SUPER – Stuttgart University Program for Experiencing Research
Project Information

Institute’s Information

Name of Institute: Institute of Aircraft Design
Contact Person: Andreas Strohmayer (Prof), Jonas Lay (RA)
Phone: +49 711 68569567, +49 711 68560437
E-mail: strohmayer@ifb.uni-stuttgart.de, lay@ifb.uni-stuttgart.de

Duration of Project/Number of Students

June/July: X
June/July/August: 1
Number of Students: 1

Name of Project: Ground and flight testing of hybrid propulsion systems for small aircraft

Beneficial Skills & Knowledge: Interest in aircraft and experimental research
Interdisciplinary field includes mechanics, electrics, thermo-/aerodynamics, programming

Description of Work

The group for manned electric flight at the Institute of Aircraft Design focuses on economic and ecologic aircraft.

After great success with solar- and battery-electric aircraft, the research group is now pursuing hybrid-electric propulsion concepts. Hybrid-electric systems for aviation promise greater range and versatility while still maintaining efficient aerodynamics, combined with the advantages of an electric drivetrain.

The team is currently equipping their 2-seater battery-electric aircraft with two different serial hybrid propulsion systems. One system is already airworthy and currently in flight testing. The second, more complex system is in development and will have to be ground tested thoroughly at some point next year.

Depending on the progress of the project, there will be flight testing, ground testing, optimization or integration of one of these hybrid systems. The current challenge, the skill and preference of the student will decide the task at hand.
**Figure 1.** CAD of the Wankel-based Range Extender in pod

**Figure 2.** e-Genius with mounted Range Extender System

**Figure 3.** CAD of the upcoming hybrid system integrated in fuselage