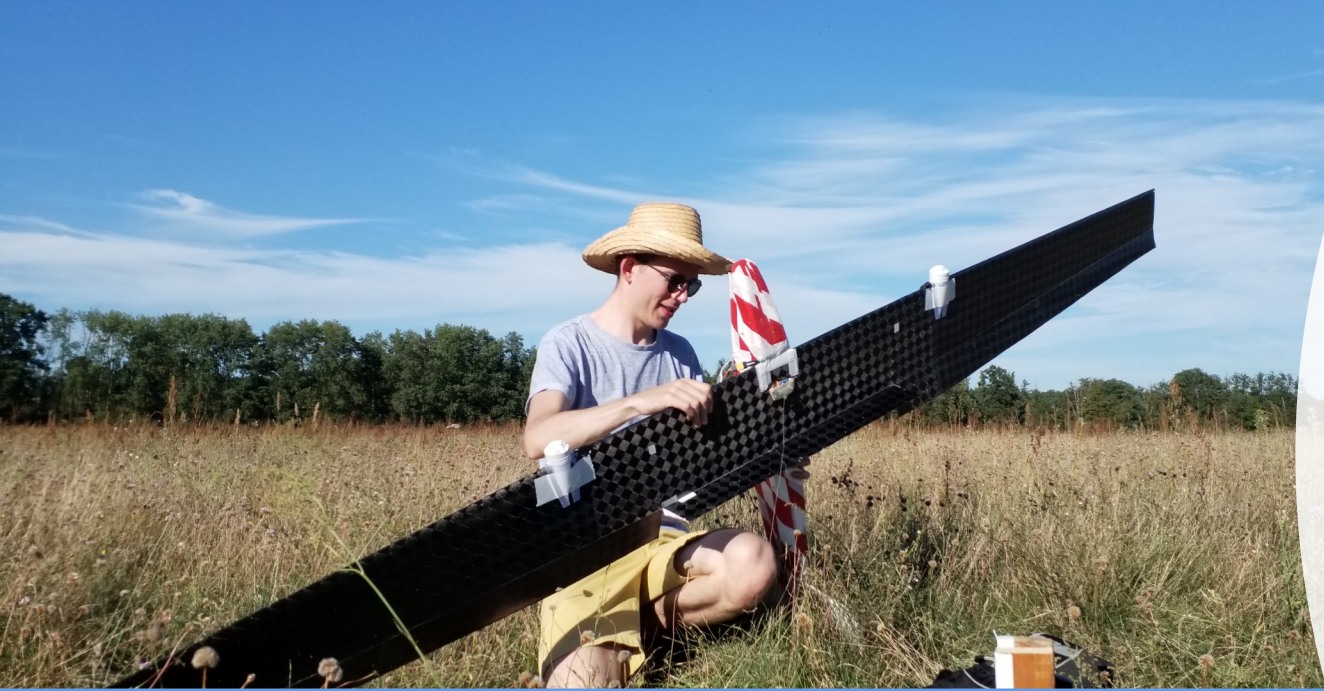


Supported by the state of Thuringia
and the European Social Fund (ESF+)

