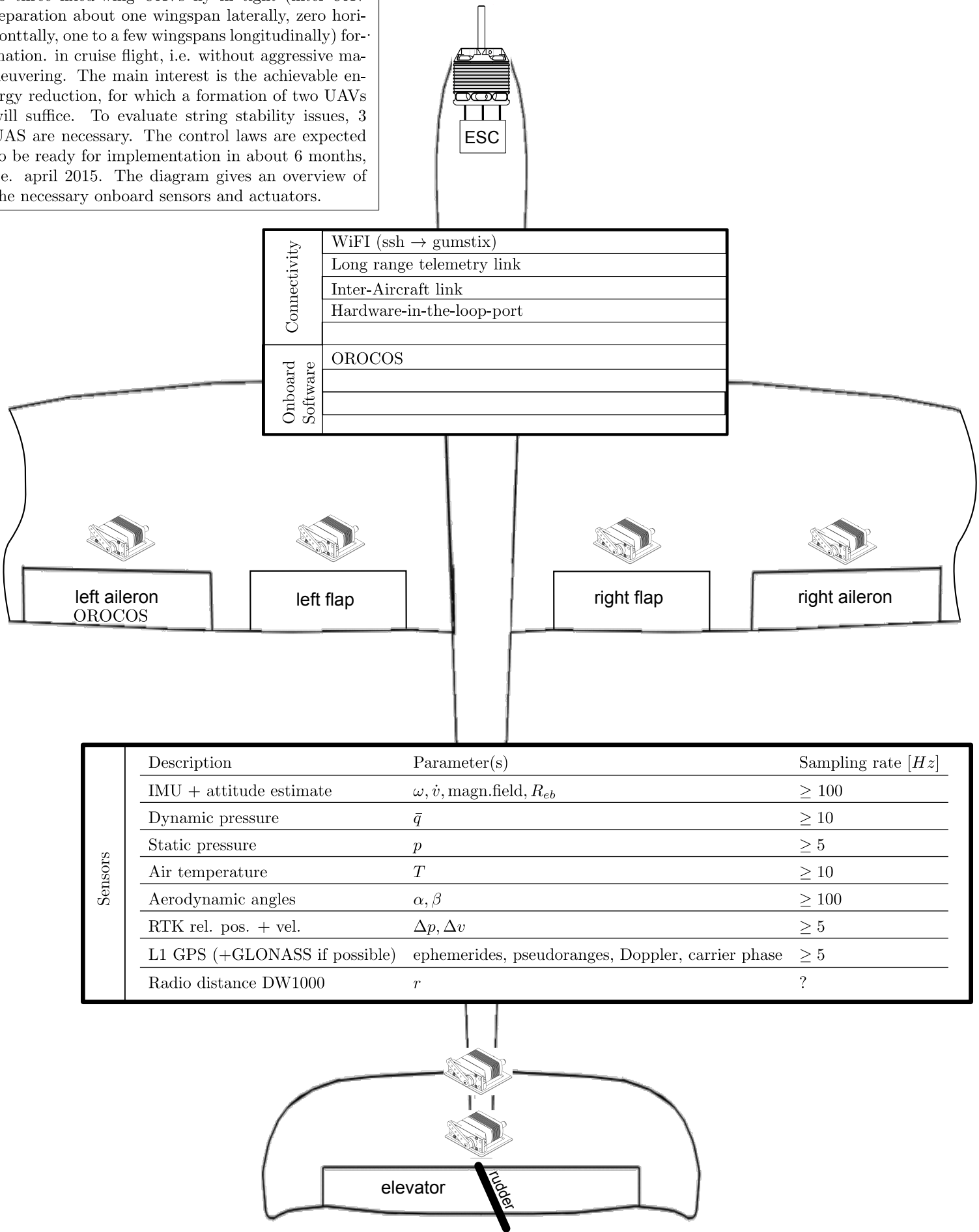


It is the intermediate goal of this thesis to have two to three fixed-wing UAVs fly in tight (inter-UAV separation about one wingspan laterally, zero horizontally, one to a few wingspans longitudinally) formation. in cruise flight, i.e. without aggressive maneuvering. The main interest is the achievable energy reduction, for which a formation of two UAVs will suffice. To evaluate string stability issues, 3 UAS are necessary. The control laws are expected to be ready for implementation in about 6 months, i.e. april 2015. The diagram gives an overview of the necessary onboard sensors and actuators.



Sensors	Description	Parameter(s)	Sampling rate [Hz]
	IMU + attitude estimate	ω, \dot{v} , magn.field, R_{eb}	≥ 100
	Dynamic pressure	\bar{q}	≥ 10
	Static pressure	p	≥ 5
	Air temperature	T	≥ 10
	Aerodynamic angles	α, β	≥ 100
	RTK rel. pos. + vel.	$\Delta p, \Delta v$	≥ 5
	L1 GPS (+GLONASS if possible)	ephemerides, pseudoranges, Doppler, carrier phase	≥ 5
	Radio distance DW1000	r	?