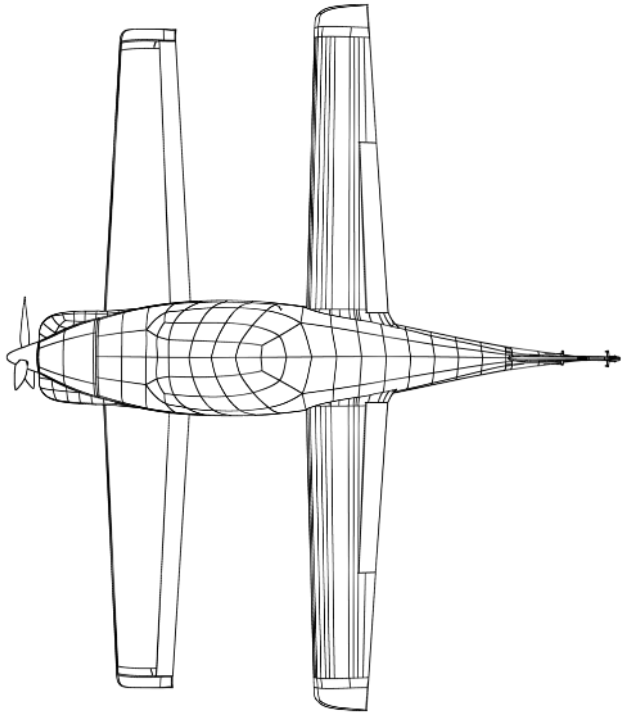

# The electric Dragonfly

## FAILURE OR SUCCESS???

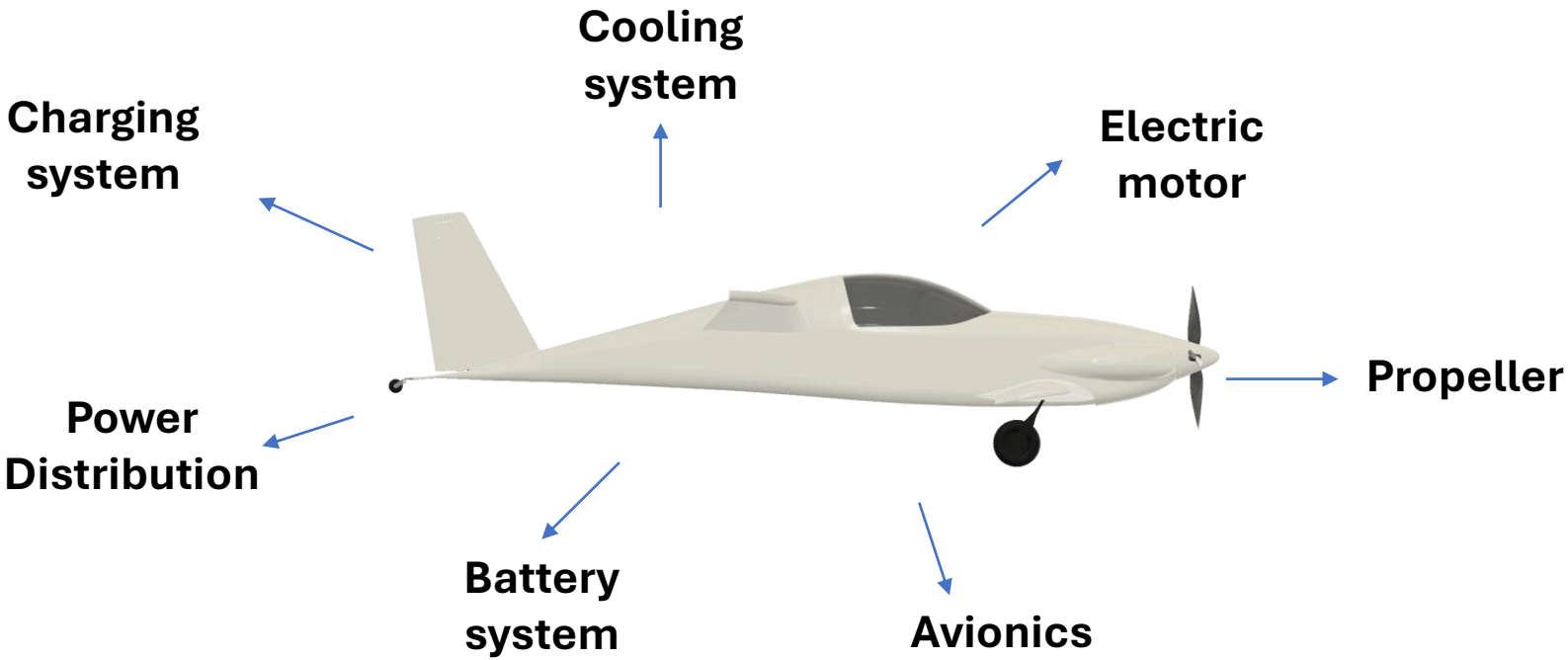

February 2019:
Finally a new aircraft at Inholland, but what to do with it?

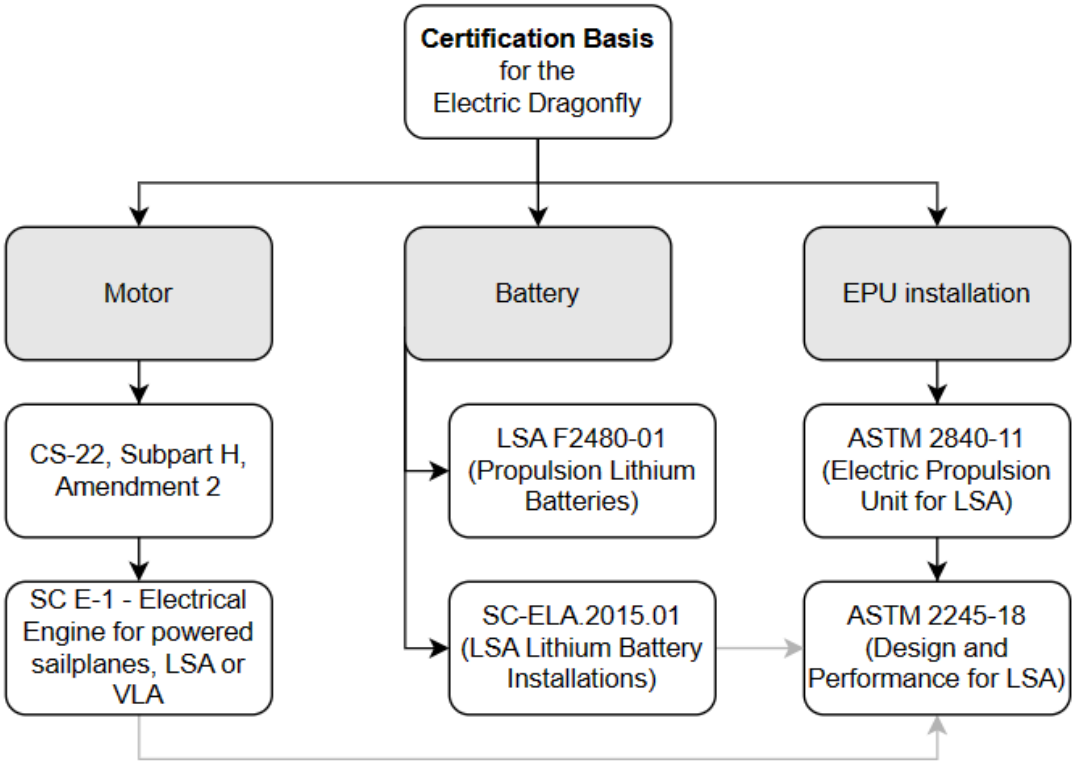

Paris Air Show June 2019
GOING ELECTRIC !!!