ThEx
Thüringen
Thüringer Zentrum für
Existenzgründungen und
Unternehmertum



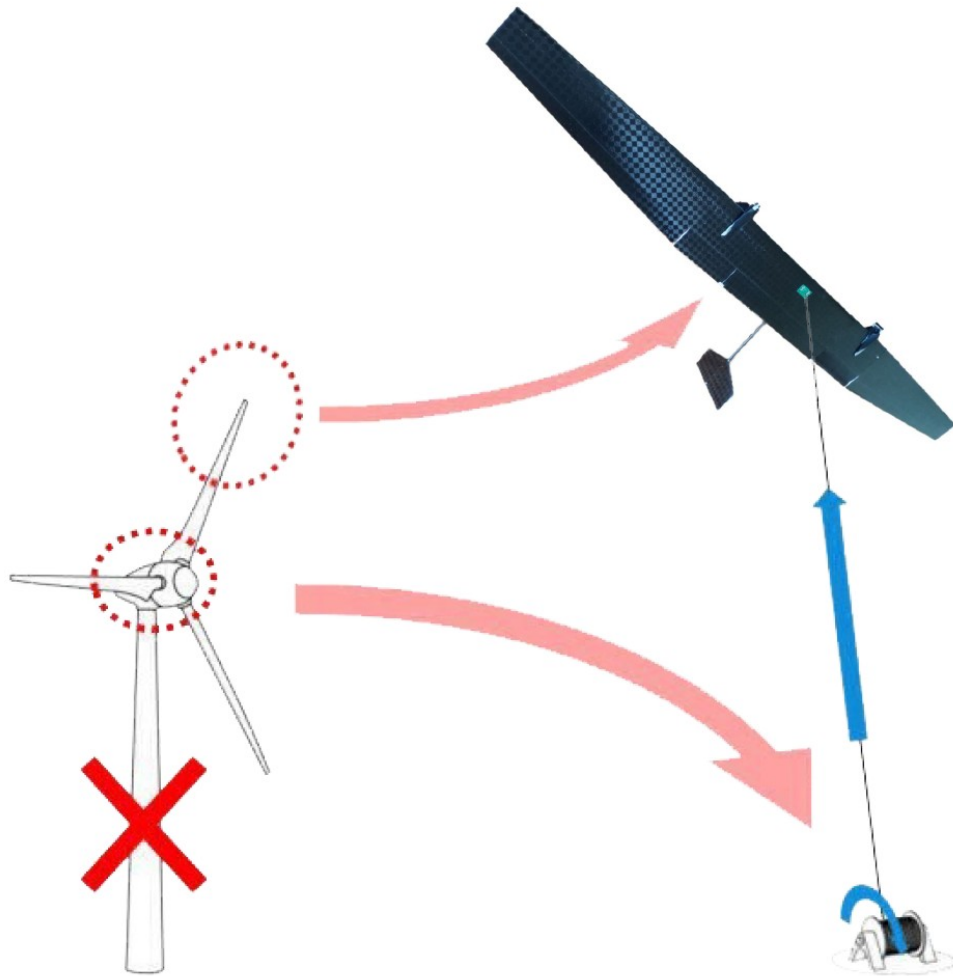
Kites for Future.de

wind power. radically simplified.





Let's make this simpler.



