

CLASSIFIED

VIENNA UNIVERSITY OF TECHNOLOGY
SPACE TEAM

EXPERIMENTALRAKETEN
26.05.2014



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/tuspaceteam

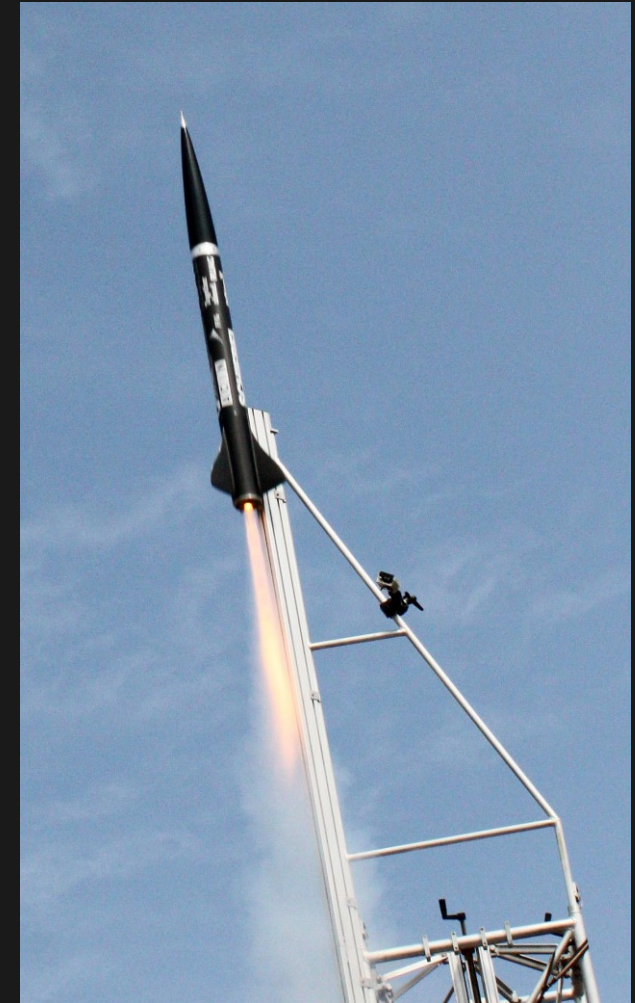
EXPERIMENTAL RAKETEN



2011: STR-01

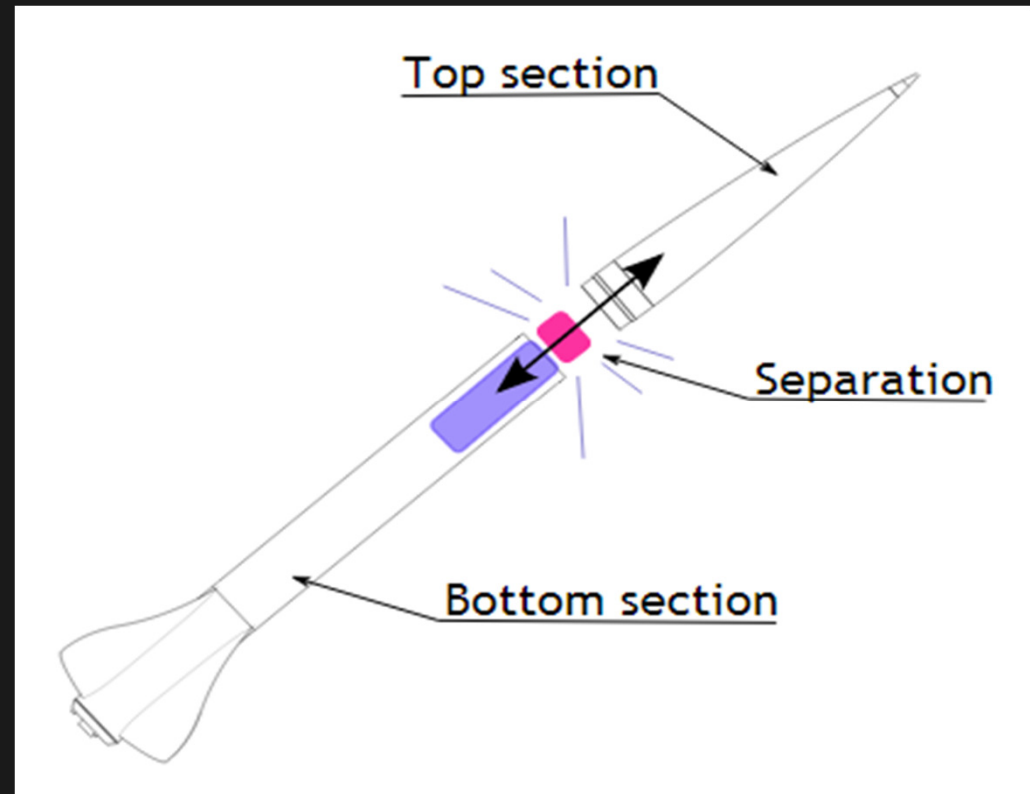
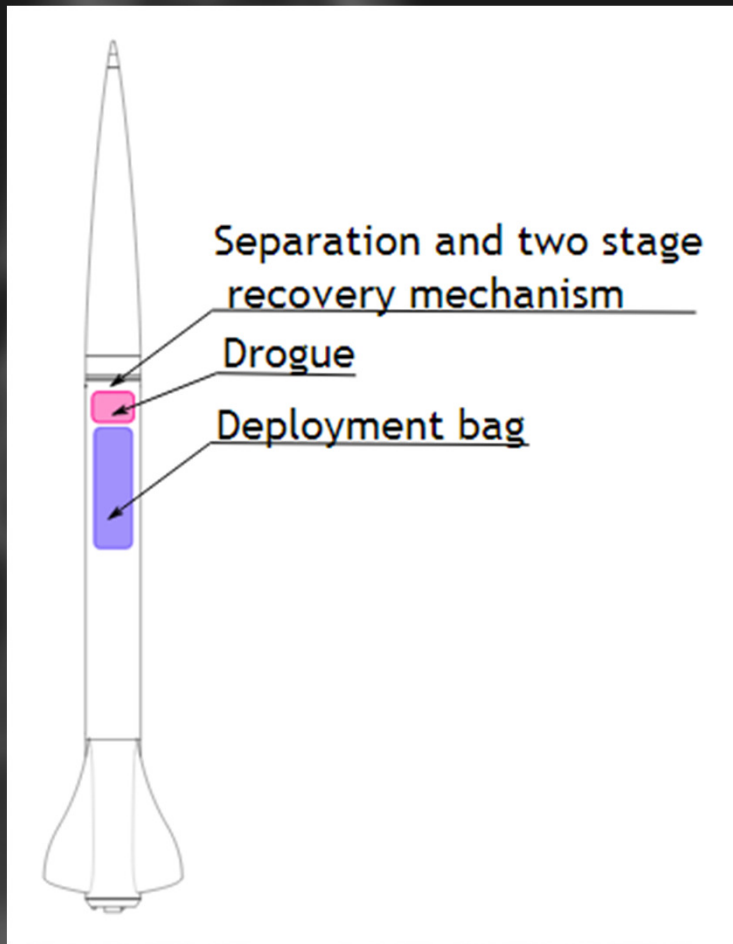


