Laboratory Integration Tests Results

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INGENIOUS Final Event

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Laboratory Integration Tests (LITs) overview and objectives

- Concerns components and platforms testing and integration in the techno providers lab.
- Developed in parallel to WP2, WP4, WP4. Identifying potential deviations and risk and mitigating them.
- Follows validation protocol and plan. Benchmark at laboratory conditions
- Results: Functional prototypes of the Toolkit (as per stage).

Laboratory Integration Tests (LITs) approach & challenges

- Three iteration (rounds) (27 tests in total)
- Each round:
  - Select user and derived system requirements per component
  - Collaboratively elaborate an integration matrix
    - Functionalities, interactions, dependencies
  - For each cross bilateral/multilateral discussions
    - Planification, interfaces, monitoring and verification mechanisms, rehearsals
- Test conduction
  - Presentation
  - End users' hands on
  - Discussion
  - Evaluation form

Laboratory Integration Tests (LITs) approach & challenges

- Covid-9 impact
  - Facilities access
  - Component availability
  - Lack of common site (material exchange)
  - Limited real user experiences

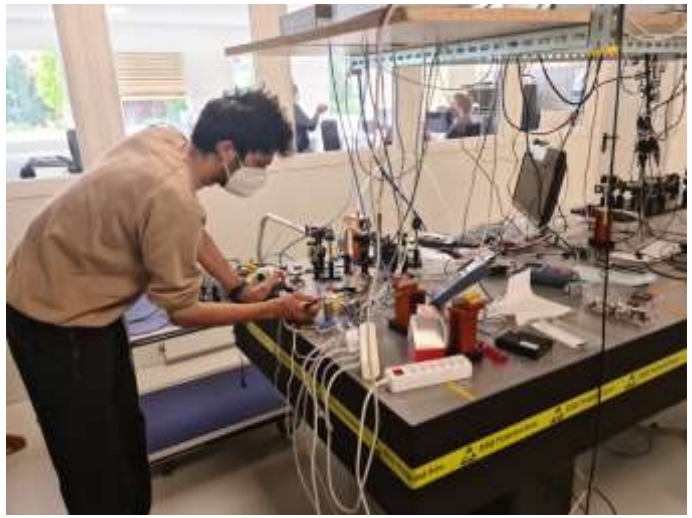
- User – technical worlds
- Complexity
- Interdependent
- Different levels of integration

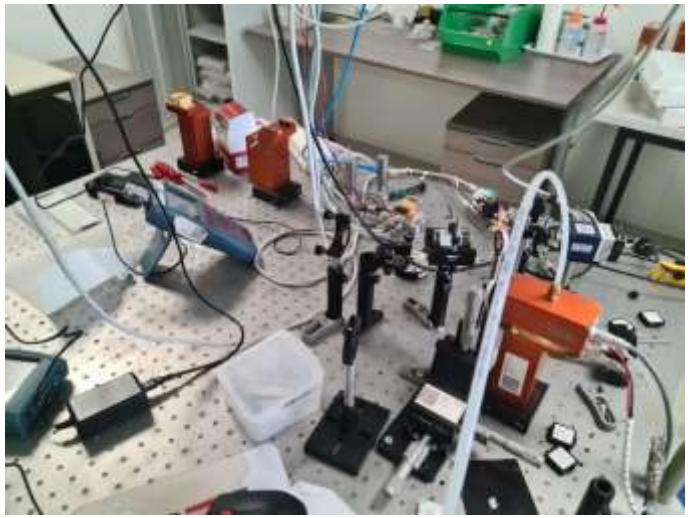
Laboratory Integration Tests Results (LITs)

