

# Development of Enabling Chemical Propulsion System (EPSS)

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# NanoAvionics

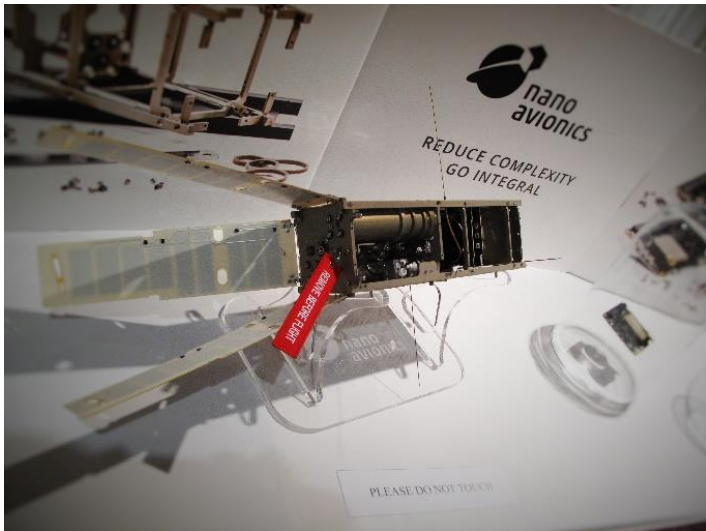
Focus: electronic and mechanical commercial small satellites systems.

Main R&D / investments direction: integral propulsion system for small satellites (10 - 150 kg) enabling small satellites to perform new functions and filling current market gap.