2012: STR-02



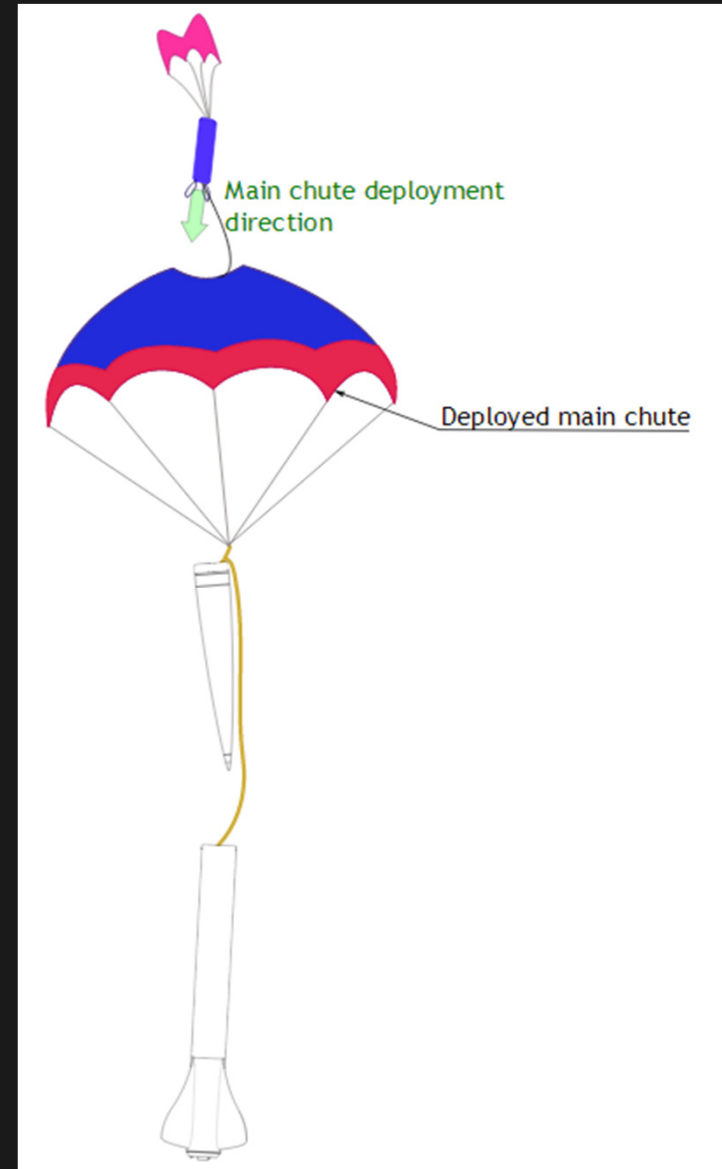
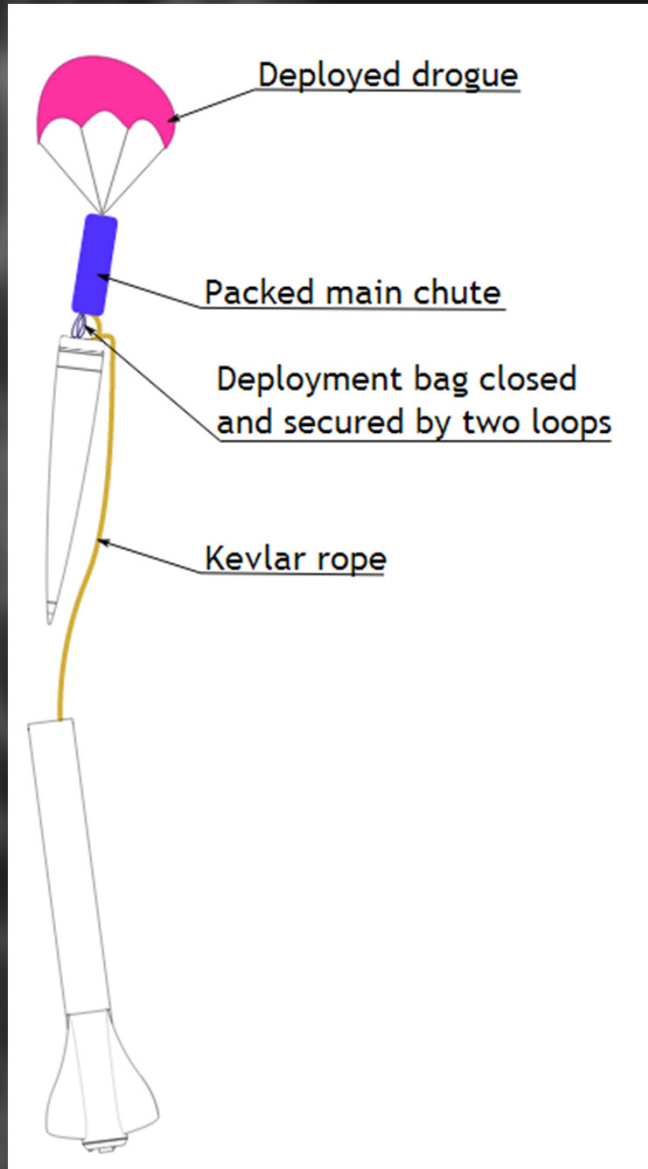
2013: STR-03