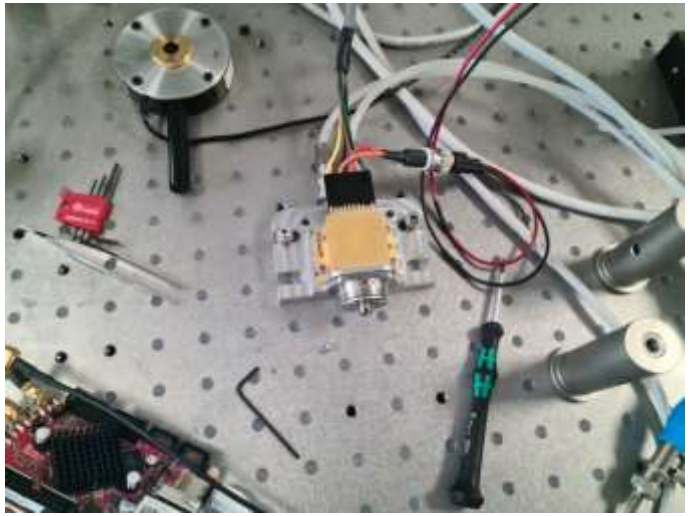
3rd round of LITs						
Period	Exercise ID	Components / Systems	Use Case	Responsible Partner	Attending Technical Partners	Attending End Users
M28 to M30	LIT #19	(1) Helmet, (2) Augmented Reality Services	Agnostic	KIRO	CS	SAMU, NFFK
	LIT #20	(3) Gas sensor	Agnostic	ALPES	TUW	PSNI
	LIT #21	(4) Uniform, (5) Boots	Agnostic	TEK	CyRIC	ERTZ, HRTA
	LIT #22	(6) K9 Vest	Agnostic	ICCS	-	ISAR
	LIT #23	(7) Field Communication, (8) MAX, (9) Swarm of MINs, (10) Deployable IPS (S) & Large-scale mapping	Agnostic	DLR	ICCS, SINTEF, ITC, FOI	
	LIT #24	(11) Triage App/ DVI & Face Recognition App	Agnostic	ICCS	-	
	LIT #25	(12) Fusion Engine & Expert Reasoning, (13) Worksite Operations App	Agnostic	EXUS	CERTH	ALL (Virtual Test)
	LIT #26	(14) Social Media App	Agnostic	CERTH	-	ALL (Virtual Test)
	LIT #27	(15) COP Platform & C3, (16) Multilanguage Operations App	Agnostic	STWS	UPF	ALL (Virtual Test)

