MARGARET: A PERSONAL TRANSPORTATION AIRCRAFT OF TOMORROW USED TODAY FOR COLLABORATION AMONG UNIVERSITIES

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Table of Contents

1- Introduction to MARGARET

2- MARGARET Aircraft Technologies

3- MARGARET Consortium: Collaboration among Universities and Educational Initiatives

4- Future of MARGARET
Section 1: Introduction to MARGARET
WHAT IS IT?

MARGARET stands for: Modular safe and Affordable not tRaditional Green light Aircraft Research for Everyday personal Transportation

MARGARET is a concept of ULM (Ultra Light Machine) Aircraft for Everyday Personal Transportation designed to be:

• Easy to pilot to be safe
• Passively Safe
• Modular & Affordable for Mass Diffusion
• Green
• Attractive and comfortable for everyday use
Section 1 - Introduction to MARGARET

WHY?

Why could be useful for the European society to have a Personal transportation system based on ULM (Ultra Light Machine)?

The idea is that a small, but important, percentage of people could use an aircraft for their daily travel from their house in the countryside to the job place in the city center.
HOW?

Every big city has a ring road around it, the idea to create dedicated runways parallel to existing ring road and strategic urban airports served by public transportations such as bus services, tram lines or subways.
Once landed MARGARET aircraft will be parked in dedicated parking point where it will be possible to recharge batteries for long stops or change them for short stops as showed in Figure. Parking points will be connected to the city center with Metro stations.

- Possibility to park and charge batteries while the user is at work for long parking
- Possibility to park and change batteries for short parking
Section 2:

MARGARET Aircraft Technologies
MARGARET

MARGARET technologies for a future everyday personal transportation:

1) Safety
2) Easy to pilot to be safe
3) Green Mobility
4) Integrated with the future Single European Sky
MARGARET
1 - Safety

Innovative and completely new architecture of the aircraft

• Enhanced protection of the cabin due to the fuselage completely surrounded on its four sides from structural elements
Thanks to the enhanced protection of the cabin a radical increase in passive safety is provided by **Air-Bags**

The synergic use of internal and external airbags allow the radically increase passive safety and survival probability in event of crash.
MARGARET
2 - Easy to pilot to be safe
Aerodynamic Configuration to ease the piloting experience

• Three Lifting Surfaces

• High Wing Area but Low Aspect Ratio
MARGARET

2 - Easy to pilot to be safe

Innovative Avionic System

- HMI (Human Machine Interface) for Enhanced Situational Awareness
- All Weather Flight
- Auto-piloting capability
- Interactive HMI
A greener mobility concerns zero emissions
MARGARET

4 - Integrated with the future Single European Sky

Adaptation of MARGARET on the base of the foreseen evolution of the European ATM system designed by SESAR:

• Dedicated access to SES (Single European Sky) Web Net for Planning and Sharing of a 4D Trajectory
• Use of ADS-B technology for separation and collision avoidance
Section 3:
MARGARET Consortium:
Collaboration among Universities and Educational Initiatives
MARGARET
The Consortium

Leader

Hochschule für Angewandte Wissenschaften Hamburg
Hamburg University of Applied Sciences

Scuola universitaria professionale della Svizzera italiana
SUPSI

Cranfield UNIVERSITY
MARGARET
Collaboration and Educational Initiatives

Participation to EWAD 2013 (TODAY)
Sergio CHIESA, Dieter SCHOLZ, Giovanni Antonio DI MEO, Marco FIORITI, Andrea FURLAN
“MARGARET: A PERSONAL TRANSPORTATION AIRCRAFT OF TOMORROW USED TODAY FOR COLLABORATION AMONG UNIVERSITIES”

Participation to World Maintenance Forum 2013 4-6 September 2013 in Lugano, Switzerland.
Sergio Chiesa, Giovanni A. Di Meo, Marco Fioriti, Andrea Furlan
“SUPPORT AND MAINTENANCE STRATEGIES FOR FUTURE, INNOVATIVE AND LARGELY WIDESPREAD AIR PERSONAL TRANSPORTATION SYSTEMS”

Master Degree Thesis
Andrea Furlan “SAFE AND AFFORDABLE NON TRADITIONAL PERSONAL TRANSPORTATION AIRCRAFT”
MSc Thesis in Aerospace Engineering –POLITECNICO di TORINO, March 2013
Section 4:

Future of MARGARET
We Submitted MARGARET to 7th Framework in a Level 0 Call on March 14th 2013

FP7 – AAT – 2013 – Transports (Aeronautics) Call
Level 0 - CP-FP – Call: FP7-AAT-2012-RTD-L0
AAT.2012.6-2. Radical new concepts for air transport
MARGARET has been positively evaluated even if not financed due to lack of founding

We are not discouraged.....

WE ARE READY FOR HORIZON 2020
Thanks for the attention
Any question?