RECOVERY



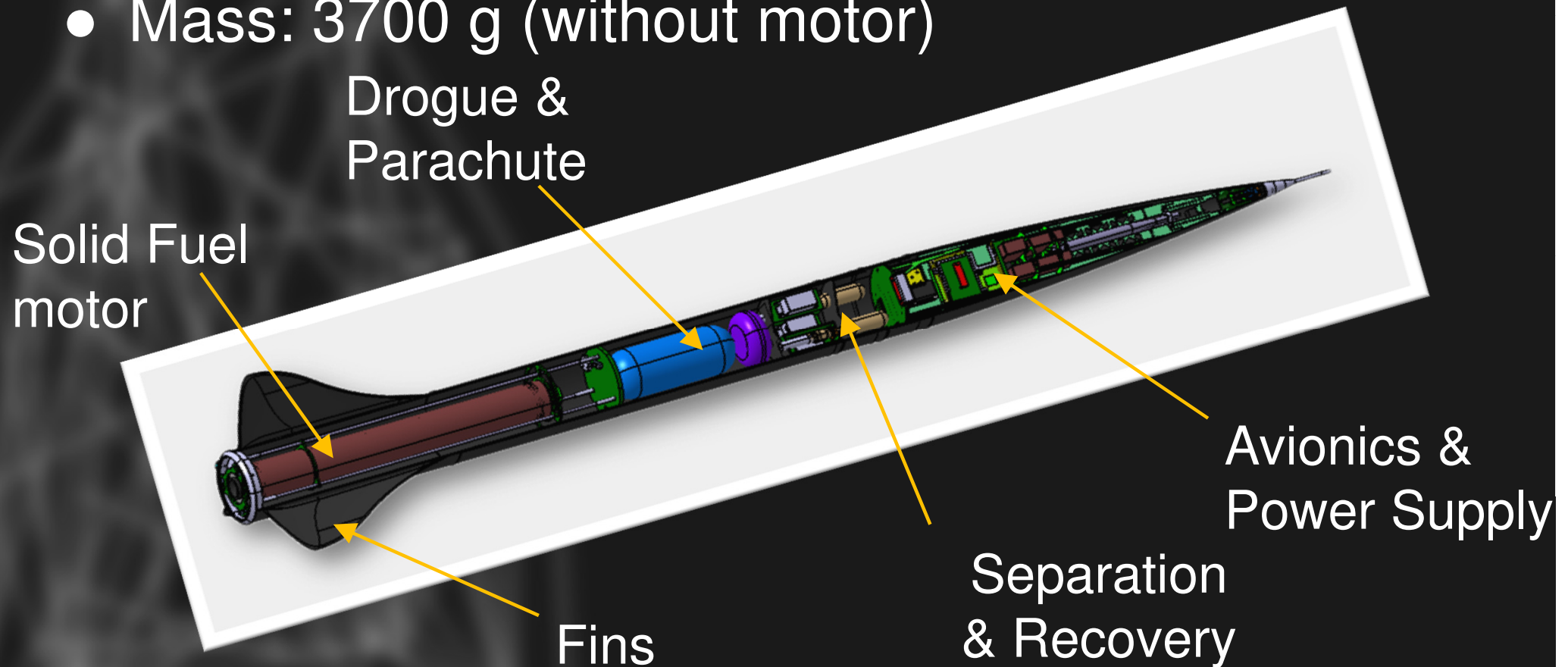
Descend velocity with Drogue: 15 m/s

RECOVERY



STR-03A

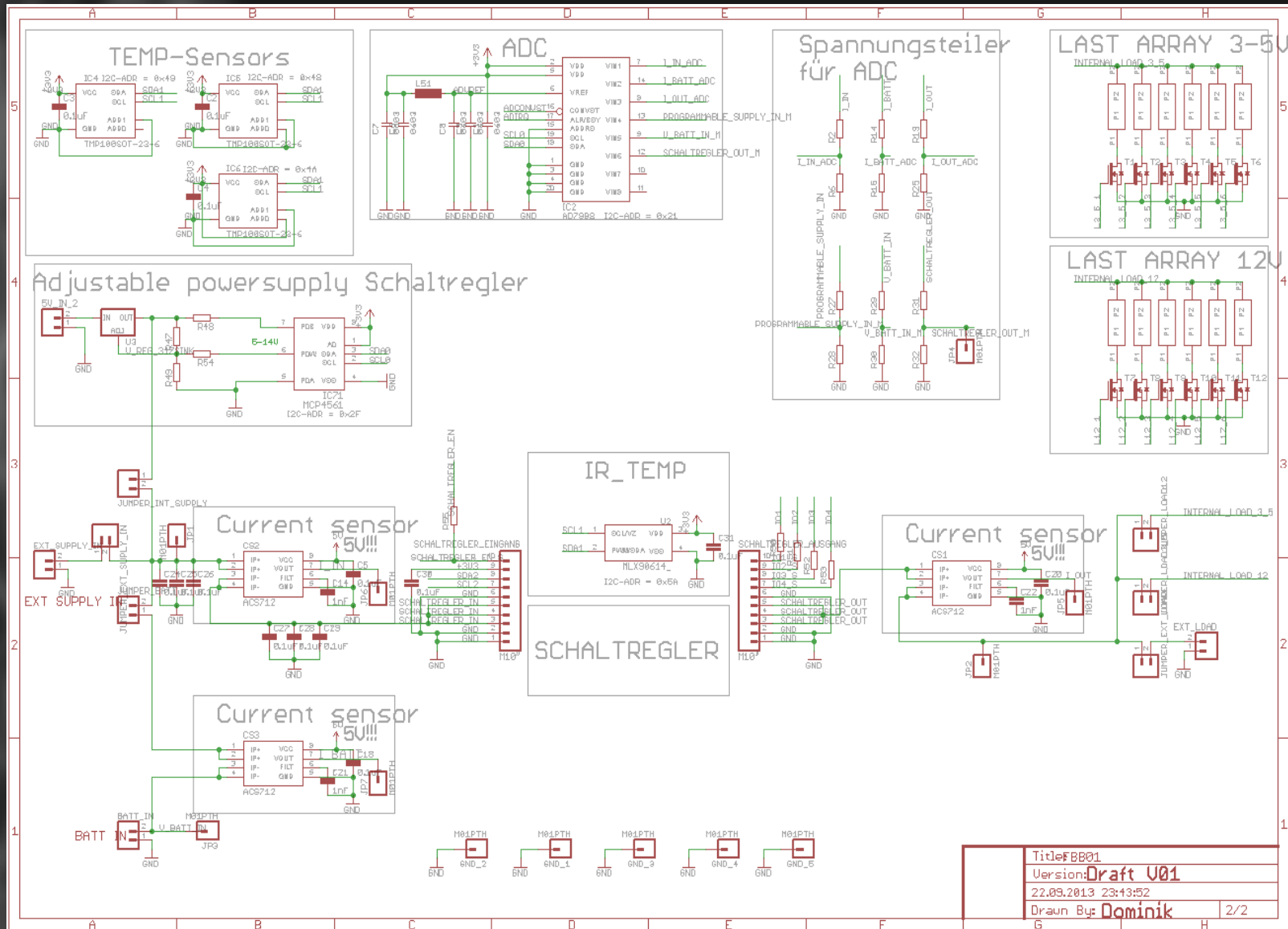
- Diameter: 104 mm
- Length: 1650 mm
- Mass: 3700 g (without motor)