Sept 2019
Start of 1st learning by doing
project in electric flight
Feasibility study Electric Propulsion Dragonfly
composites
composites
composites
Aeronautical & Precision Engineering
Inholland Delft going electric
Project DragonFly



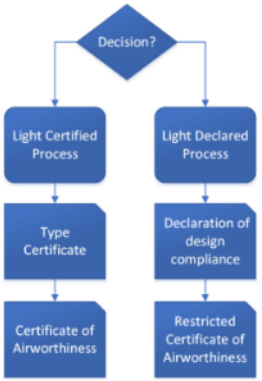
| Specifications | |
|---|---|
| MTOW | 522 kg |
| Power required | 60 kW |
| Glide ratio | 1:14 |
| PAX | 2 |
| Max. speed | 150 knots |
| Length | 5800 mm |
| Wingspan | 6700 mm |
| Height | 1300 mm |

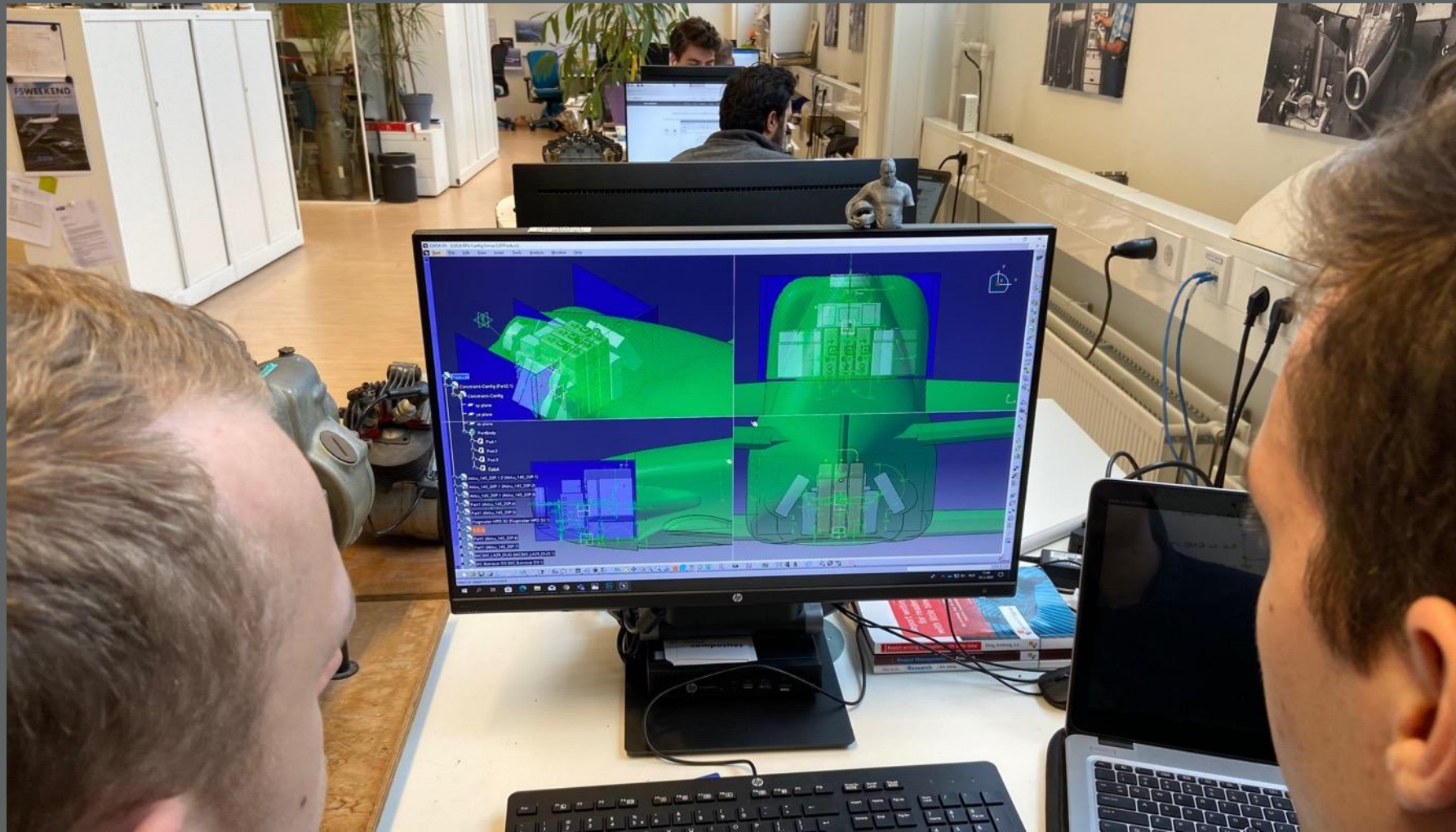

Cooling system
Charging system
Electric motor
Propeller
Power Distribution
Battery system
Avionics


Certification Basis for the Electric Dragonfly
Motor
Battery
EPU installation
CS-22, Subpart H, Amendment 2
LSA F2480-01 (Propulsion Lithium Batteries)
ASTM 2840-11 (Electric Propulsion Unit for LSA)
SC E-1 - Electrical Engine for powered sailplanes, LSA or VLA
SC-ELA.2015.01 (LSA Lithium Battery Installations)
ASTM 2245-18 (Design and Performance for LSA)