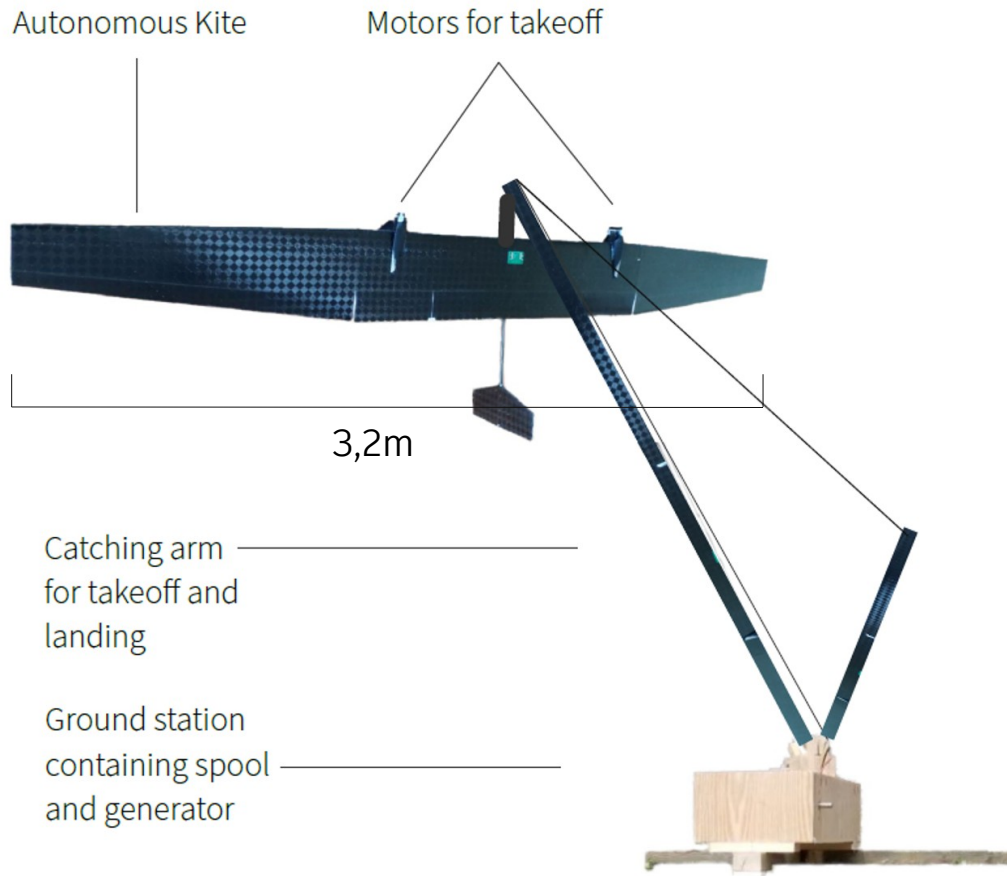


Let's make this simpler.

A lot simpler.

KITES FOR FUTURE | DR. BENJAMIN KUTSCHAN, MARC DE LAPORTE





- **10x lower production cost than other projects**
through lowest complexity

- **High safety**
and compatibility with air traffic

- **Highest flexibility**
portable, deployed in minutes
Flying area free to use

no Patents

all electronics and software open source



OUTPUT POTENTIAL



3m: 1kW avg., 5kW Peak

entire energy consumption of
one person,
Incl. heating, driving



6m: 5kW avg., 25kW Peak

entire energy consumption of
average german farm



Wingspan x2
→ **Power Output** x5

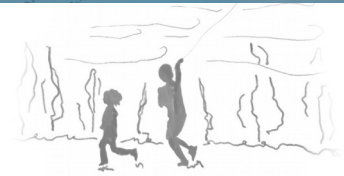
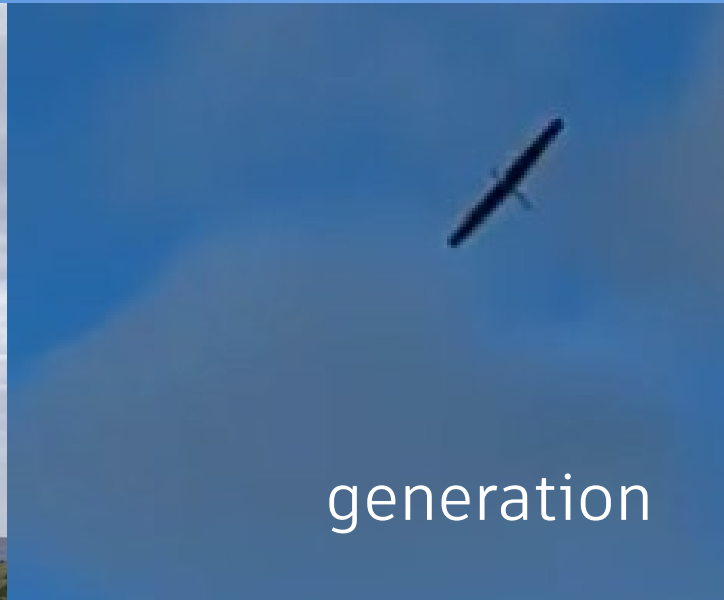
Production cost:
only slightly higher



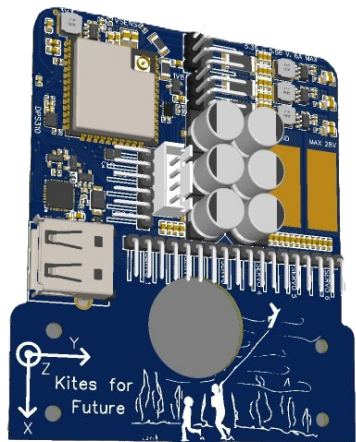
HOW DOES IT WORK?



We are already capable of fully autonomous flight.



