



Demonstrating safe and secure operations in Italy (DIODE)

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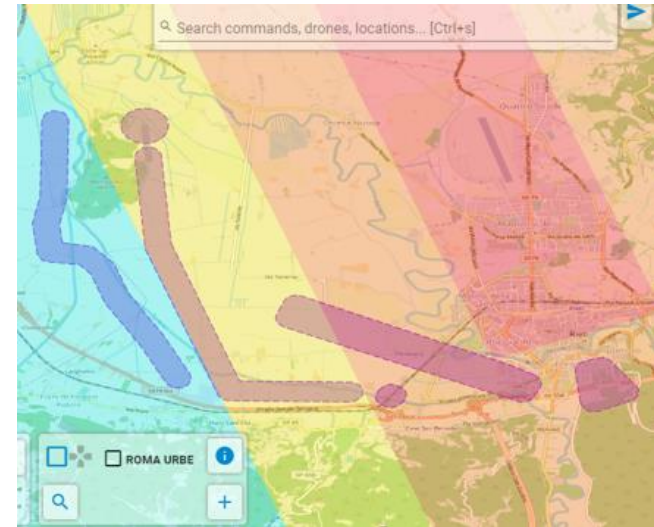
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JOINT UNDERTAKING



Diode Objectives

- Demonstration of **U-Space services**
 - demonstrate that **U-Space services** contribute in maintaining/improving the level of **human performance**
 - demonstrate that **U-space services** contribute in maintaining an acceptable level of **safety** during the operations
- to demonstrate the feasibility of managing the **interaction** with ATM (**manned flight, ATSU**) through **U-space services**



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U-space Services and assumptions



No conflict resolution
No Separation Service

VLLOS



Pre-flights deconfliction
No tactical Separation Service

BVLOS



Pre-flights balancing
Tactical Separation Service

**VTOL
UAM**



U-space services

- SORA, strategically spacing of operations, with tracking, monitoring and emergencies.

On-Drone capability

- ensure required navigation performance and containment measures.

