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Department of Avionics and Control Systems

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The main results of research and development

Flight control systems:
- Digital autopilot for executive and commuter aircraft,
- Navigation and control systems for unmanned aircraft,
- Indirect flight control system (Fly-by-wire) for general aviation aircraft.

Low cost on-board equipment:
- Flight data recorders,
- Strap-down attitude and heading reference systems,
- Air data computers,
- Electromechanical actuators with digital controllers.
Research and development possibilities

• On-board digital equipment – hardware and software design and prototyping, hardware-in-the-loop simulation,

• Flight control systems – design, building and testing,

• Flight tests – measuring, recording and data processing,

• Handling Qualities analysis, flight simulation experiments and analytical evaluation of pilots’ skills,

• Control theory and practice – including fuzzy logic and rough sets.
Experimental indirect flight control system for GA

The main field of interest

- Project
- Prototype
- Laboratory tests
- Flight testing
- Modification
- New versions
Research and development plans

GA equipment: Simplified and intuitive flight controls, envelope limiting, active load control:

**Indirect Flight Control System**

- More sophisticated experiments using the modified flight simulator Alsim AL-200 MCC
- Application of indirect flight control system on the board of twin-engine EM-11 Orka aircraft (Polish GA airplane)

Facilitated Airplane (FA) or Safe Flying Airplane (SFA)
International research participation

Involvement in European projects:

  Cooperation with WUT

– **FP7**: SCAlable & ReconfigurabLe Electronics plaTforms and Tools (as a partner)

Complementary information:

– Small, but active research team (2 Prof., 11 PhD, 3 PhD stud.)
– Practical experience in aviation
– Focused on General Aviation problems
Thank you for your attention!