# “Certification” process

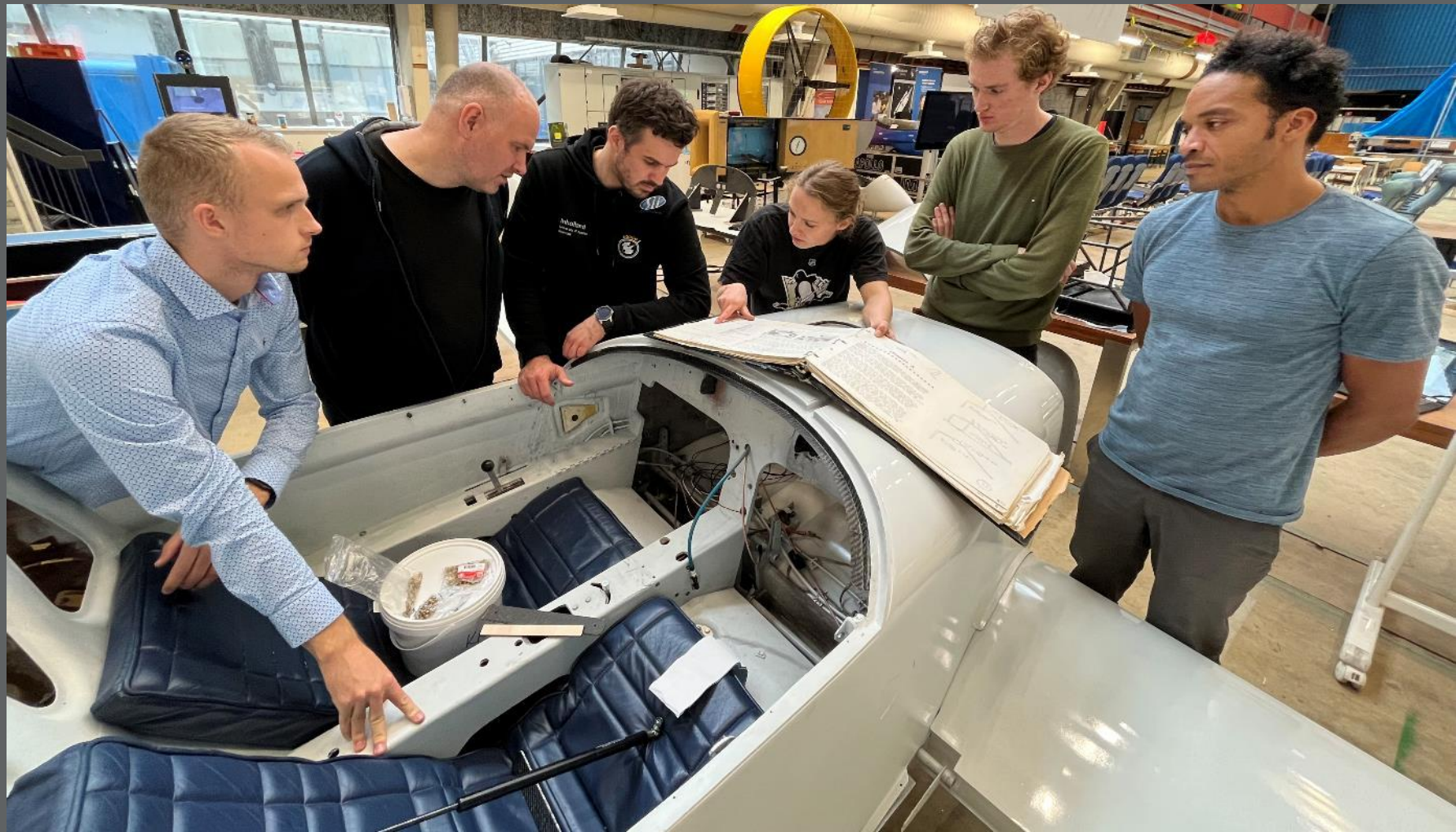
- Experimental/research purposes with a homebuilt aircraft
- Comparable to Part 21 Light Declared, in development by EASA.
  - As part of the GA Roadmap 2.0, EASA made a commitment to drastically simplify the airworthiness system (design and production) for the lower end of General Aviation (GA) with smaller and less complex aircraft and with minimal risks to third parties.
  - EASA considers that the best way to introduce the necessary proportionality is by creating a dedicated set of rules concerning design and production activities for sports and recreational aircraft (‘Part 21 light’), which would be separate from the current ‘Part 21’.