LIT#1, LIT#10 Helmet & Augmented Reality Services

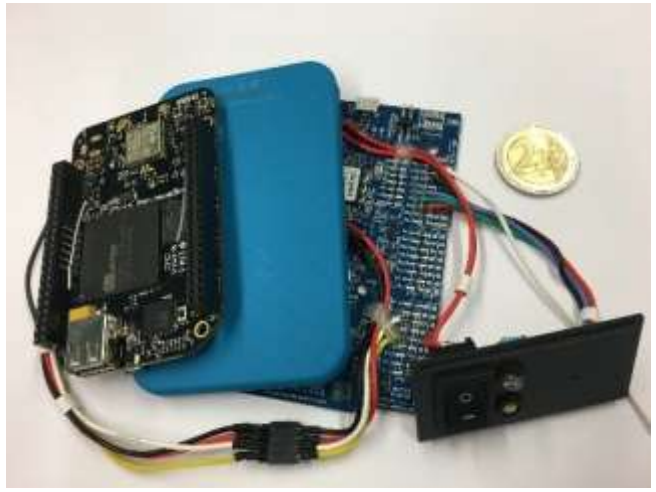
LIT#2, LIT#11. Gas Sensor

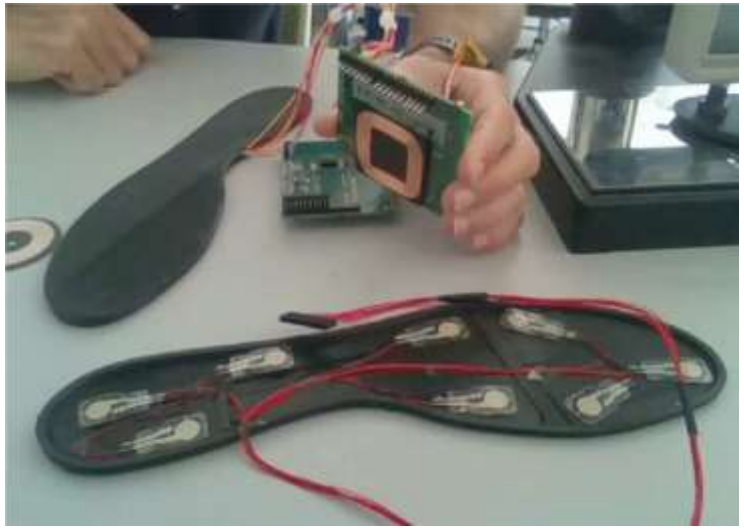






LIT#3, LIT#12 Uniform, Boots





LIT#4, LIT#13. K9 Vest

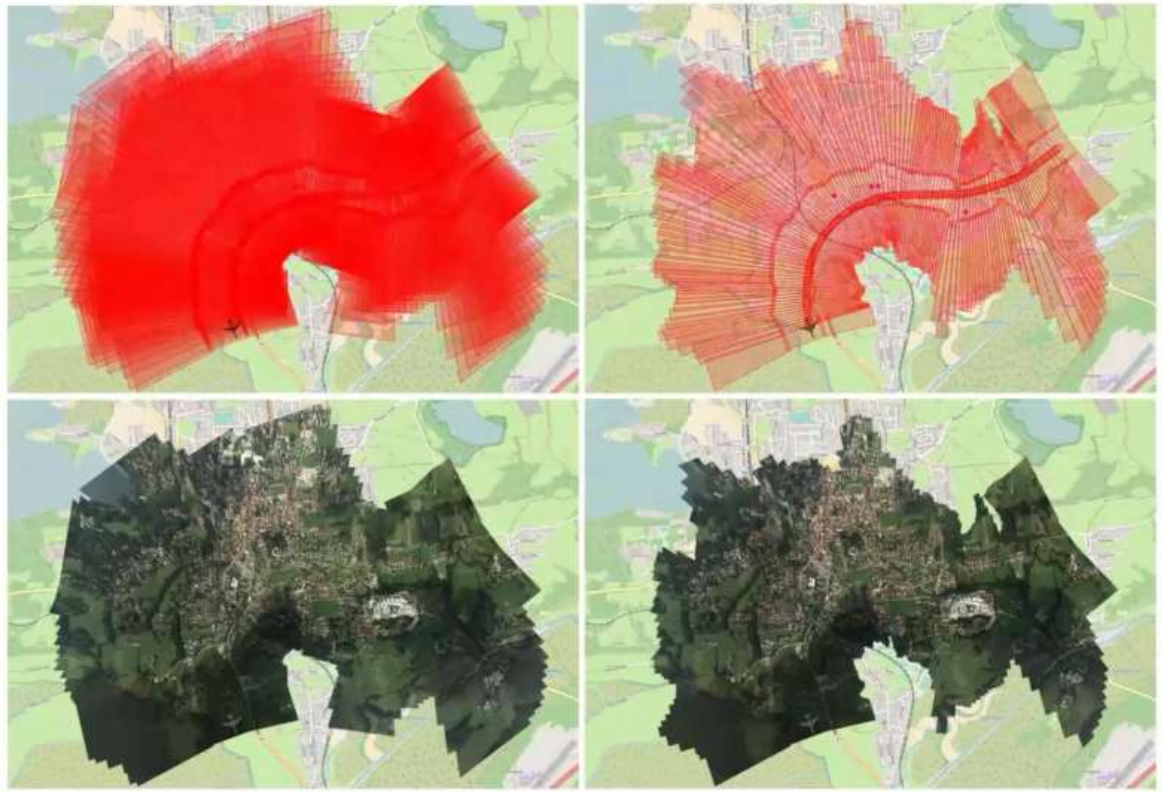
LIT#5, LIT#14. Field comms, MAX, MIN, IPS, MACS

