LOW ALTITUDE AIR TRAFFIC DATA
FOR SAFE DRONE FLIGHTS

Lake Victoria Challenge, Mwanza, 29/10/18

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Cartography of 2 islands using drones:
- **Unguja** 1’600 km²
- **Pemba** 1’000 km²
...at 7 cm/pixel resolution

Over 1500 drone flights in 6 months!
The Government of Nepal Imposes Harsh Regulations on Drones

Drones Are Essential in Rescue Efforts

However, what the government and the people who filed those complaints failed to see, is that the use of unmanned aerial vehicles during a disastrous event (like an earthquake) is essential in rescue efforts. With this in mind, British NGOs have used drones to assess the extent of the damage that was caused by the earthquake, but also to aid a variety of search-and-rescue operations that have been going on around the area most affected by the Nepal earthquake. The fact that drones proved to be essential in saving tons of lives after the earthquake at Nepal, proves that drones can serve many other purposes than just flying around and invading people's privacy, as some citizens believe. Without the use of drones, chances are that the number of victims from the earthquake would've been much higher.
TODAY IT IS DIFFICULT TO COORDINATE MANNED AND UNMANNED AIRCRAFT OPERATING IN THE SAME AREA, AS DRONES CAN'T ALWAYS DETECT AIR TRAFFIC.
DRONES ARE BLIND TO AIR TRAFFIC

Restrictions and no-fly zones as an answer to the increase of the risk

Increase in commercial drone operations but hindered by regulation
AIR TRAFFIC AWARENESS TODAY

2,000 ft
AIR TRAFFIC AWARENESS THANKS TO INVOLI
DRONES CAN FLY SAFELY BELOW 2,000 ft (LOWER G AIRSPACE)
In the future, drones will fly also over 2,000 ft.
INVOLI UNIQUE SOLUTION

- **Hardware** for air traffic data collection, our Micro Control Tower

  **PCT PATENT PENDING**

- **Software** with AI algorithms, for data validation and enhancement

  ![Swiss made software](swiss_icon.png)
Deployment of our “Micro Control Towers” over Telco Infrastructure

Air traffic data is sent to the ATC and drones

ATC and drones use our data

COLLECT

TRANSMIT

MANAGE & REACT
POC IN SWITZERLAND

7 antennas for 8’000 km²

Drone delivery made possible
OUR RECIPE TO A SAFE DRONE INTEGRATION

1) 100% coverage of a country, especially G airspace

2) All identification technologies are detected:
   • ADS-B
   • Mode S, Mode A/C
   • FLARM

3) Provide aircraft positions to the UTM / ATM / drones

4) Favorize the integration of cooperative drones, being them equipped with FLARM or low power ADS-B
INTEGRATION INTO U-SPACE IN SWITZERLAND
CURRENT LOW ALTITUDE COVERAGE IN SWITZERLAND
CURRENT INVOLI IMPLEMENTATION FOR LVC

ADS-B out ➔ INVOLI ➔ AIRMAP ➔ ATC / Drone operator
PARALLEL USAGES OF LOW ALTITUDE AIR TRAFFIC DATA

- Safety of gliders vs. drones (thanks to FLARM)
- Every aerodrome could have its own air traffic data
- Tracking of air traffic in G space, statistics
- Faster respond in case of accident, data for accident investigation
- Drone taxi compatible
- ADS-B data validation via WAM
- Certification of sensors on drones

INVOLI is part of:
DIAS, GUTMA, Urban air mobility project in European locations
The key enabler for a correct UTM implementation is having full air traffic data coverage of G airspace.
IS THIS DISRUPTIVE?
WHAT DO YOU DO IF YOU WANT TO LISTEN TO SOME MUSIC?
YOU BUY A CD
MUSIC AS A SERVICE
WHAT DO YOU DO IF YOU WANT TO HAVE RELIABLE AIR TRAFFIC DATA?
YOU BUY A RADAR
AIR TRAFFIC DATA AS A SERVICE
LOW ALTITUDE AIR TRAFFIC DATA
FOR SAFE FLIGHT OPERATIONS

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