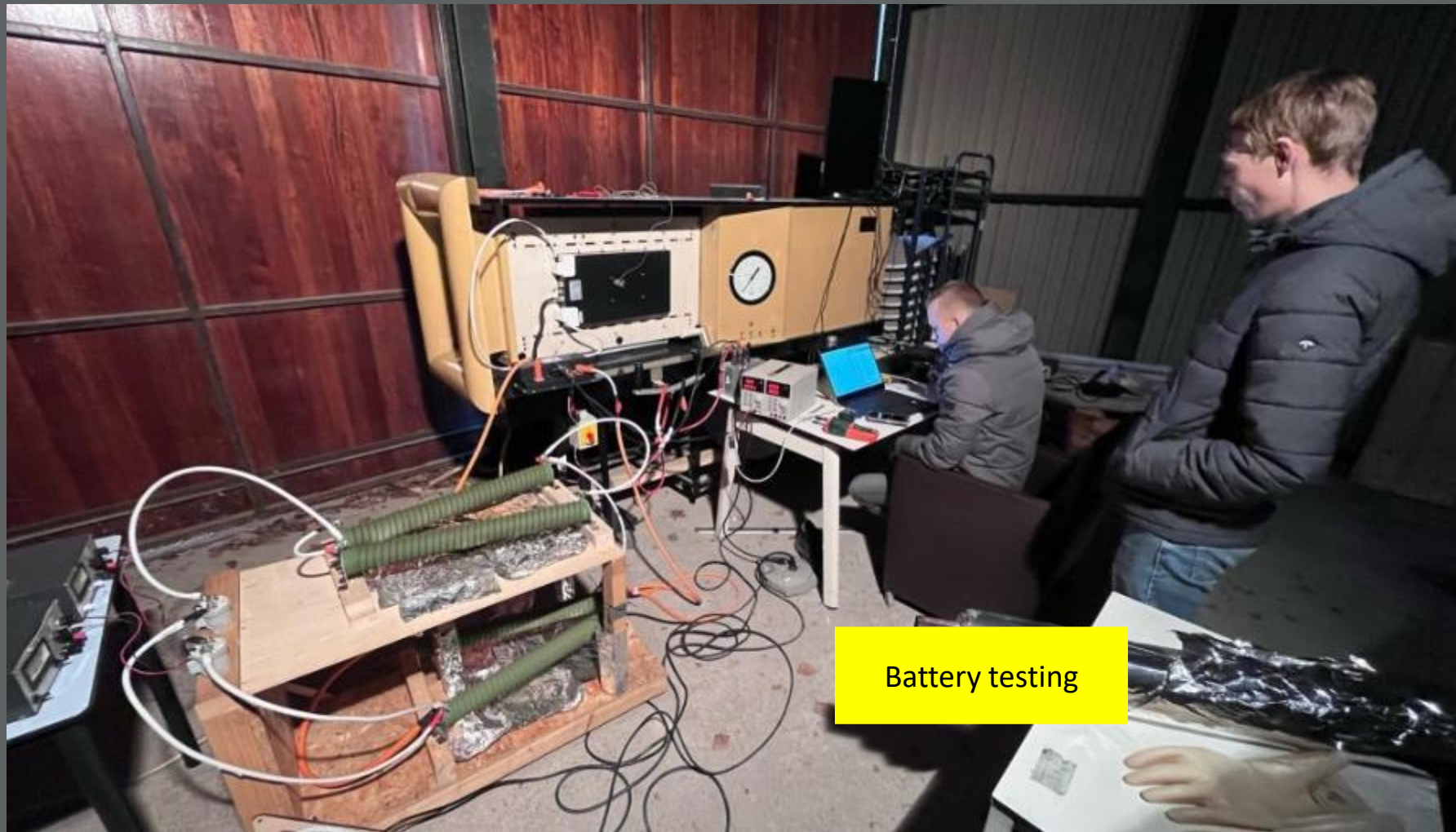

FSWEEKEND

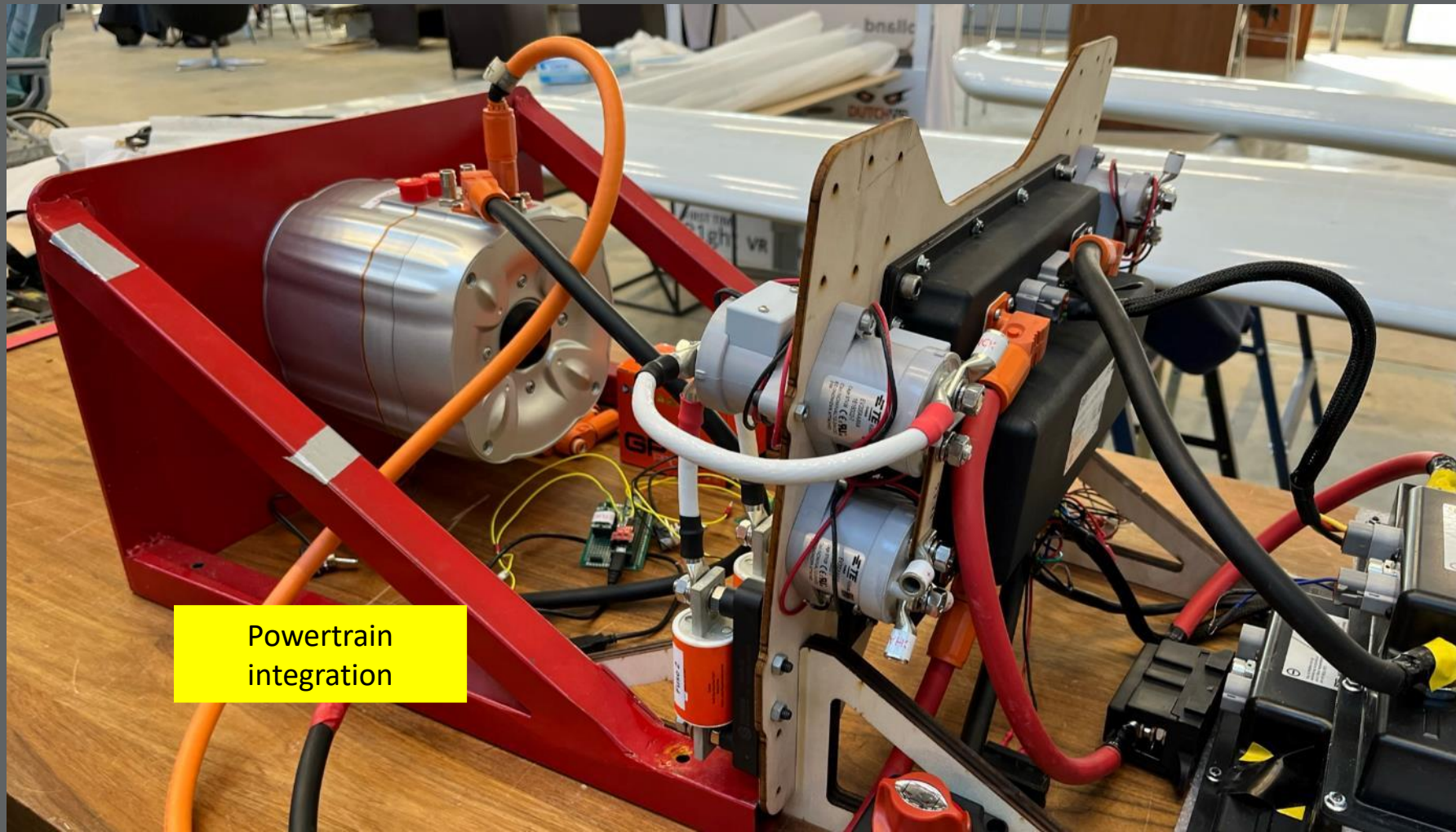

But then ....