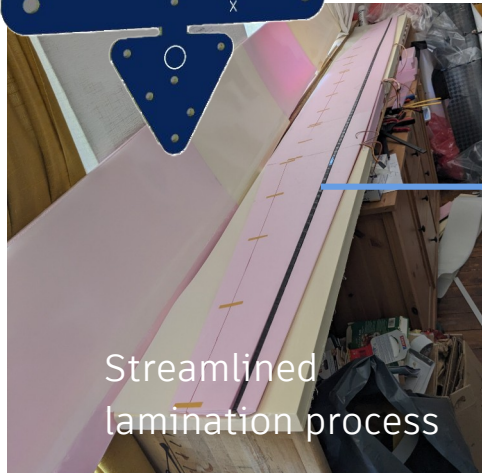
KITE



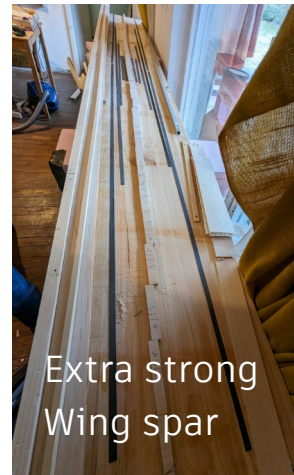
Autopilot based off ESP32



line angle sensor



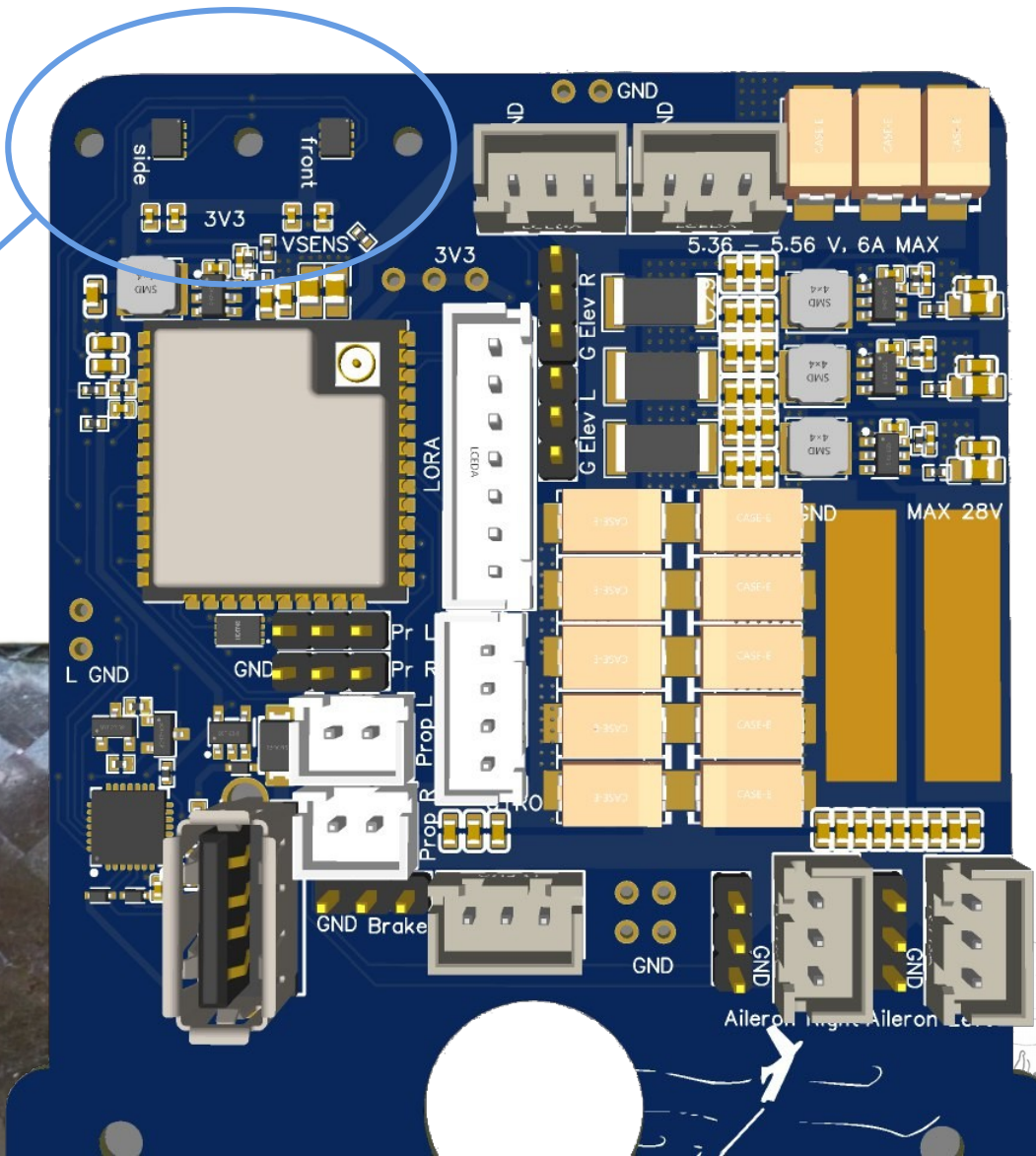
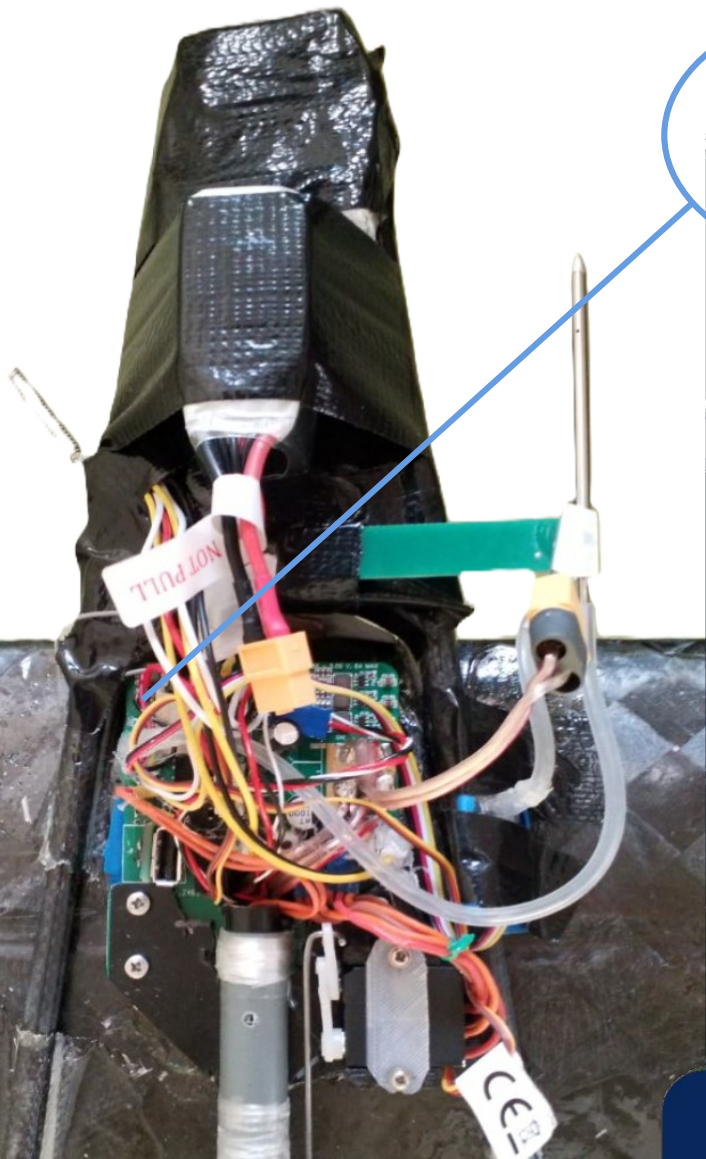
Streamlined lamination process



