European Commission

sesar JOINT UNDERTAKING

EU Drone Days

Launch of the European Drone Strategy 2.0

SESAR U-space Showcase

Brussels, 29-30 November 2022

#EUDroneDays

Future All aviation CNS Technology

SESAR2020 ER project (July 2020 – December 2022)

Project Coordinator: Honeywell

EUROCONTROL

Airspace Users

AOPA GERMANY

SARP

Universities

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İSTANBUL TEKNİK ÜNİVERSİTESİ 1773

ESKİŞEHİR TEKNİK ÜNİVERSİTESİ

ESKİŞEHİR TECHNICAL UNIVERSITY

Industry

Honeywell

NOKIA

Project's Objectives

Demonstrate and evaluate the **feasibility of performance-based iCNS concept focusing on:**

- **potential use of a public or dedicated cellular networks (4G and 5G) as a complement to the existing CNS technologies** in ATM and U-space environment;
- GA, rotorcraft and drones users.

THROUGH

- ✓ Analysis and description of the overall operational context of airspace with low altitude mixed air traffic
- ✓ Technical evaluation of 4G/5G performance (datalink, positioning) in the context of selected CNS functions.
- ✓ Demonstration of operational benefits resulting from the explored CNS enhancements for safety and individual stakeholders (general aviation (GA) pilots, remote pilots of drones, and air traffic control (ATC)).

Project's Results

Operational demo

- Focused on cellular network as an enabler for heterogenous traffic (manned and unmanned) sharing airspace
- Experimental CNS devices installed on:
  - ✓ 2 drones
  - ✓ Sikorsky S76 heli
  - ✓ Cessna 172
- Situation awareness app (traffic and alerts, geofence zones) onboard GA and Helo
- Ground server collecting & tracking traffic information, and providing TIS and FIS (geofence, alerts) services to vehicles, ATC and remote pilots
- Dedicated adaptations of ATC and remote pilot's working positions (displays)

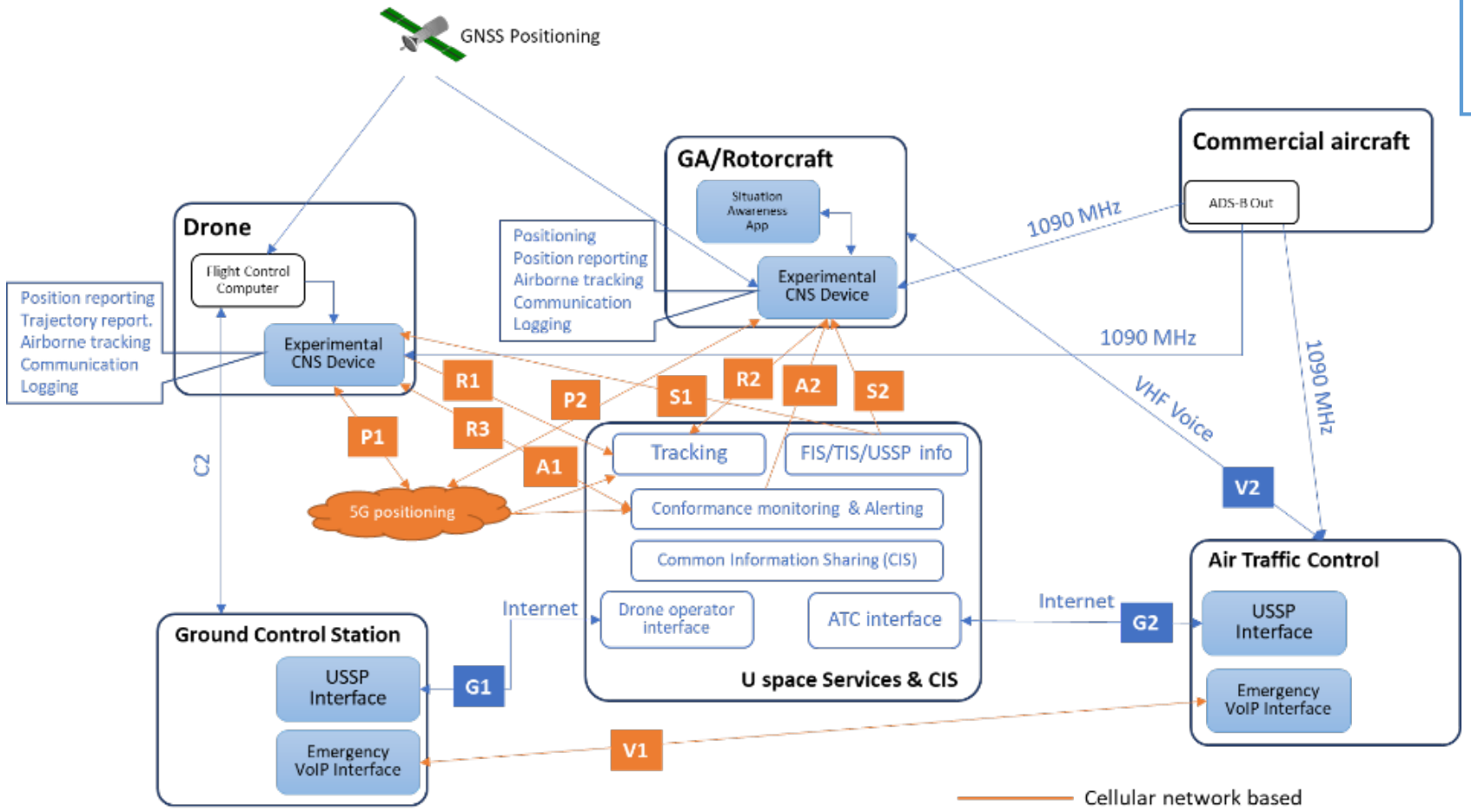
Technical Evaluations

- End-to-end communication performance for selected ATM applications, namely
  - ✓ Traffic surveillance through regular position reporting over cellular network
  - ✓ FIS/TIS services provided over cellular network
  - ✓ Ground alerting service to relevant vehicles
- Evaluation of possible improvements of link availability
- Possible impact of network load on quality of service
- Positioning capabilities in current 4G/5G networks

Functional Architecture

Operational Applications over 4G/5G:

- GA/rotorcraft and Drones position reporting
- TIS/FIS services
- Conformance alerting and request to land for drones
- VoIP between ATC and remote pilots



More Details Available at ….

Project's web site: https://fact.itu.edu.tr

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