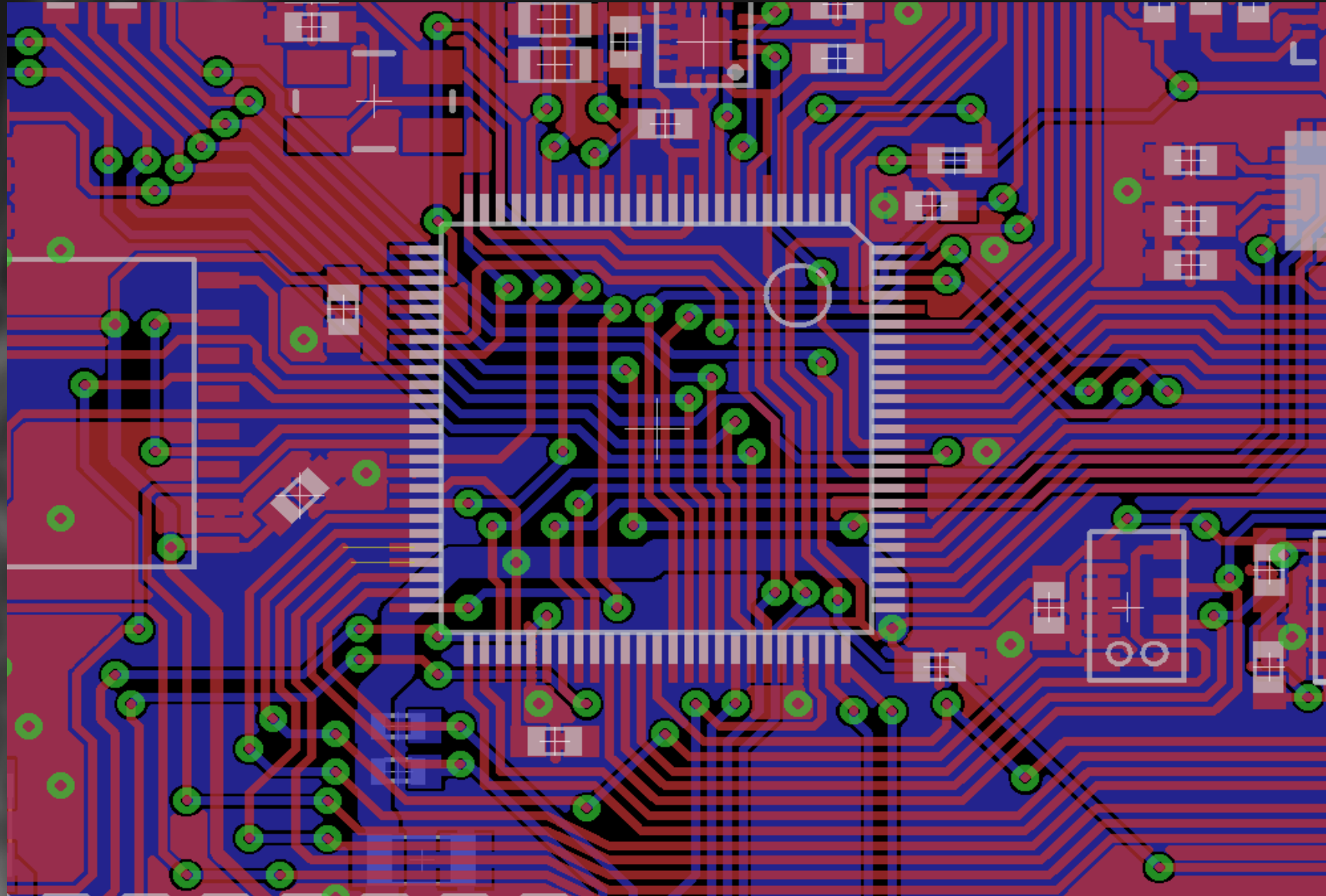
AUFGABEN DER ELEKTRONIK

- Ablaufsteuerung des Fluges
- Kommunikation mit der Bodenstation
- Erfassung der Flugdaten
- Redundante Aufzeichnung aller Daten
- Ansteuerung der notwendigen Aktoren
- Spannungsversorgung