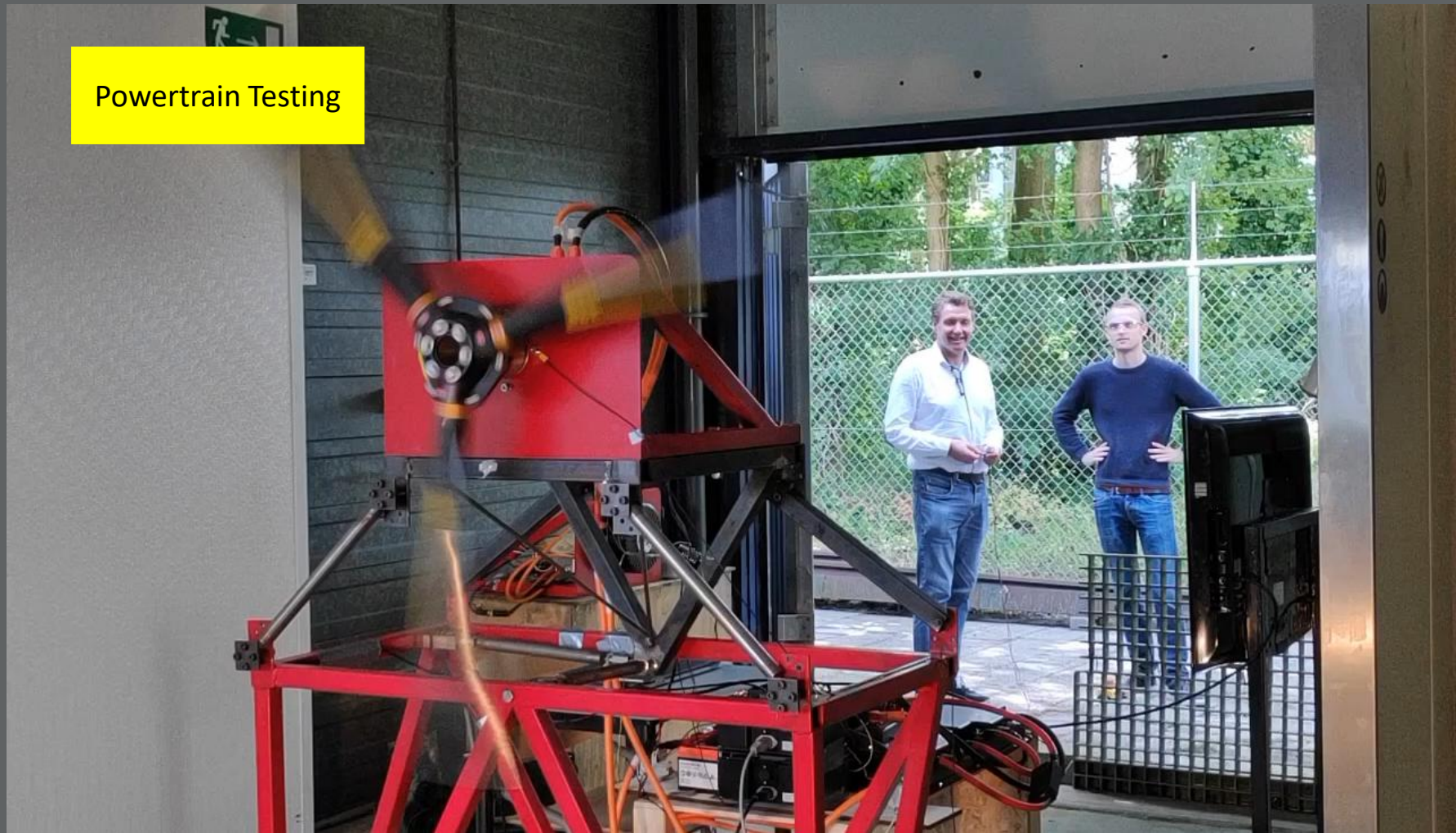

August 2020
Our 2nd Dragonfly




Airframe preparation


Battery testing


Powertrain
integration

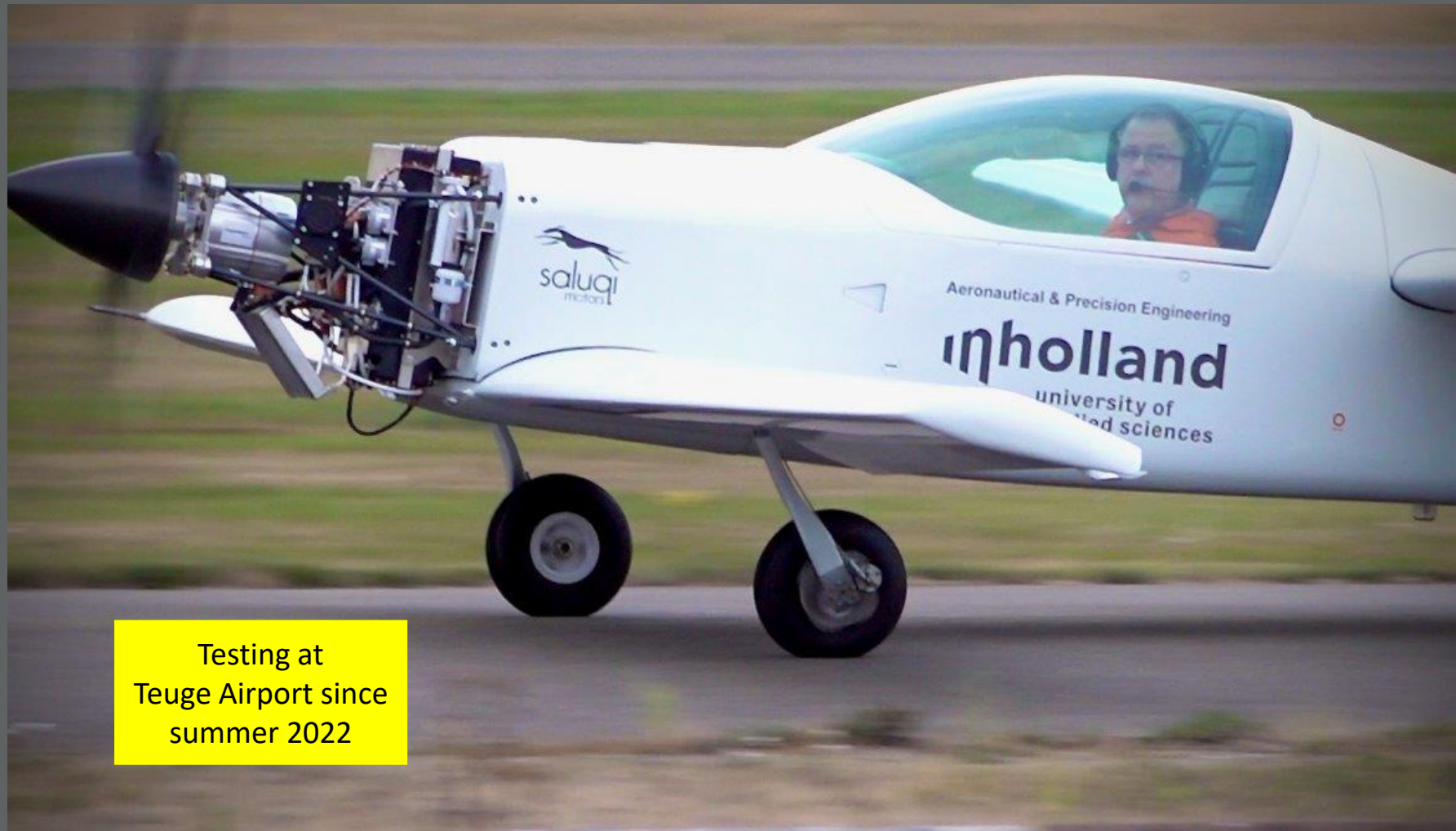

Powertrain Testing


Powertrain testing inside aircraft


System Integration


First taxi test


May 2022
Dragonfly reveal
with alumni




Testing at
Teuge Airport since
summer 2022


Why isn’t the Dragonfly flying yet?

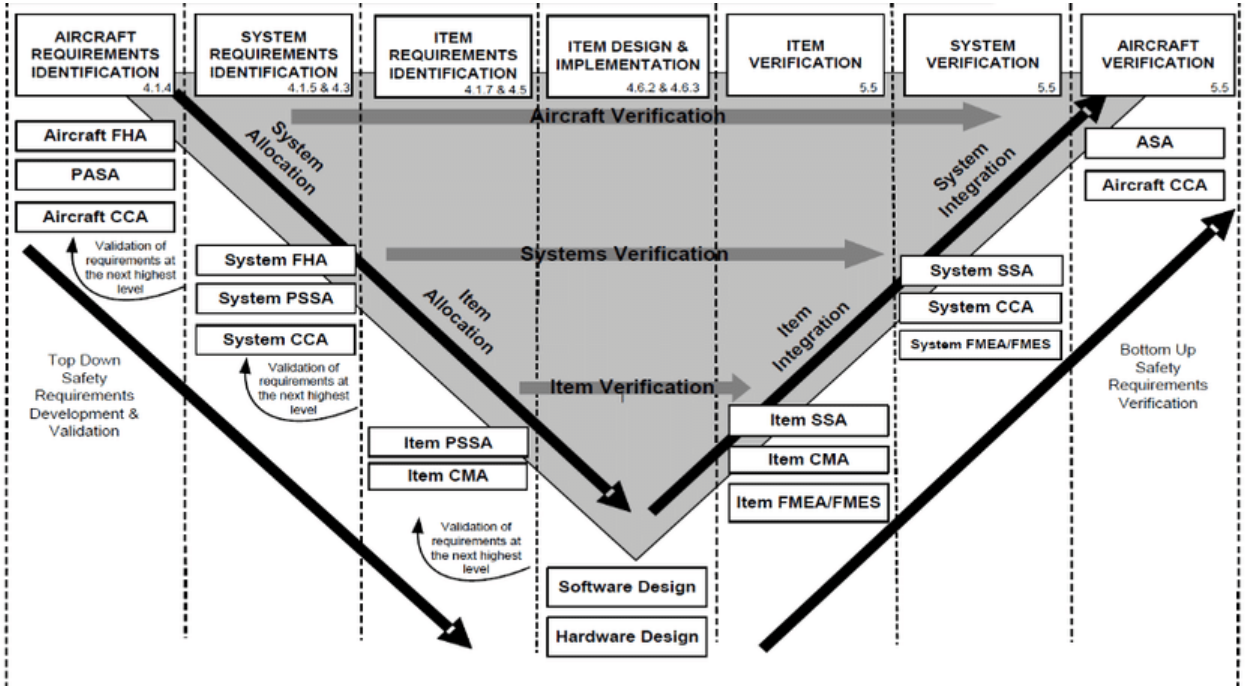
# Dragonfly challenges

- The funding gap.
- Supply chain for critical components.
- Working with authorities on certification.
- Climate goals vs financial means: The Chicken-and-Egg Paradox.

