The Drones SPHERE : combining balloons and coaxial rotors

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RIDEngineering

RIDE is a group of companies developing since 2004 some Aerospace high tech projects with the kind supports of MP-I & Aerospace Valley in Toulouse and of Skolkovo Innovation Center .It includes companies **RIDEngineering** in Toulouse , and **RTR** in Skolkovo (same ownership) .

Here is an example of turn key systems we designed and realized for testing jet engines.



- SPHERE drone project started by RIDE in 2004, drone products unique for :
- Power efficient
- Scalable line of products from micro to megal
- Ultimate safety for combining balloons and coaxial rotors
- New flight dynamics principle with gravity locking
- Simple and low cost
- Patented advanced developments step by step

A. Mini drones currently

B. scalable from Micro to HALE drone

- A. Principles :
- 2 counter rotative equatorial slow propellers with stiffened-fixed blades
- Driven by CoG relative motion inside a quasi spheric central body
- Using Helium for medium-large dimensions
- use COTS (aerospace or even automotive) including micro
- controller with gyro-accelero-GPS-sonar
- Minimum number of components
- Flight dynamics adapts to environment
- Easy to use easy to make

- B. Mini Drones P1 & P2 :
- Flights and stabilization optimized and tested in manual and automatic modes .
- QA and industrialization in progress
- Growth potential proposed : P3 (for industrial inspection) and P4 (for meteo)



SPHERE P1 : first proto



SPHERE P2 Overall dimensions: Height ~ 4m Rotors diameter ~ 2m







SPHERE P3 / P2 : proto

- On the basis of P1/P2 experience (VIDEO) we designed P3 and P4(6m X 3m , less than 20kg)
- For applications similar to "industrial multicopters" but much safer (5.10^-6 lethal damage) and more power efficient
- Nota : started active discussions for local team in Toulouse including Zodiac , Airbus , Sup Aero ... others relevant partners or investors welcome .

- C. the ultimate step of scalability is HALE strato -SPHERE potential :
- Day/Night inflation consistent
- Photovoltaic powered permanent flight
- Assembly line defined
- Logistics : simplified

SPHERE drones scalability :



SPHERE development : RIDEngineering

A. Mini drone SPHERE :
1.5 years to an industrial product with after sale support

- B. ultimate HALE drone strato-SPHERE :

4 years to an industrial product with sales network and after sale support

Developments overlapped