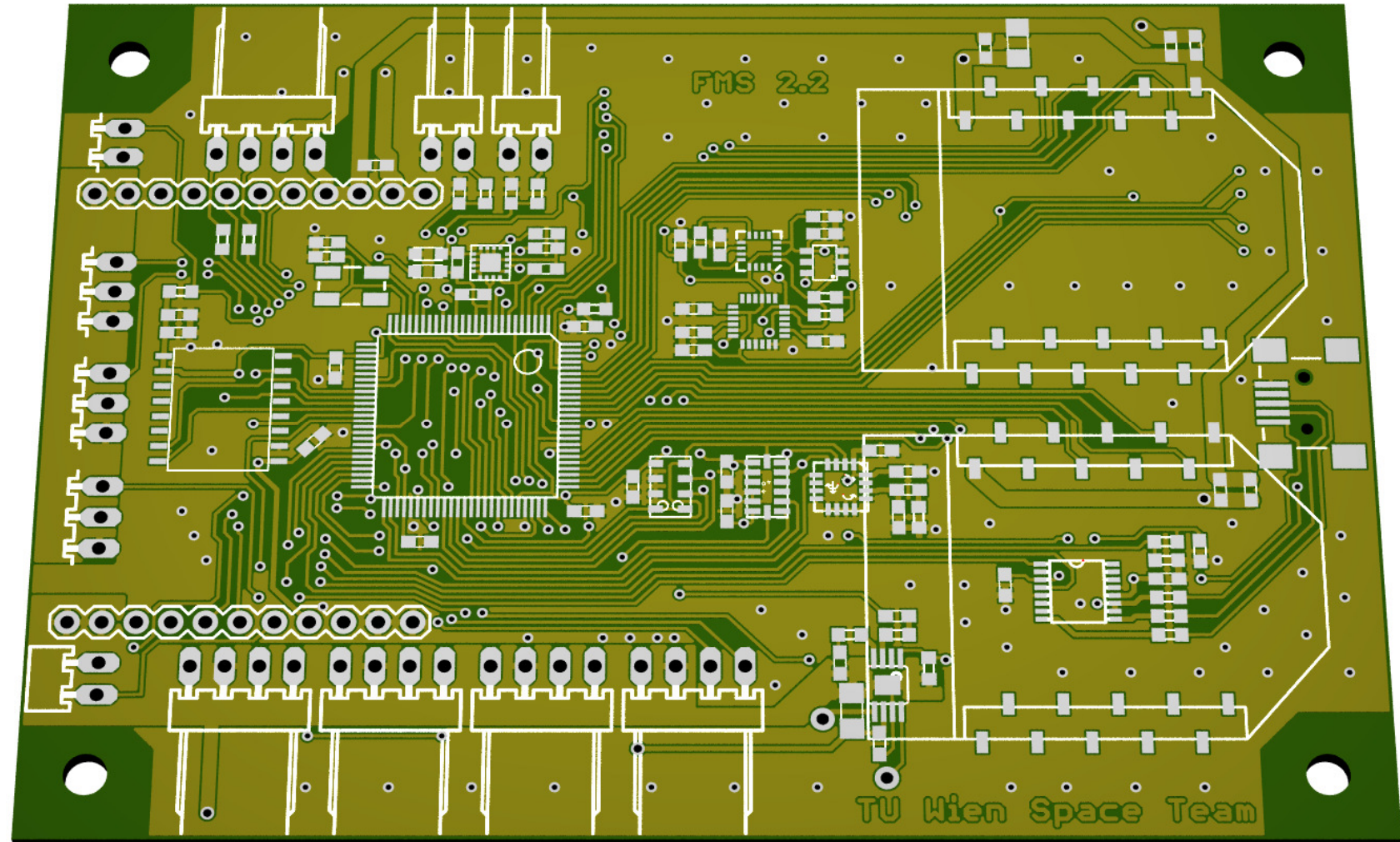
SCHALTPLÄNE



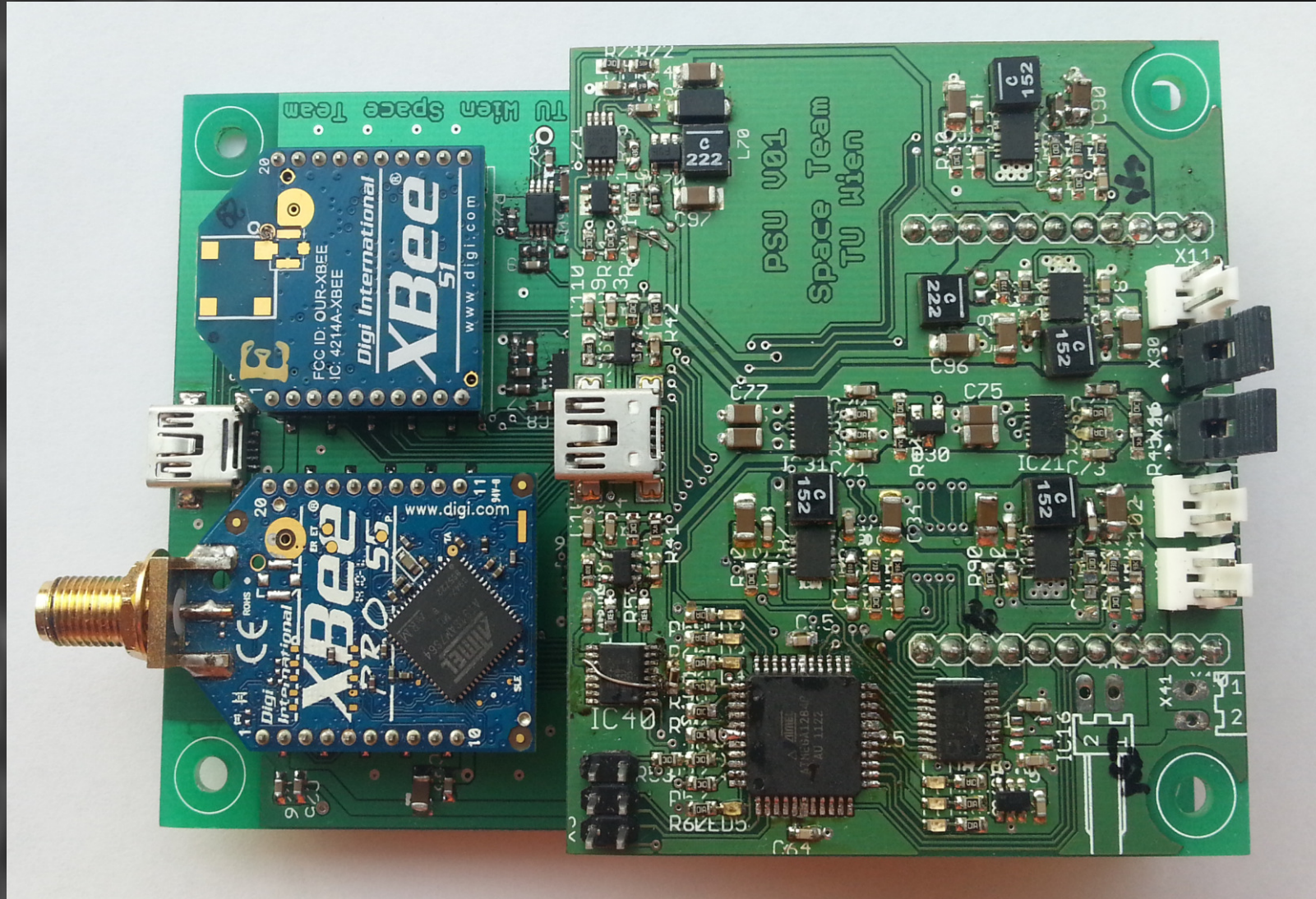
LEITERPLATTEN-LAYOUT



FERTIGES LAYOUT



FMS2.2 BOARDCOMPUTER

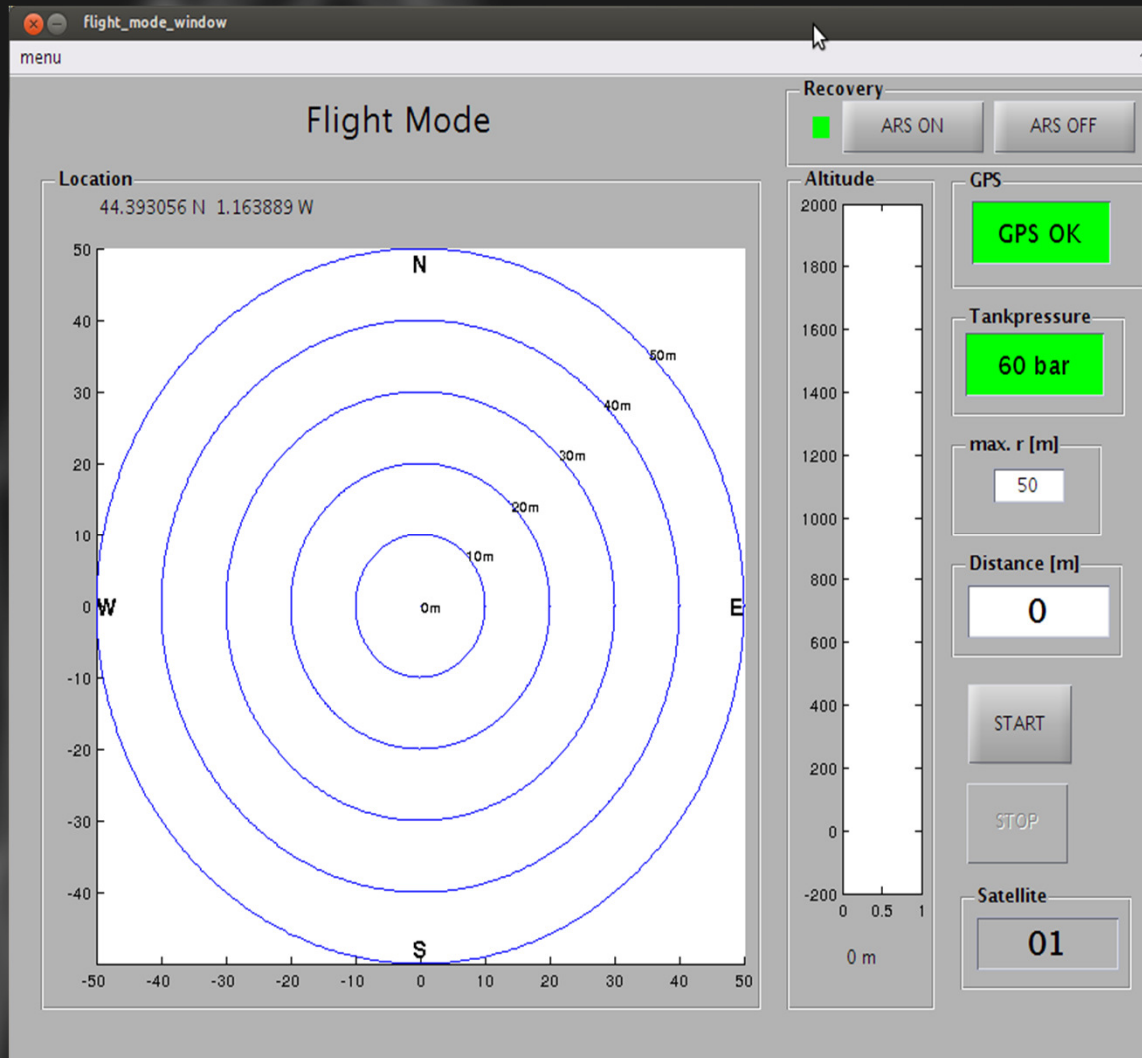


ELEKTRONIKHALTERUNG



- Stabile Halterung (15g!)
- Vereinigung aller Komponenten zu einer Einheit