Sample

- 392 Aerial Images

before
- 6.15 billion pixels
- 11.5 GB raw data

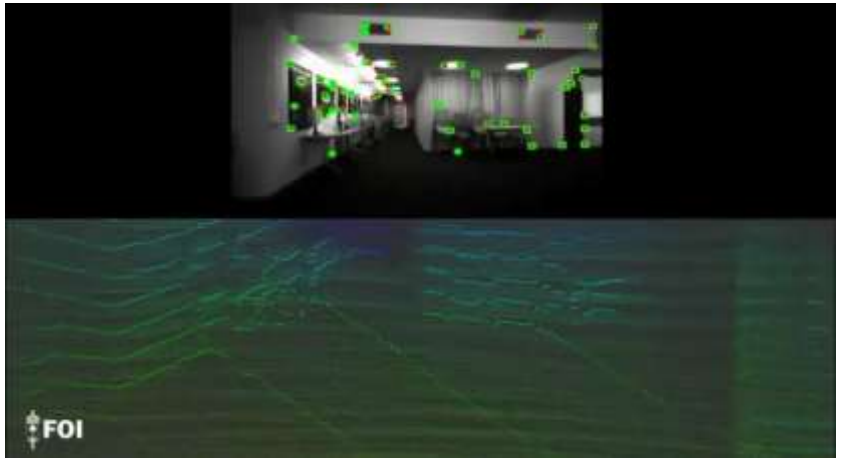
after
- 873 million pixels
- 1.6 GB raw data
- => reduced by 86%

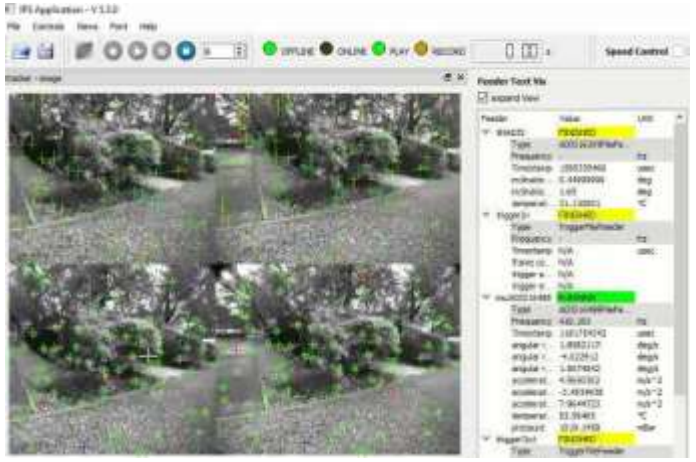


> Terrain Aware Image Clipping for Real-Time Aerial Mapping >
Daniel Hein and Ralf Berger