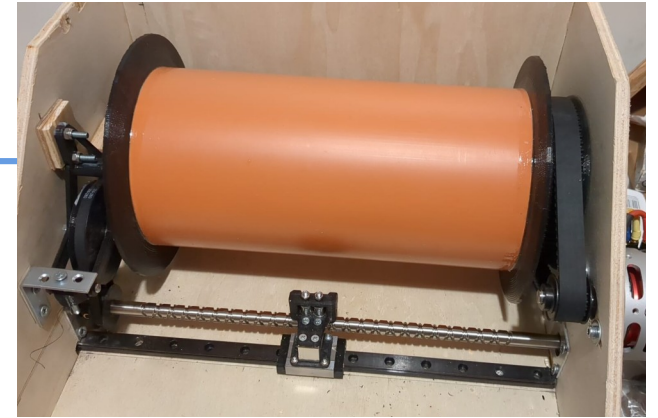
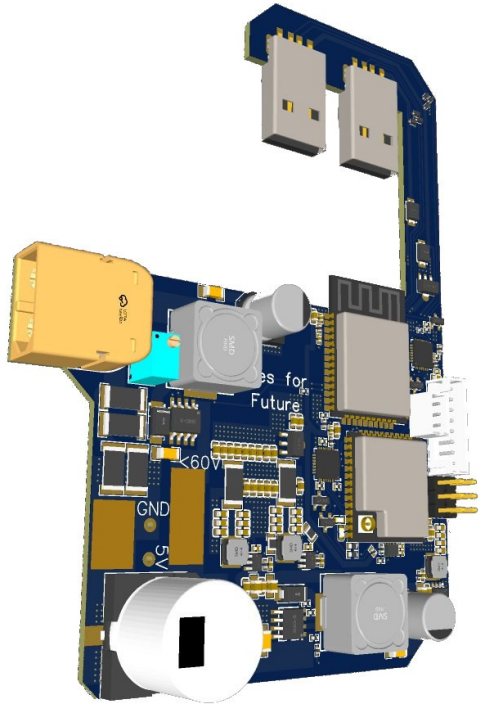
Extra strong Wing spar