- Entwicklung und Tests mit der gesamten Einheit
- Entkopplung vom restlichen Aufbau

BODENSTATION



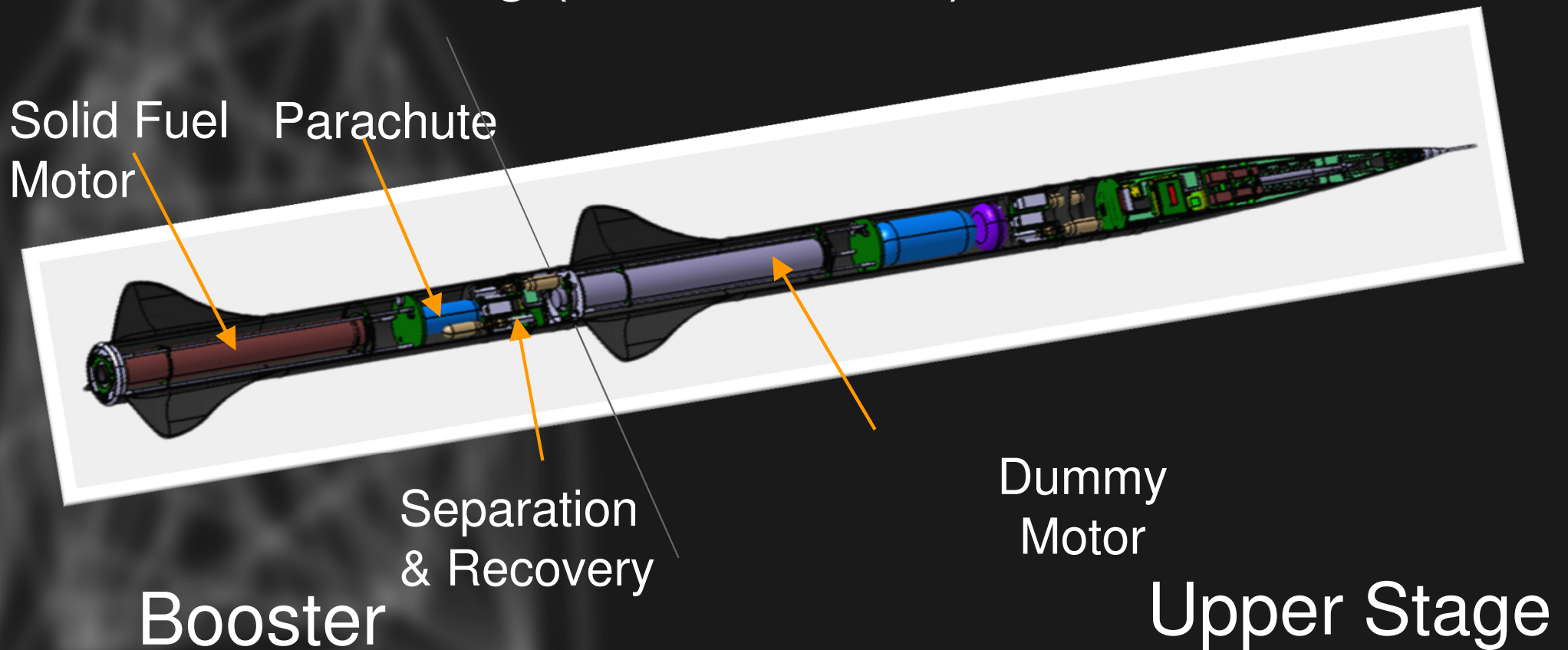
- Matlab Interface
- Live Telemetry
- Volle Kontrolle über alle Funktionen
- Aufzeichnung der empfangenen Daten

