

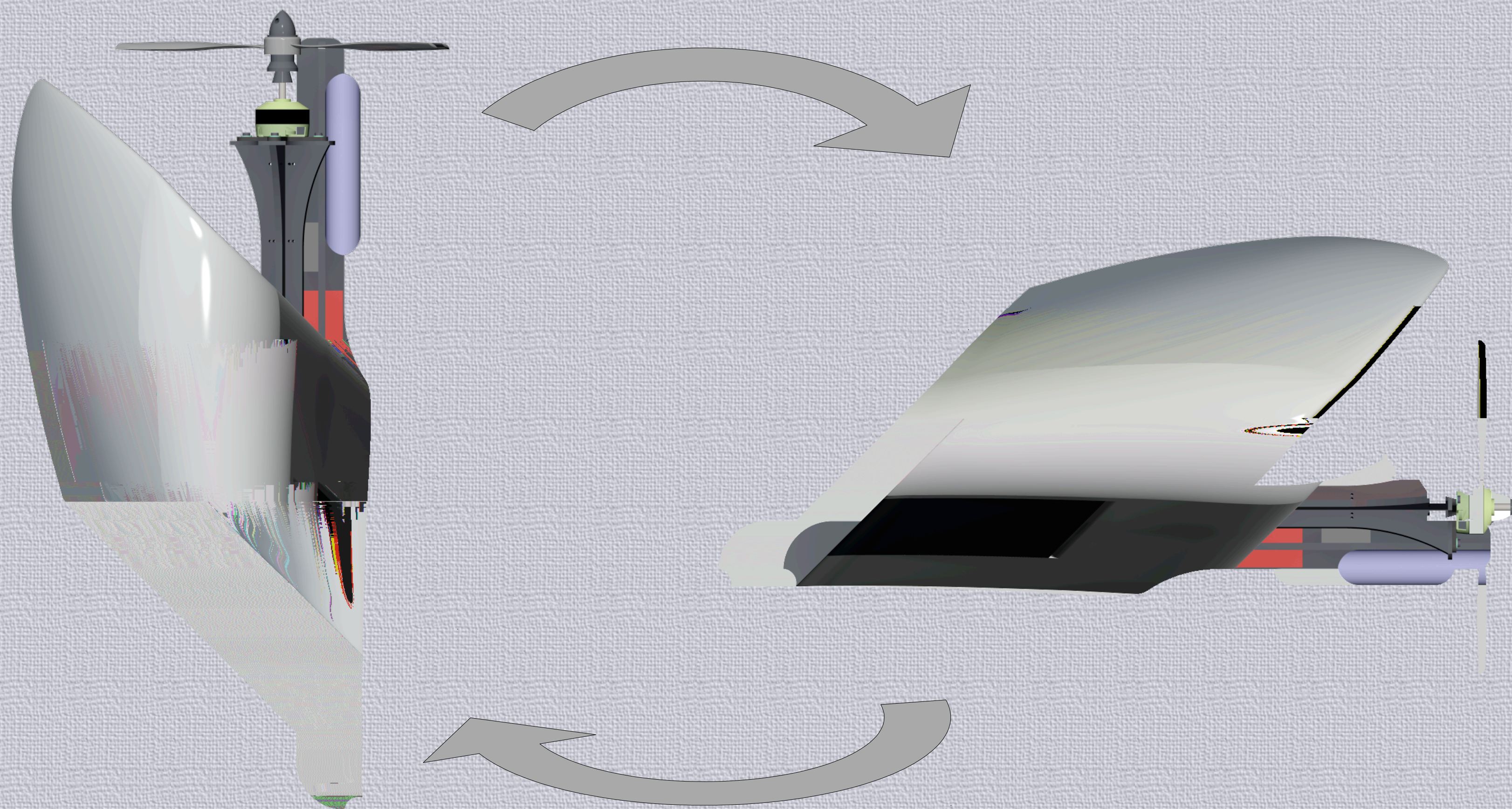
“Skydriven”

A VTOL SUAV with an elliptical wing

Combining the **stationary** capabilities of helicopter-like UAVs along with the **cruising** speed and efficiency of gliders