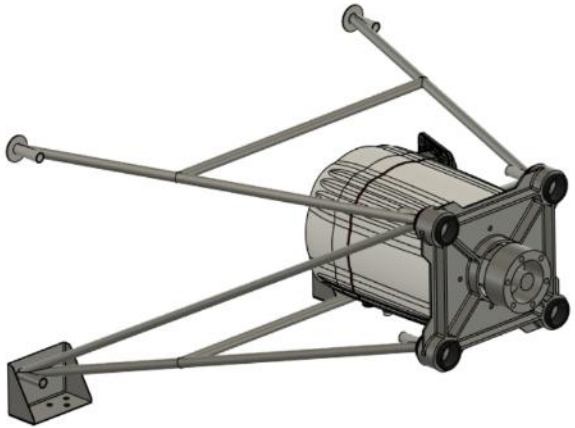
# Is project Dragonfly a success?

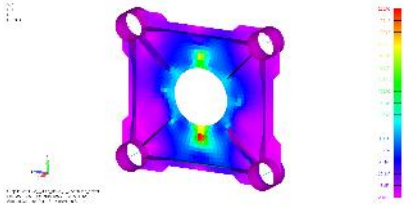
# More focus on safety assessment Aircraft & System level

in progress

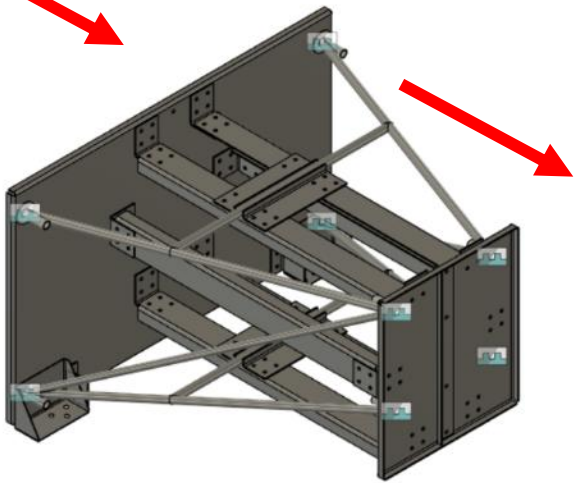


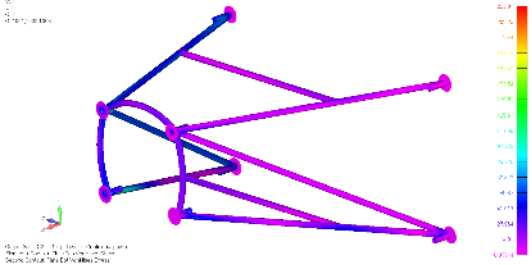
# Motorframe designed, built and tested

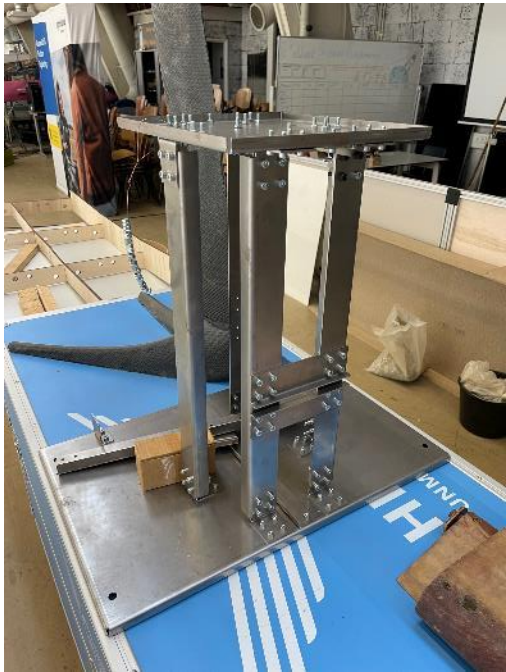




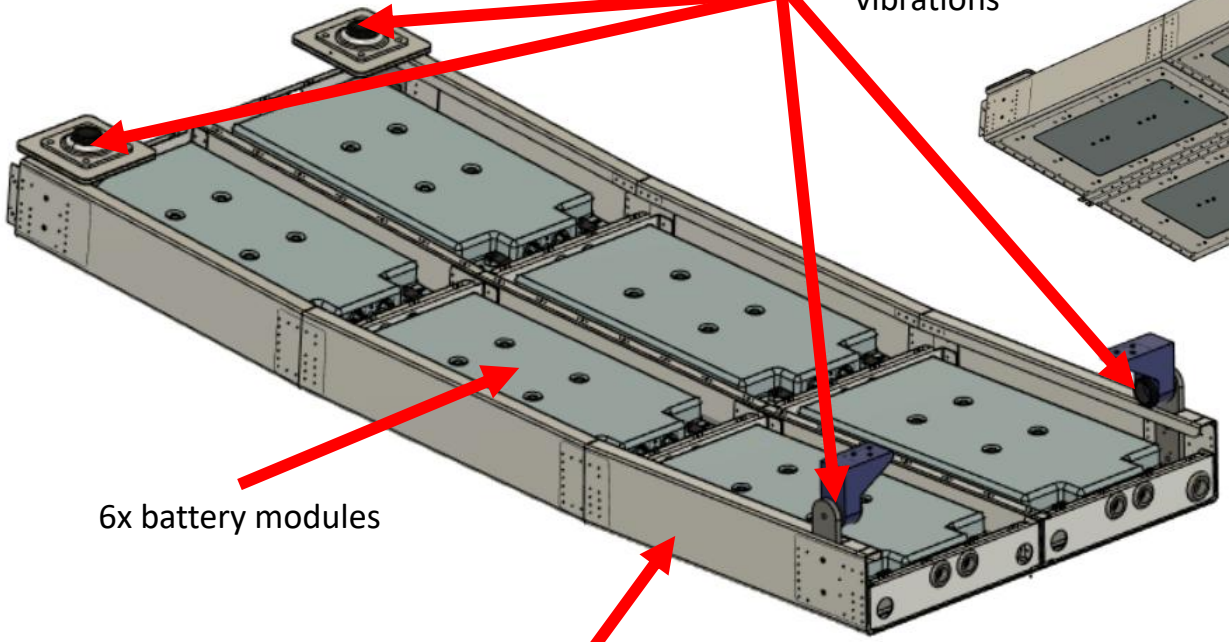
Improved design

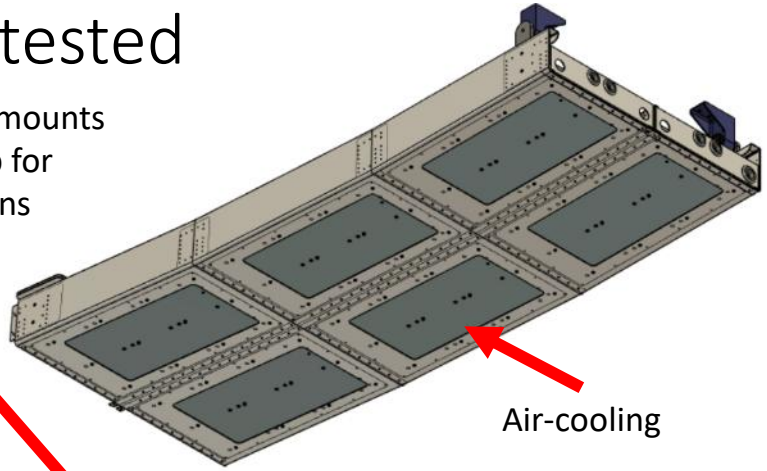


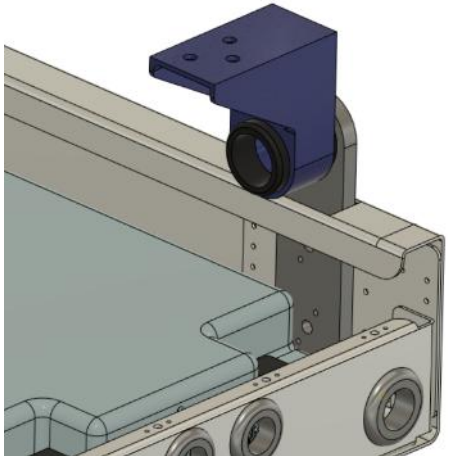




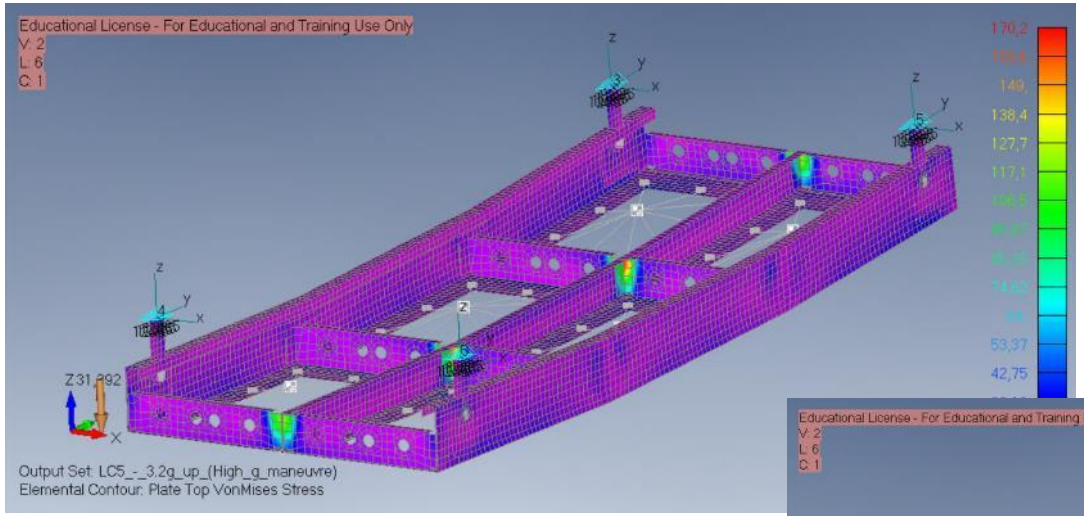
# Battery pod designed, built and tested