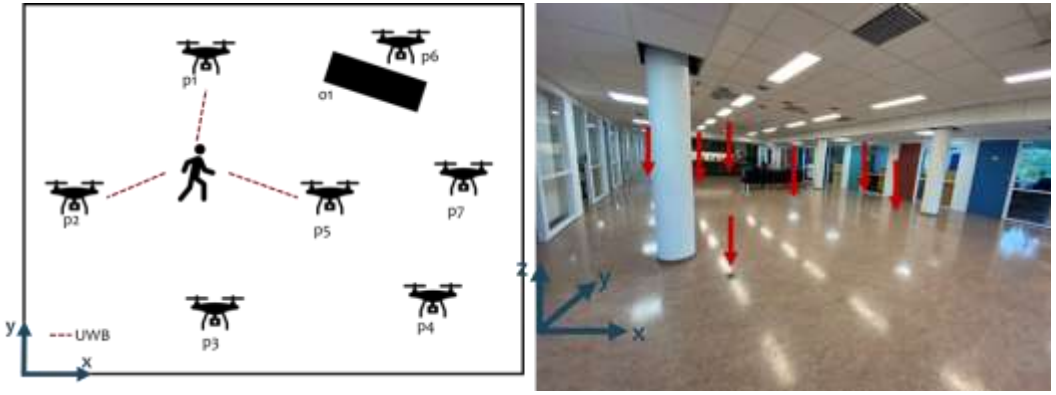
DLR.de • Chart 28

LIT#5, LIT#14. Field comms, MAX, MIN, IPS, MACS

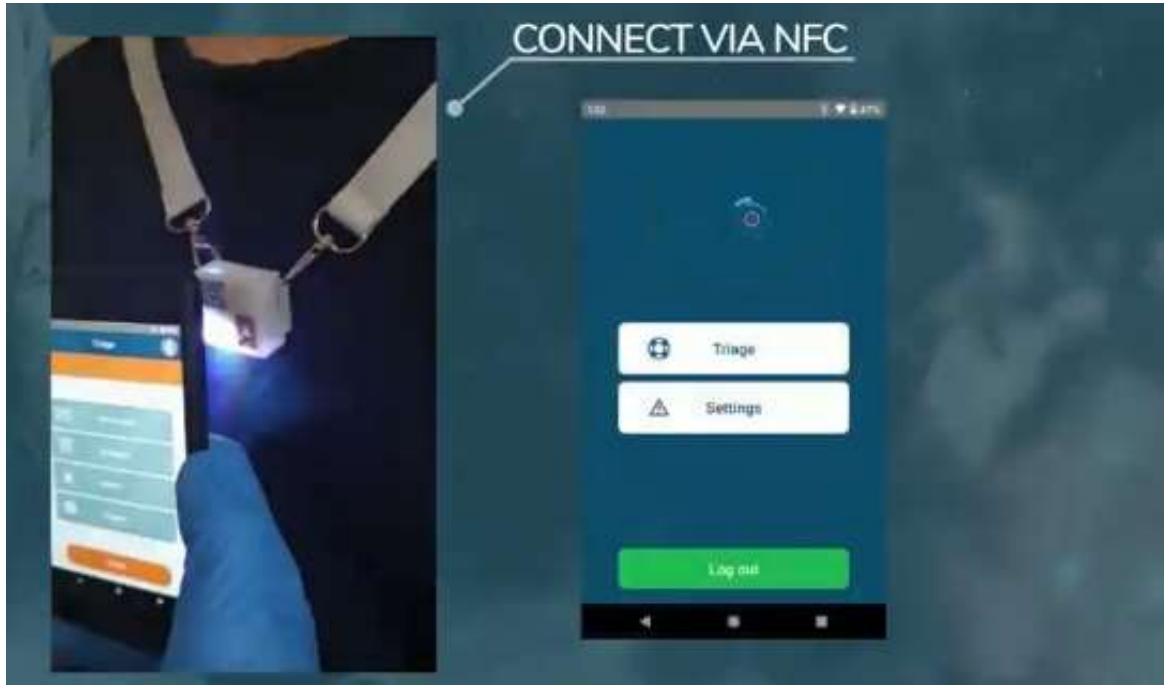




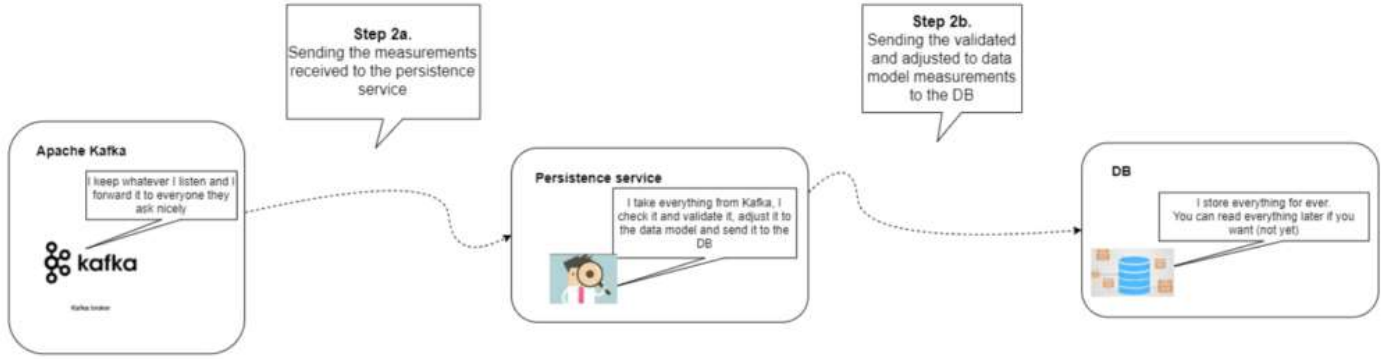
LIT#5, LIT#14. Field comms, MAX, MIN, IPS, MACS

