GA Meeting (virtual) – Last one

The last 5GENESIS plenary meeting (14th) lasted three days (14-16 December 2021) and it was once more organised remotely due to COVID-19 pandemic restrictions. Main topics discussed and presented: final showcasing events, final deliverables and preparatory actions for the final project review.



Thank you all for following us for 42 months!



European
Commission

Horizon 2020
European Union funding
for Research & Innovation



Communication Channels



<http://www.5genesis.eu>

info@5genesis.eu

Platforms Contact Information

5GENESIS Athens Platform: athens@5genesis.eu

5GENESIS Malaga Platform: malaga@5genesis.eu

5GENESIS Limassol Platform: limassol@5genesis.eu

5GENESIS Berlin Platform: berlin@5genesis.eu

5GENESIS Surrey Platform: surrey@5genesis.eu