ZWEISTUFIGE RAKETE

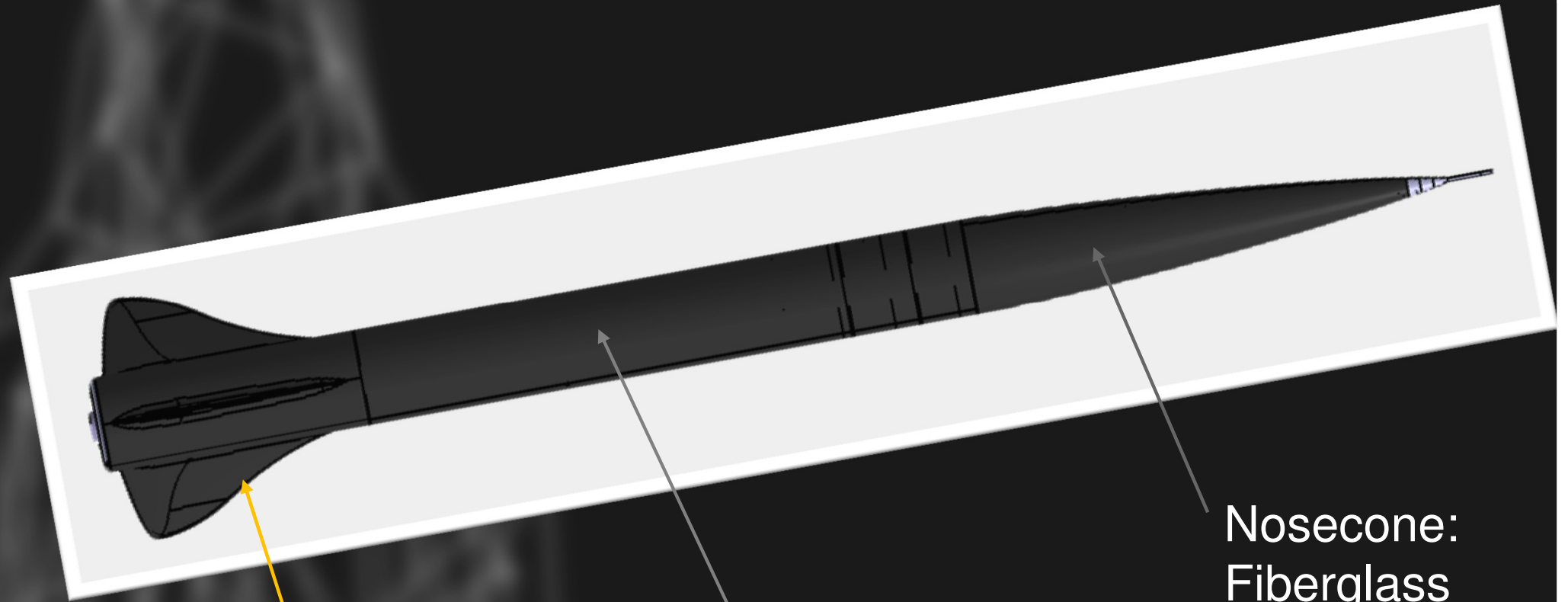
- Eigener Boardcomputer für jede Stufe
- Trägheitsnavigation zur Bestimmung der Lage der Rakete
- Entscheidung zur Zündung der 2. Stufe durch den Boardcomputer
- Kommunikation innerhalb der Rakete

STR-04

- Diameter: 104 mm
- Length: 2480 mm
- Mass: 8400 g (without motor)



AIRFRAME



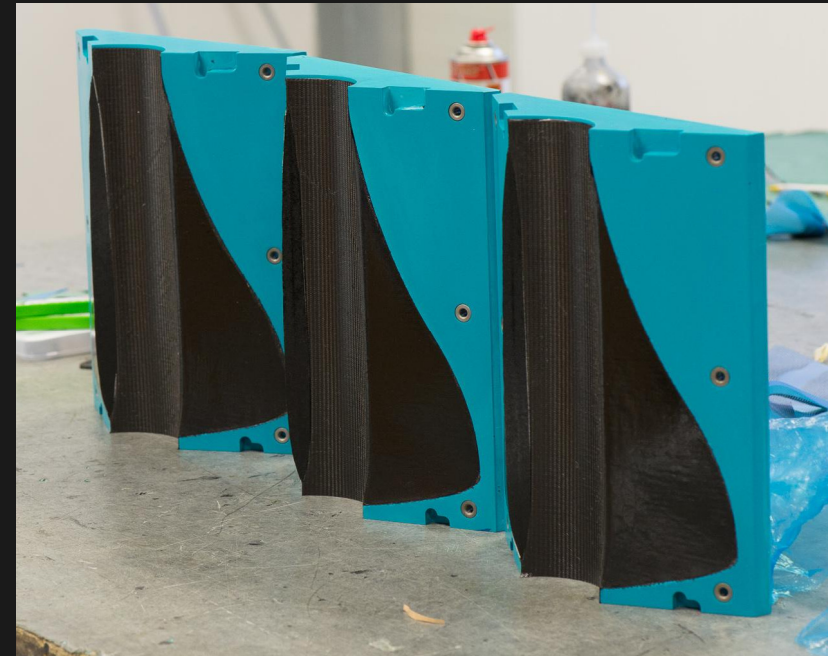
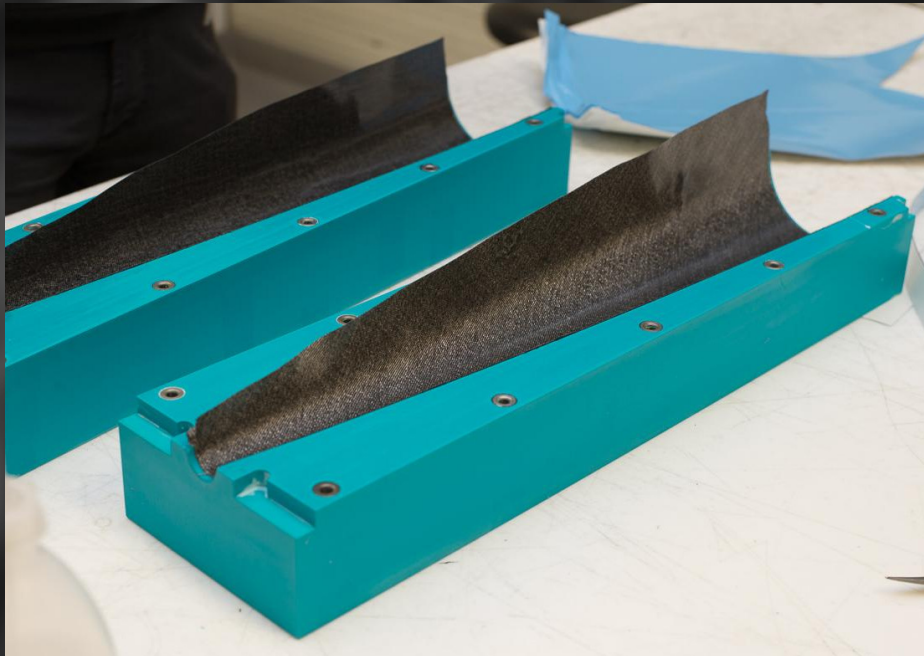
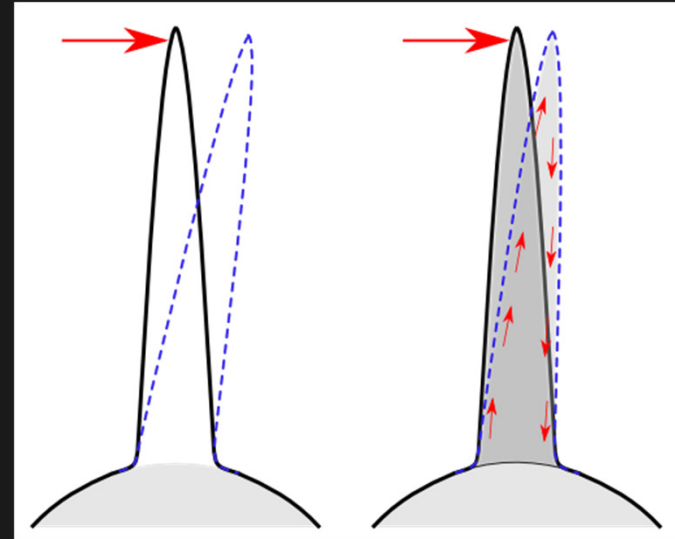
Fins:
CRP skin + foam core