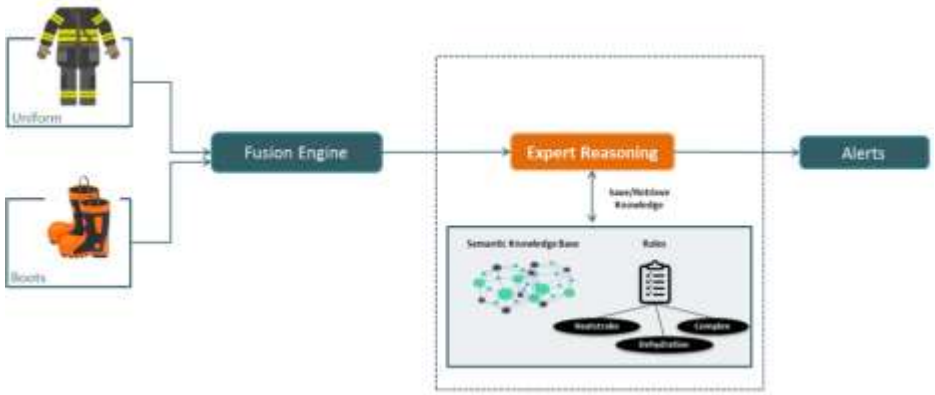


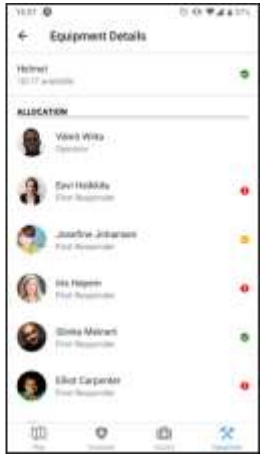
LIT#6, LIT#5. Triage App



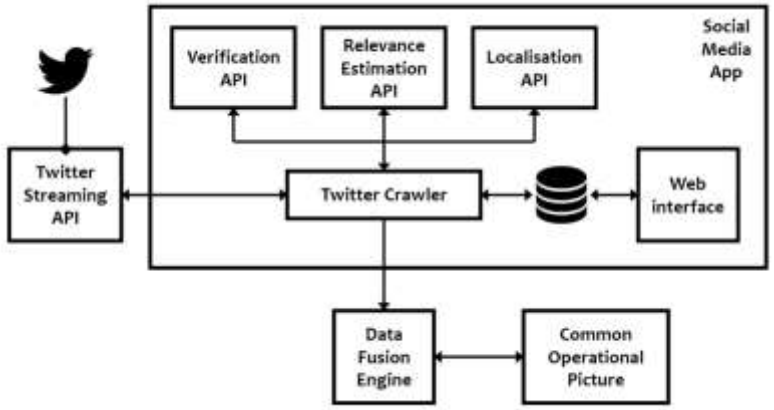
LIT#7, LIT#16. Fusion Engine, Expert Reasoning & Worksite Operations App