RTE





GROUND STATION



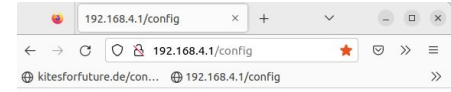
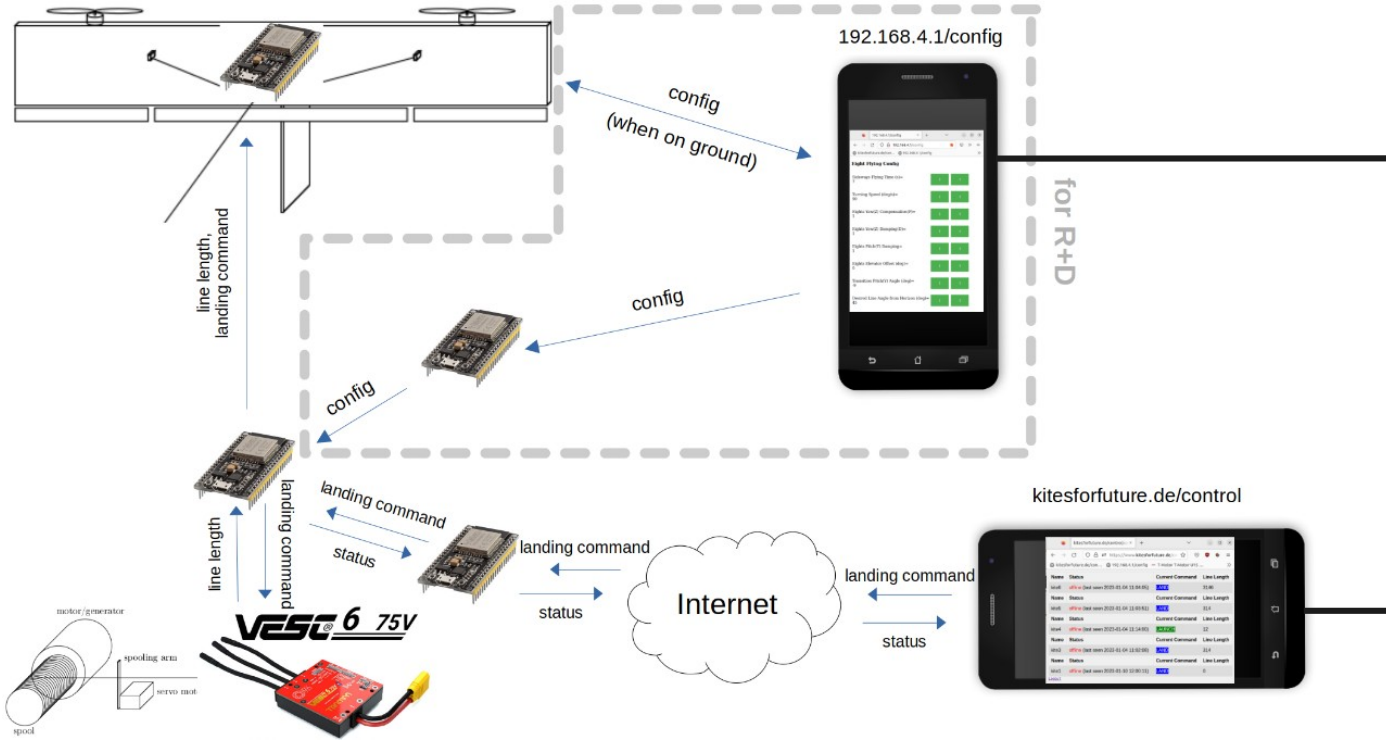
GROUND STATION