Vertical mode

Takeoff
Landing
Stationary flight



Horizontal mode

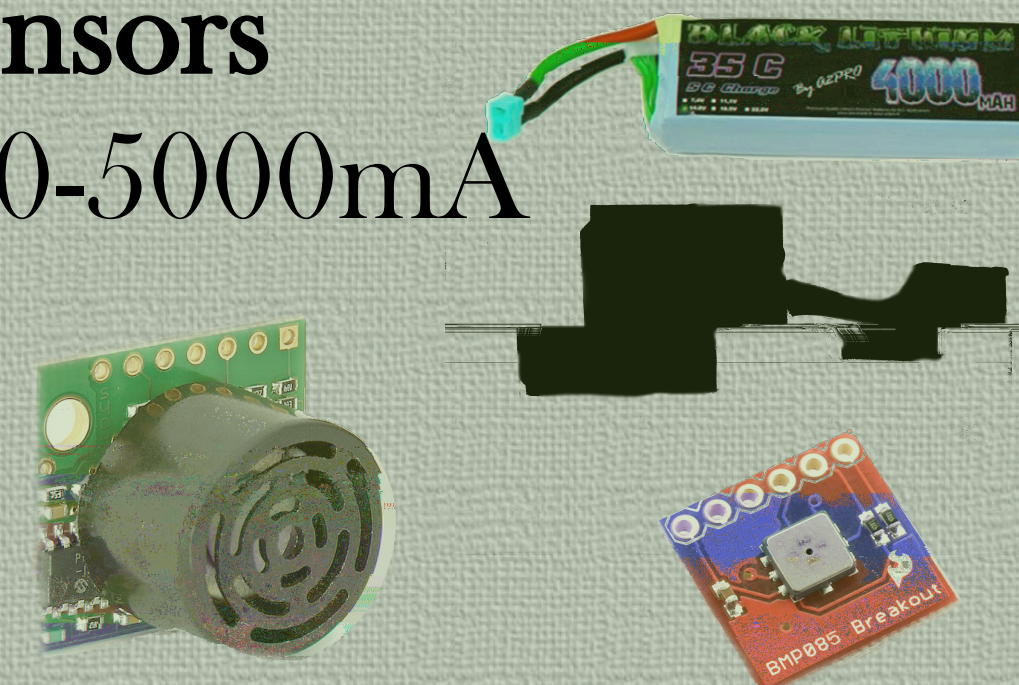
Cruising for a long range flight, ideal for scouting wide areas

Measurements

Weight : 2 kg
Wingspan : 700 mm
Height : 170 mm
Length : 520 mm

Electronics & Sensors

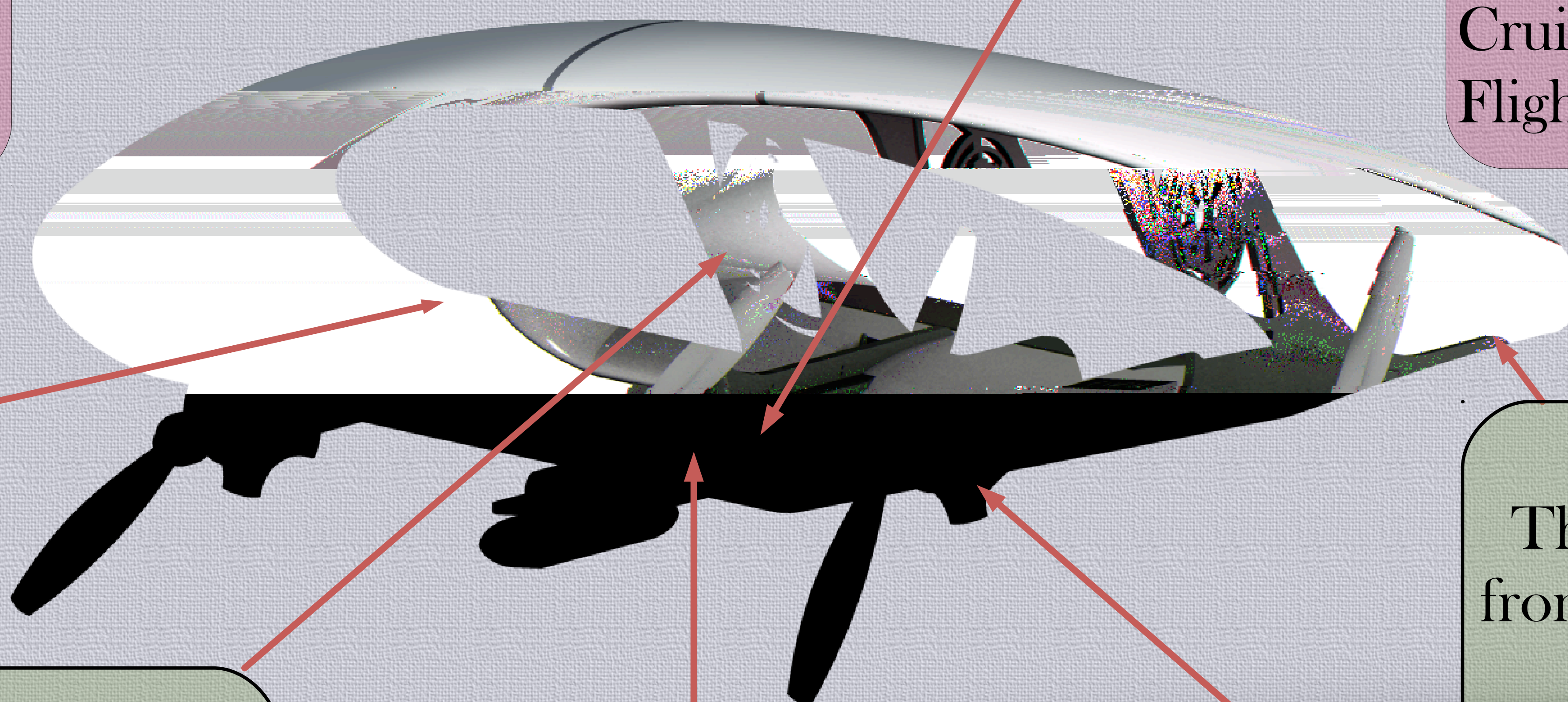
Battery : Li-Po ProTronik 3S, 3000-5000mA
GPS : Lextronic EM 406
Ultrasound : MaxBotixLV-EZ2
Pression : SparkFun BMP085