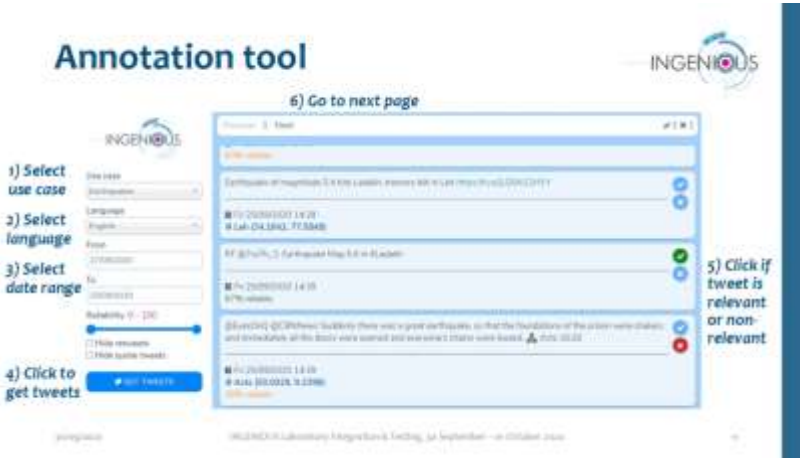


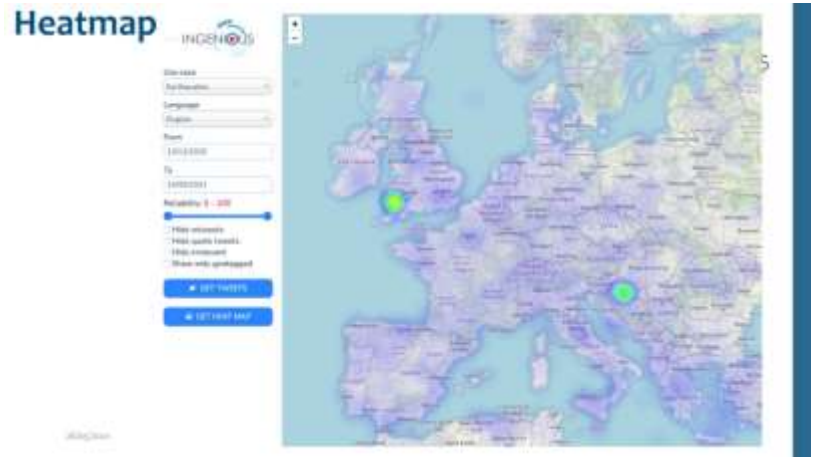




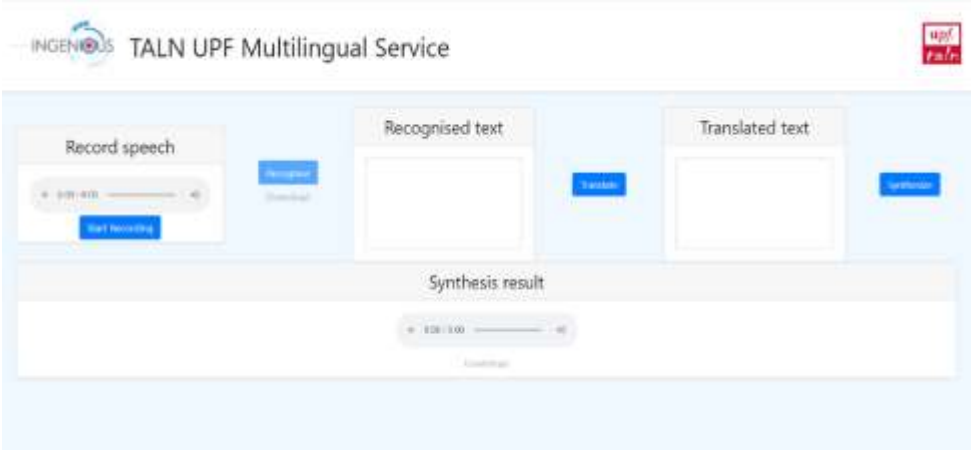
LIT#8, LIT#17. Social Media App







LIT#9, LIT#8. Cop Platform & C3, Multilanguage Operations App



LITs Conclusions

- End users and technical providers interaction
- Agreed common view per iteration (at project level)
- Increase interdependency
- Valid initial architecture
- Covid-19 impact:
  - Great development and integration constrains
  - Components availability → redesign
  - Limited hands-on experience
- Successful functional prototypes

Thank you for your attention

Any Questions ?

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