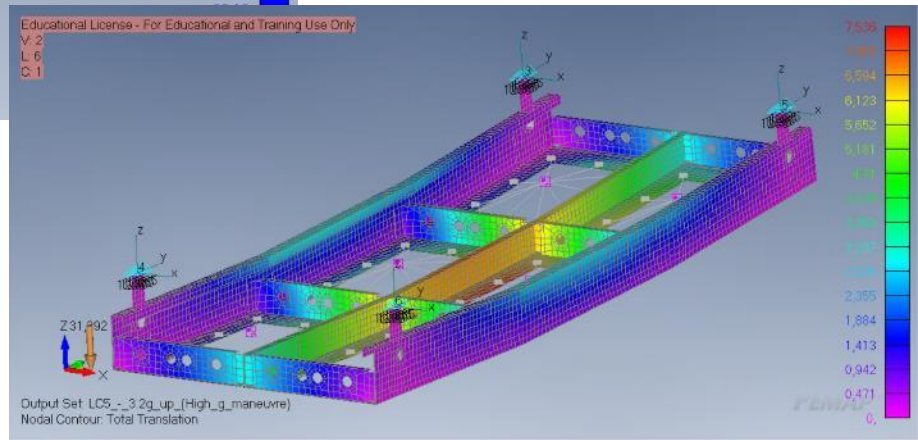


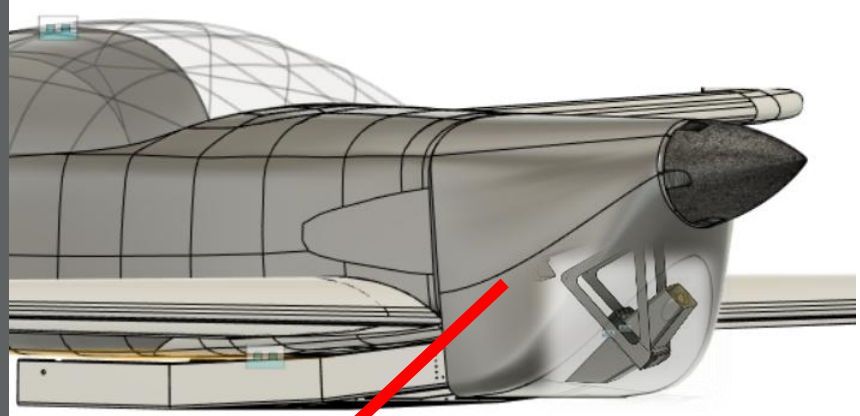



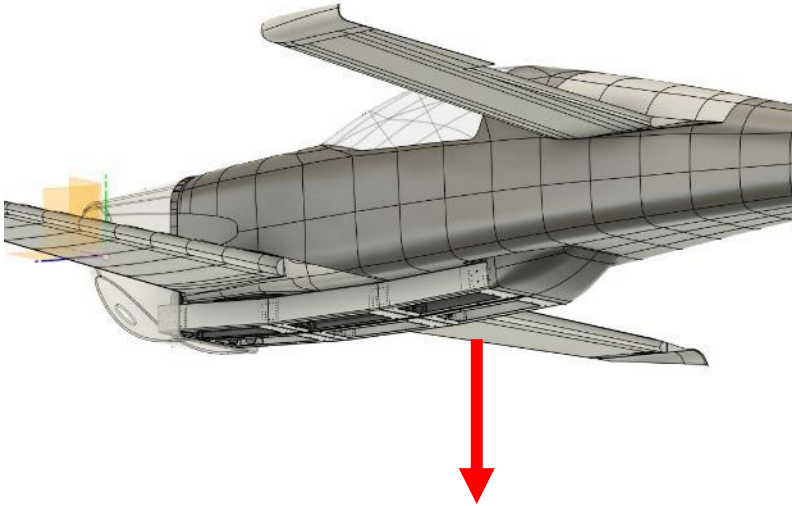
# battery pod structural analysis

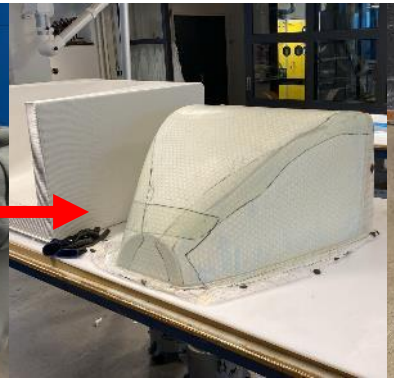


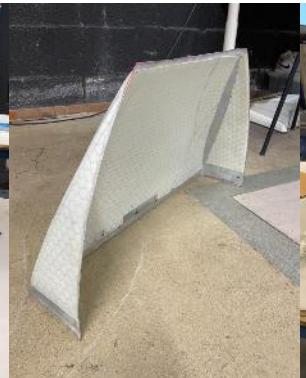



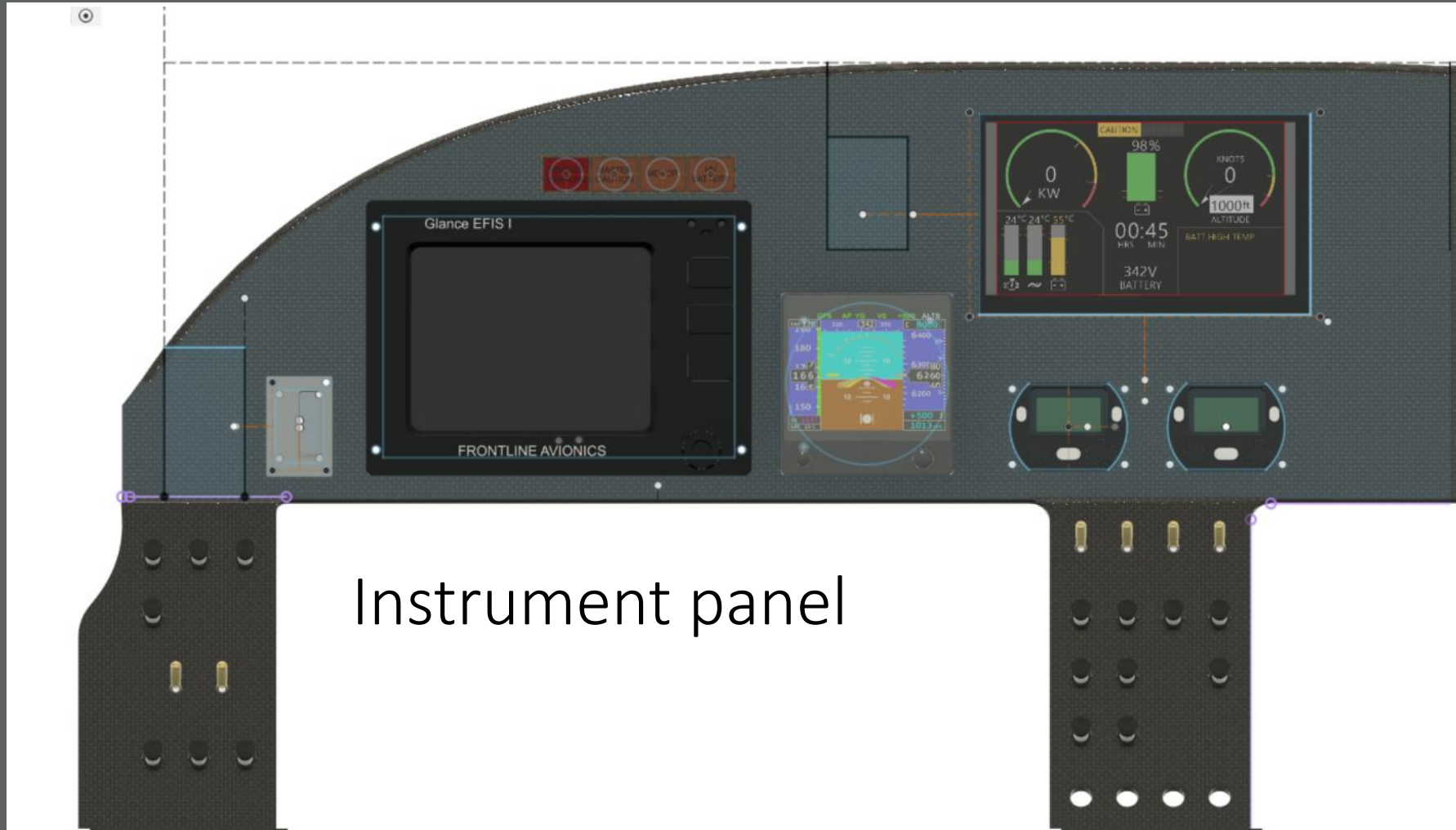
# Nose cowling and aerodynamic fairing












# Instrument panel


Ophoogzand


July 2023
Static Load Test successful
nholland
university of
applied sciences

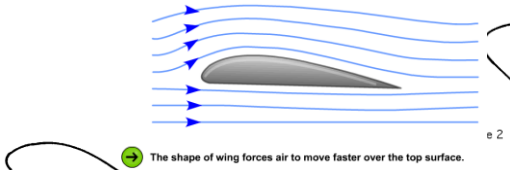

A VR full-motion flight simulator with innovative force feedback was developed for the electric Dragonfly

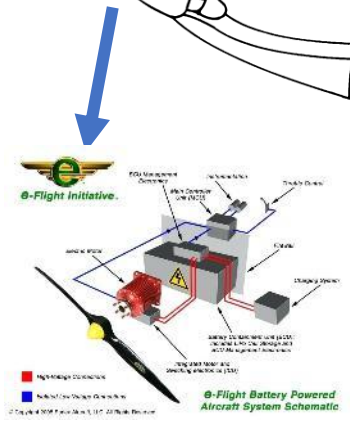

Followed by new flightsimulator for the E-Flight Academy


A test vehicle development was initiated for extra testing of electric powertrain for aerospace applications


Aeronautical & Precision Engineering
nholland
university of
applied sciences
EVcreate
Schilder
saluqi
JP AVIONICS
European Union
OPoost
ZELFZANDSTRALEN.NL

