

Flight Dynamics Labs (LAPIS) Activities

- ◆ Development of fixed and rotary-wing UAVs (Unmanned Aerial Vehicle) : design and construction of small aircraft (drones) with innovative features, equipped with thermal or electric propellers;
- ◆ Autopilot Design: drive and control algorithms developed through an automatic SW generation and implementation on the on-board computer;
- ◆ Aircraft modeling and flight simulation by a real-time simulation system, with a realistic cockpit for the human-machine interface study.
- ◆ Design, prototyping and validation via simulation of systems for determining balance control of nano satellites.

Lab equipment:

- ◆ Fully instrumented UAVs for GN&C test and validation using scale models;
- ◆ dSPACE equipment for rapid prototyping of flight control and hardware-in-the-loop simulation systems:
 - ◆ dSPACE modular system based on DS1006 Processor Board, 2.5 GHz and various cards(I/O Serial Interface Board, Digital I/O Board, A/D and D/A Board, Timing and Digital I/O Board etc.)
 - ◆ dSPACE System DS1103 PPC Controller Board, single-board system with real-time processor and comprehensive I/O
 - ◆ dSPACE MicroAutoBox II system
- ◆ CPU boards, GPS, I/O, power supply in PC/104 format for embedded computer realization
- ◆ Inertial navigation system C-III MIGTS - Systron Donner Inertial Division
- ◆ Professional Flight Console with hand wheel and pedals by Precision Flight Control Inc., with digital avionics and navigation system emulation by Garmin GNS 530W for single-engine, twin-engine propeller and turbojet .
- ◆ MathWorks Family products (Matlab, Simulink and toolboxes); products by dSPACE and applications for aerodynamics analysis (Tornado, VSAERO).

