### SIMULATOR - HYPSIM

- Verification of the results carried out during the preliminary procedure
- Introducing human-in-the-loop effects
- Introducing new mission profiles
- Identification of possible critic conditions (battery discharge, demanding maneuvers,...)
- Dissemination activities
- HMI integration conceptual simulation





Pipistrel d.o.o. Aidovščina Slovenia www.pipistrel.si

SIEMENS

Siemens AG Germany

www.siemens.com



University of Maribor Slovenia

www.um.si/en/Pages/default.aspx



University of Pisa Italy



www.unipi.it

Italy

www.mbvision.it



## **NHYPSTAIR**

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To know more about Hypstair project

Visit the website: www.hypstair.eu info@hypstair.eu

# **NHYPSTAIR**

Development and Validation of Hybrid Propulsion System Components and Sub-systems for Electrical Aircraft





HYPSTAIR is a project financed under the Seventh Framework programme which aims to design the flight, or from an on-board and test the components of the serial hybrid propulsion system for a small aircraft. A serial hybrid propulsion system uses an electric motor to drive the propeller. The electrical power can be source

either from a battery pack, that can be recharged during fuel powered generator. This propulsion system will enable future small aircraft to operate with lower emissions, lower fuel consumptions, thus reducing the direct costs of aviation. A serial hybrid aircraft currently

represents the best compromise between increased efficiency and flight range in the light aviation segment. Limitations of existing electric energy storage technologies make an electric-only propulsion system for now unsuitable for long range flying.





The scope of the HYPSTAIR project is to develop, integrate and test the components of a serial hybrid aircraft propulsion system and to design a human machine interface that makes their operation pilot friendly. With the goal of creating

a supply chain of hybrid drive components, HYPSTAIR will enable future small aircraft to fly greater distances with an increased fuel efficiency and safety, thus reducing the costs and the environmental impact of air travel.

### COMPONENT INSTALLATION PLATFORM



Electric motor. 200 KW is the maximum take-off performance (MTOP)



ICE Range

Fxtender



100 KW generator for harging batteries/ powering the motor

## HMI AND HAPTICS



We set new standards in the design of HMI for aircraft, realizing a complete set of instruments with a multi-layer interface for the management of the plane and the propulsion system, according to the principles of human centered design.

#### FONT FOR QUERTYUIOPASDFGI HIPSTAIR HMI





The original layout includes a compete study of icon system, different levels of interaction, alert/warning features, trend predictors, haptic devices.

#### **Hibrid Serial Propulsion System** Architecture

- Innovative and Powerful
- Economic and Ecologic
- Safe