Bodytube:
CRP skin + foam core

Nosecone:
Fiberglass

COMPOSITES

- Prepreg-Layup
- CFK/GFK-Laminat
- Sandwich-Leitwerk



PERFORMANCE

Motor: Barasinga Pro54-5G

- Feststofftreibstoff
Maximum Thrust: 900 N
- Burn time: 3,6 s

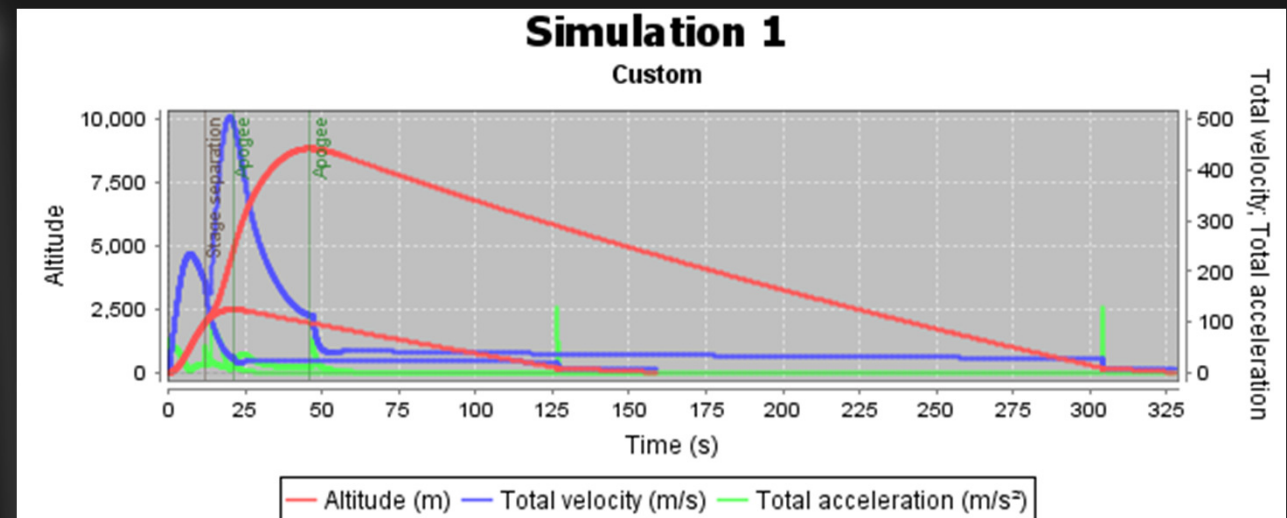
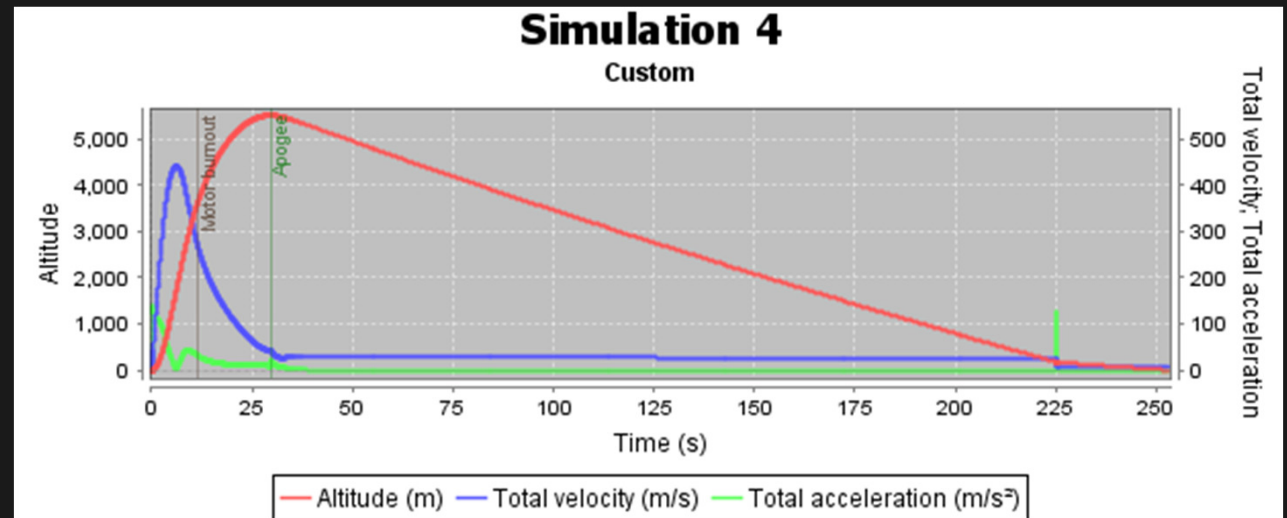
Flight Data for STR-03 (2013):

- Apogee 2300 m
- $a_{\max} = 150 \text{ m/s}^2$ ($\sim 15g$)
- $v_{\max} = 300 \text{ m/s}$ ($\sim \text{Mach } 0.85$)



PERFORMANCE

- C'Space
- Beschränkungen
- Theor.
Performance:
 - STR-03a 5500 m
 - STR-04 8800 m





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CONTACT

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