SOFT KITE VARIANT



TOOLS



Eight Flying Config

Sideways Flying Time (s) = 7

Turning Speed (deg/s) = 90

Eights Yaw(Z) Compensation(P) = 1

Eights Yaw(Z) Damping(D) = 1

Eights Pitch(Y) Damping = 1

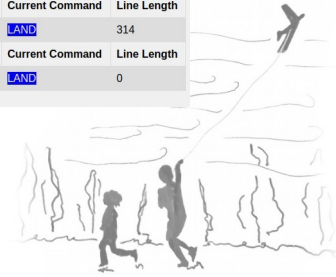
Eights Elevator Offset (deg) = 0

Transition Pitch(Y) Angle (deg) = -9

Desired Line Angle from Horizon (deg) = 45

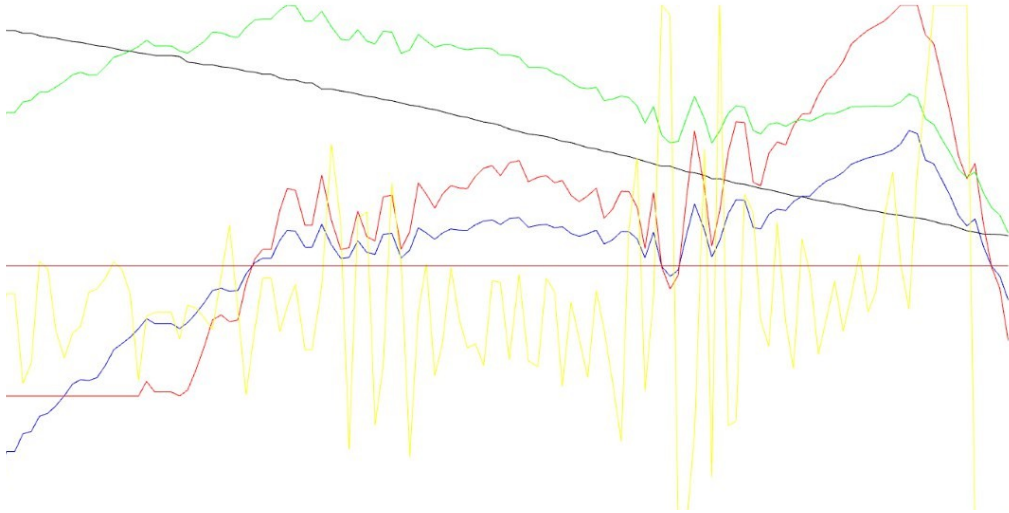
kitesforfuture.de/control

Name	Status	Current Command	Line Length
kite6	offline (last seen 2023-01-04 11:04:05)	LAND	3146
kite5	offline (last seen 2023-01-04 11:03:51)	LAND	314
kite4	offline (last seen 2023-01-04 11:14:00)	LAUNCH	12
kite3	offline (last seen 2023-01-04 11:02:08)	LAND	314
kite1	offline (last seen 2023-01-10 12:00:11)	LAND	0



TOOLS

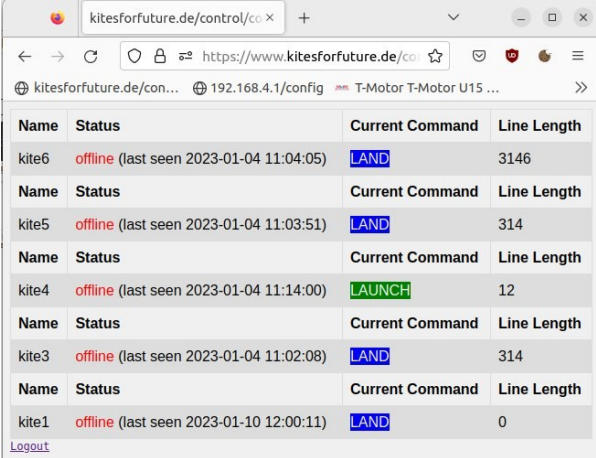
Live data link and data recording
with graphical output



