

5GTours 5GHeart Workshop Schedule Tele-health Solutions powered by 5G 22 October 2021



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5GTours: 5G smarT mObility, media and e-health for toURists and citizenS



Improving the airport logistics in Athens



Enhancing the healthcare for patients in Rennes

Innovative museum visits and education in Turin

Safe city: Leveraging 5G for a better patient healthcare

- The Safe City aims to demonstrate how multiple vertical industries can simultaneously use the same 5G architecture and services to deliver advanced use cases to EU citizens. These use cases are as follows:
 - Remote health monitoring and emergency situation notification
 - Teleguidance for diagnostics and intervention support, focused on emergency care



Remote health monitoring and emergency situation notification (1/2)

• The focus here is on remote health monitoring of people

- Particularly when already diagnosed with a critical disease still compatible with home care
 - Cardiovascular diseases, hypertension, diabetes...
- The main features offered by this use case involve
 - Remote health monitoring services
 - Quick, reliable notifications to nearby ambulances, medical professionals, and family members in case of a health incident or a health emergency prediction.
- Leveraging wearable devices to track a patient's vital signs and aggregate them inside an IoT based platform named STARLIT (Solutions for digital health and wellness based on Artificial Intelligence and IoT)





Multiple devices, Geofencing, notifications and alerts management (2/2)



Teleguidance for diagnostics and intervention support (1/2)

- Develop profound understanding on how 5G can be used to improve emergency care
 - How to improve the communication between care givers in the ambulance / near the patient, the medical regulator, remote experts and emergency department staff to save the life of more patients than before.
- Improve the outcome for and wellbeing of patients on the short and longer term
- Reduce the workload and stress of all care providers while improving their effectiveness
- Reduce the overall cost of care on the short and longer term so that patients can participate fully in society again after a quick recovery





Teleguidance for diagnostics and intervention support (2/2)



Wireless Operating Room (1/2)

- Demonstrate the impact of 5G inside the operating room
 - The procedure follows an accident due to an acute heart failure happening to the tourist patient
 - The tourist patient has been previously operated in his country, Italy, by a cardiologist who is so able to interact with his Rennes colleague to improve the quality of the procedure
 - The procedure requires several exams, advanced 3D imagery transfer, augmented reality guidance image all 5G-enabled
- In order to train the next generation of surgeons and cardiologists, the images of the intervention are retransmitted in the student theater room
- Video is sent using DICOM-RTV, a new standard based on the recent video over IP standards (SMPTE 2110) that enables the transfer of metadata, such as patient information, device in use or tools' position.
 - This requires a transmitter and receiver DICOM-RTV device on both ends of the communication with compression used if necessary



Wireless Operating Room (2/2)





Optimal ambulance routing

- Real time navigation of the ambulance, both to the site of the emergency, to ensure that medical help will be provided as quickly as possible, as well as from the site of emergency to the hospital, as soon as possible once the patient has been stabilized on site
 - shows how city sources can be exploited towards real-time vehicle navigation taking into consideration the live status of the city, especially a busy touristic city with events in public locations and streets
- WINGS' platform, STARLIT, is exploited in order to calculate the optimal route both from the ambulance dispatch location to the emergency location as well as from the emergency location to the nearest hospital, while taking into account relevant patient data





Conclusion

- Thanks to a rich and efficient collaboration between 5GTours safe city partners, we are proud to show advanced usages of 5G-enabled healthcare related use cases
- The involvement of healthcare staff and doctors in hospital related scenarios allowed for a short feedback loop that benefitted the use cases
- The 4 scenarios are in an advanced implementation stage with demos and trials







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