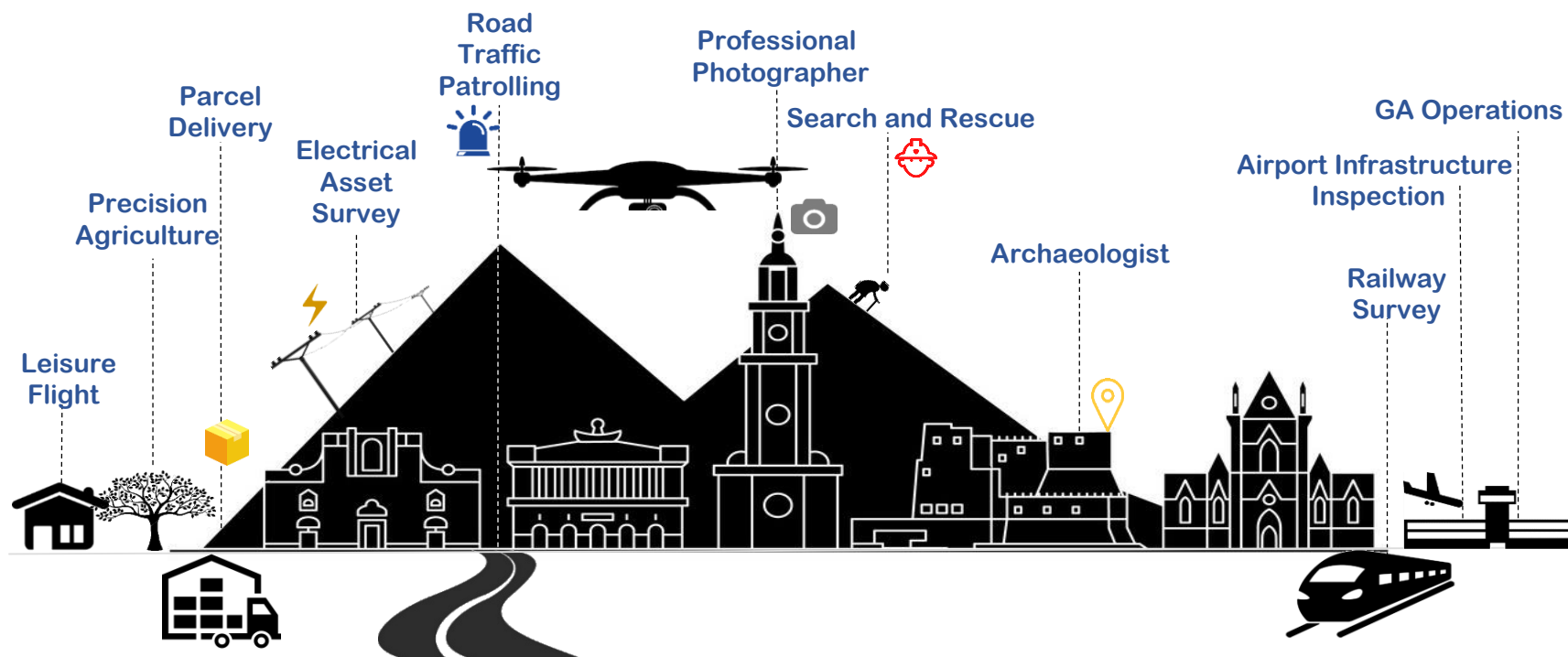




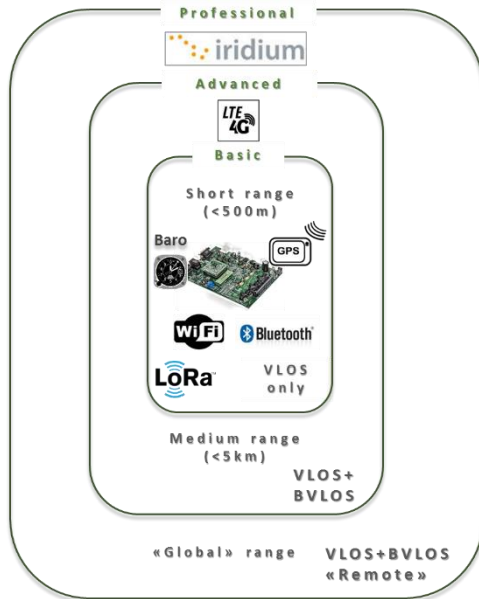
D-flight Internet Of Drones Environment.

The **Demonstration of U-space Services** with **6 contemporary missions** with “unmanned” and “manned” flights in several geographical situations including urban area and close to a small airport.

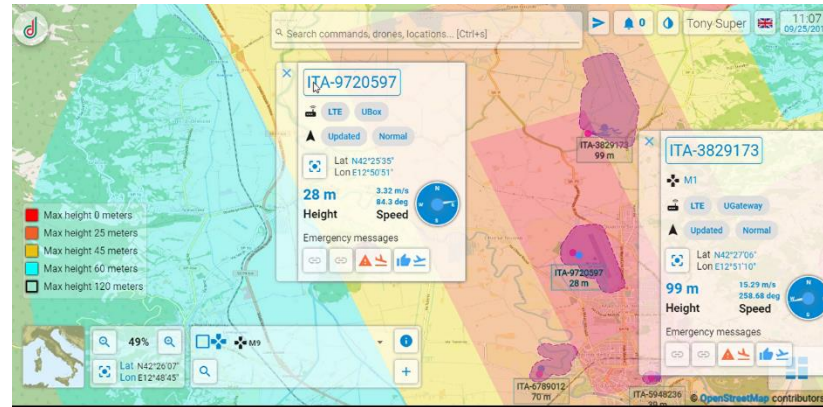
Demonstration has been executed in Rieti **Airport Traffic Zone** the **24-25/09**



DIODE Technical solution



- Hook on device
- Virtual Box



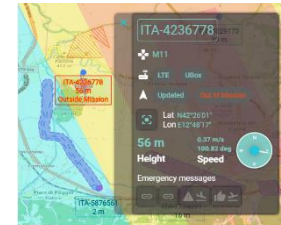
Tracking / Traffic information

Mission List

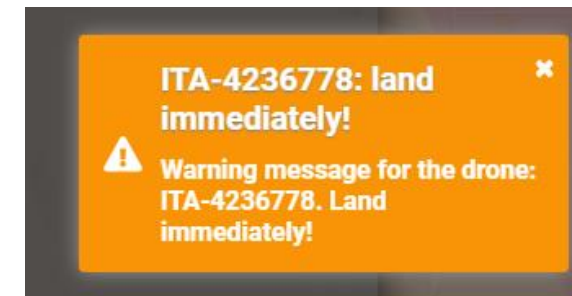
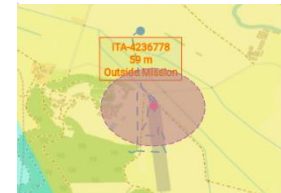
Refresh Status Edit Send Change Status Delete Start Pause Stop

Mission Code	Drone ID	Pilot ID	Operator ID	Mission Status	Mission Type	Flight Con
p_1569243980359	ITA-2260075	aviewgroup	aviewgroup	RUNNING	RECREATIONAL	VLOS
p_1569244473754	ITA-4236778	aviewgroup	aviewgroup	RUNNING	RECREATIONAL	VLOS
9243680585	ITA-5876561	adpm	adpm	RUNNING	CRITICAL	BVLOS
p_1569242633559	ITA-2164914	aviewgroup	aviewgroup	DONE	CRITICAL	BVLOS
p_1569243035917	ITA-7774091	aviewgroup	aviewgroup	RUNNING	CRITICAL	BVLOS
pe_1569243234103	ITA-2124441	riaudato_ope	riaudato_ope	RUNNING	RECREATIONAL	BVLOS

Drone operation planning



Monitoring



Emergency management



Project outcomes summary

Main Conclusions

- Operation centric principle and Risk based approach confirmed
- CORUS/Y airspace demonstrated.
- Risk of collision reduced to an acceptable level thanks to adequate mitigations (drone containment measures) and U-Space services (strategic deconfliction)
- Actors involved provided positive feedback about Situational awareness, workload and trust.

Demonstrated the importance of Planning, Risk assessment and Field analysis

Collaborative Interface with ATC well perceived compared with procedural one.

Main recommendations

To enhance the level of confidence further validation activities would be needed e.g. with multiple manned aircraft

Common references have to be applied to define the “vertical position” of a drone (Common altitude reference)

Cooperation of other users operating in Very Low Level (e-g- GA)

Technical and procedure standards are cornerstones of aviation.



Stay in touch with us



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- **D-flight portal**
- <https://www.d-flight.it>



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