Expectations

Payload : 300g
Cruising speed : 100 km/h
Flight duration : 10 min

Steered by two **rudders** cut in the back of the lower wing



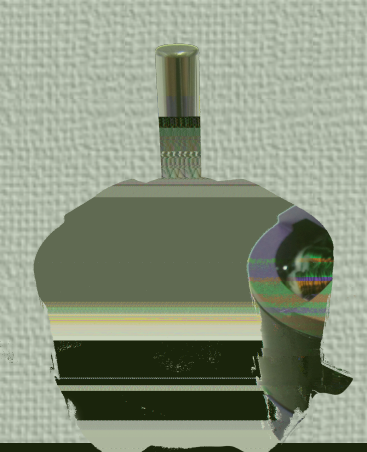
The annular wing is cut from **polypropylene foam** sheets by **hot wire**

A **carbon fiber mast** keeps the wing in shape and supports the electronics and the battery

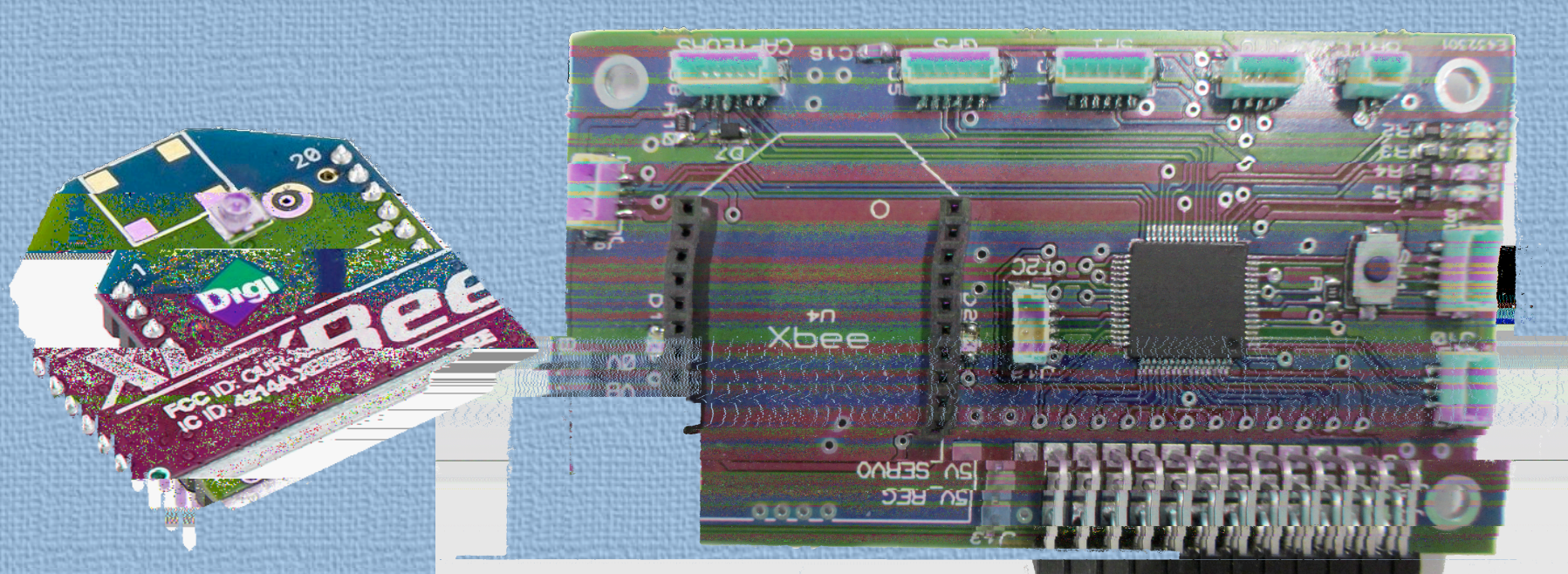
Gyro Orientation Sensor
MicroStrain 3DM-GX2



Propelled by two **300W Pro Tronik brushless motors**



Custom-made motherboard



CPU : dsPIC33E
Wireless comm. : **XBee Pro**
Internal comm. : I2C and UART
Possesses a **microSD slot**
Programmed from scratch.

Handles 3 types of control



Manual mode : each motor and rudder is directly controlled by the remote.

Semi-automatic mode : the drone can station itself at a given altitude.

Automatic mode : the drone autonomously completes a mission whose coordinates are pre-recorded.

This project was conducted by successive teams of students of the **Mechatronics** section at the **INSa de Strasbourg (FRANCE)**

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