# 200+ students, reseachers and industry professionals involved



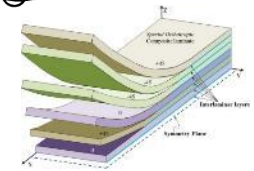














ILT is part of our journey



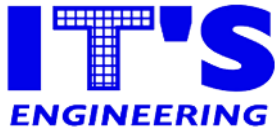














Flight Techniques BV


And many more….

# ”The Electric Dragonfly: Failure or Success?"

Bottom line:

- innovation in sustainable aviation is neither straightforward nor guaranteed.
- The journey of the electric Dragonfly showcases the power of hands-on learning and the resilience required to push the boundaries of what's possible, even if the results don’t immediately match the vision.

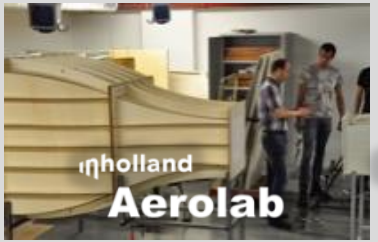

So far so good… But there is more…


2024: Inholland opens new
Electric Flight Lab in Delft

Aeronautical & Precision Engineering

inholland university of applied sciences

# Applied Sciences Labs Delft






Enabling research and innovation for Inholland Delft through applied research programs driven by creativity, sustainability and health