TOOLS

relevant for later test operations:

- OTA Update
 - centralized online control and surveillance
- enables: Air traffic monitoring via online transponder data



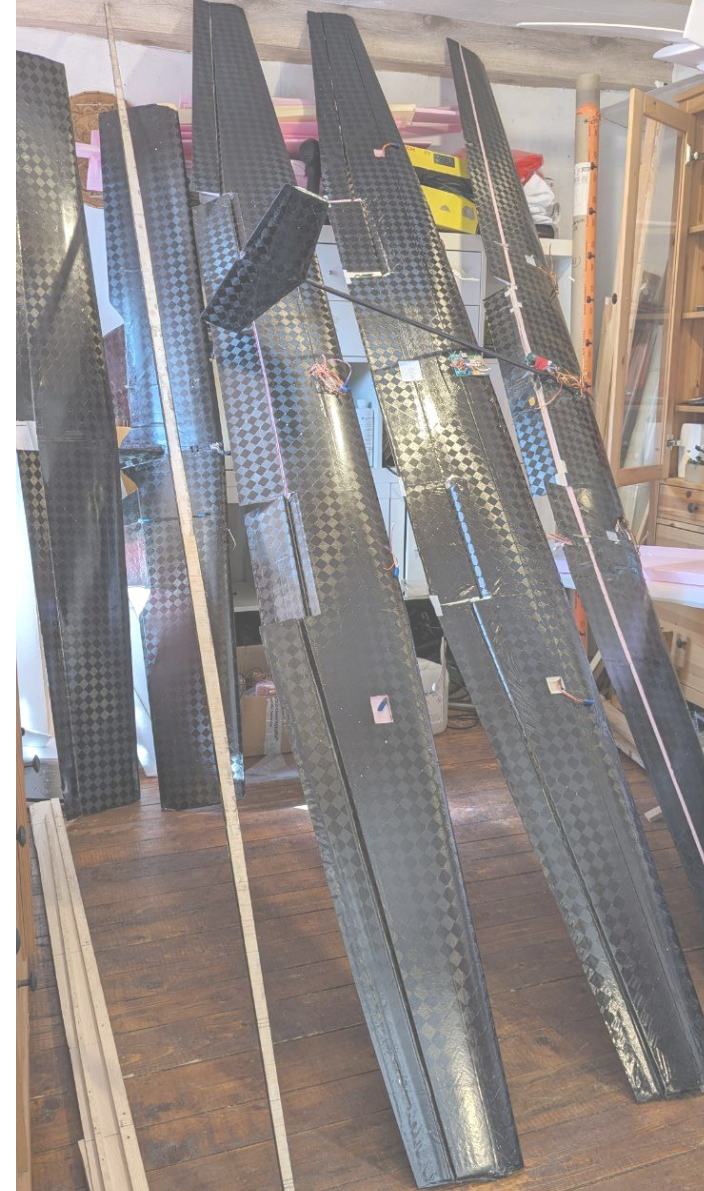
Name	Status	Current Command	Line Length
kite6	offline (last seen 2023-01-04 11:04:05)	LAND	3146
kite5	offline (last seen 2023-01-04 11:03:51)	LAND	314
kite4	online (last seen 2023-01-04 11:14:00)	LAUNCH	12
kite3	offline (last seen 2023-01-04 11:02:08)	LAND	314
kite1	offline (last seen 2023-01-10 12:00:11)	LAND	0

[Logout](#)



NEXT STEPS

- **Longer flight tests** and **Optimization of power generation** (beta testers welcome)
- Certification
- Bringing **hardware** up to product level
- Integration of **safety systems**
 - flarm
 - online transponder data monitoring → automatic landing commands
 - optical object detection



JOIN OUR ADVENTURE



<https://kitesforfuture.de/>



<https://github.com/KitesForFuture>



<https://www.youtube.com/@kitesforfuture577>



<https://hackaday.io/project/188136-kites-for-future-flying-wind-turbine>



<https://www.instagram.com/kitesforfuture/>