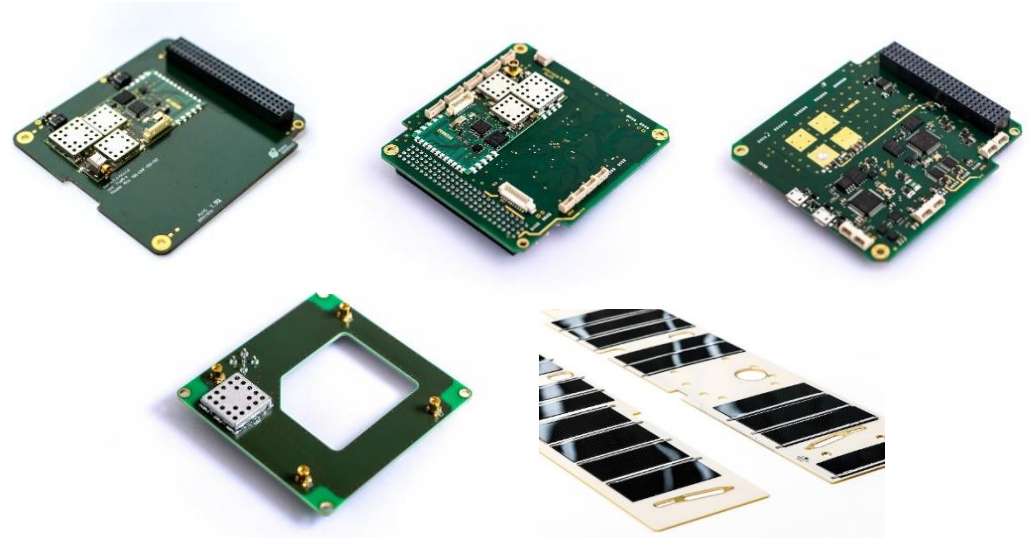
Company was started in 2014



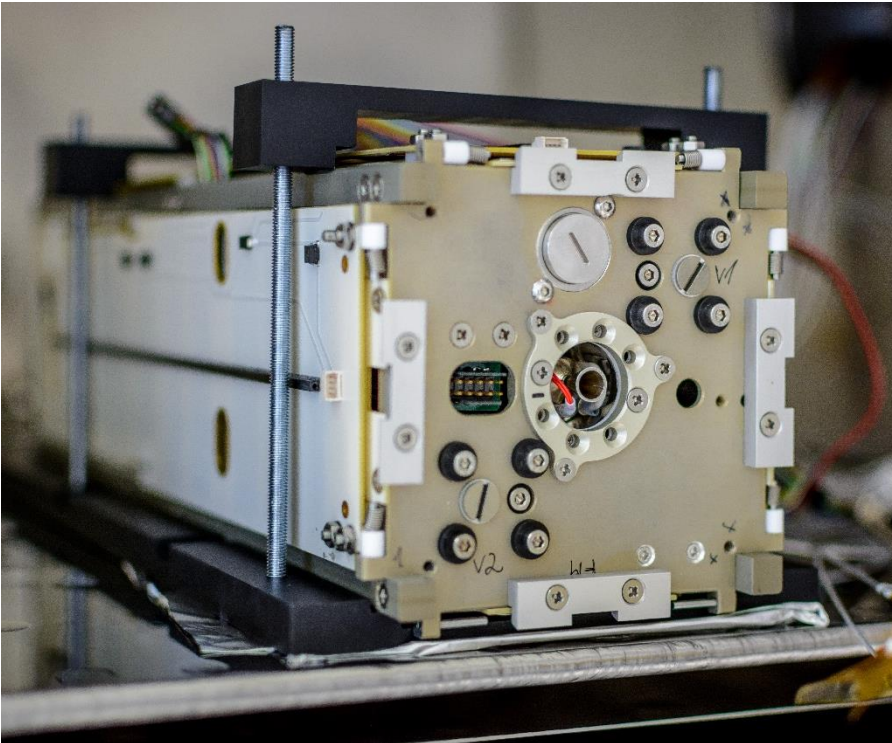
First Lithuanian satellite  
LituanicaSAT-1 (above)  
deployment from ISS, 2014



LituanicaSat-2 Engineering module at display  
(Small Satellite 2015. Logan, USA)



NanoAvionics space-grade commercial electronic components



## LituanicaSAT-2 (QB50) Green Propulsion IOD

**Main goal – to find affordable technological solution enabling high impulse density small satellite propulsion**

**Over 1M€** invested until 2016:

- Seed investment (Practica Capital VC) – 200k€
- National subsidy for new catalytic materials development (Lithuanian Research Council) – 193k€
- Pre-seed grant to start developing business (Agency of Innovations Science and Technology) – 42k€
- University's incubation support – 150k€
- H2020 SME-1 – 70k€
- Private support – 450k€



Lietuvos  
mokslo  
taryba

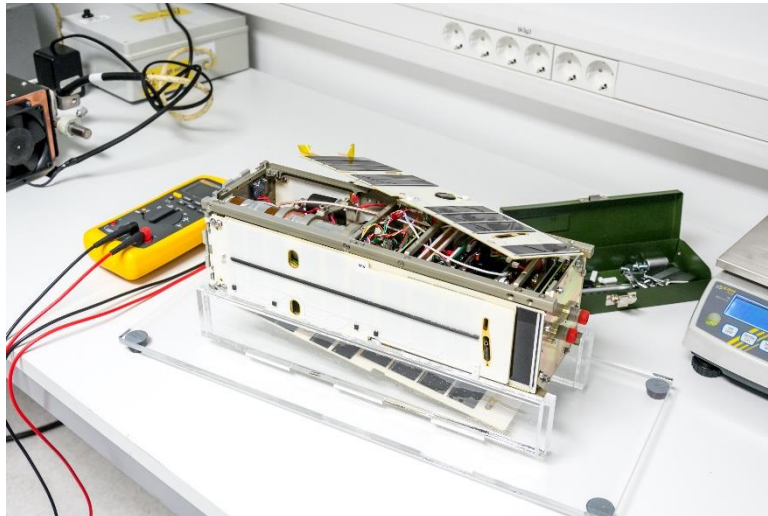
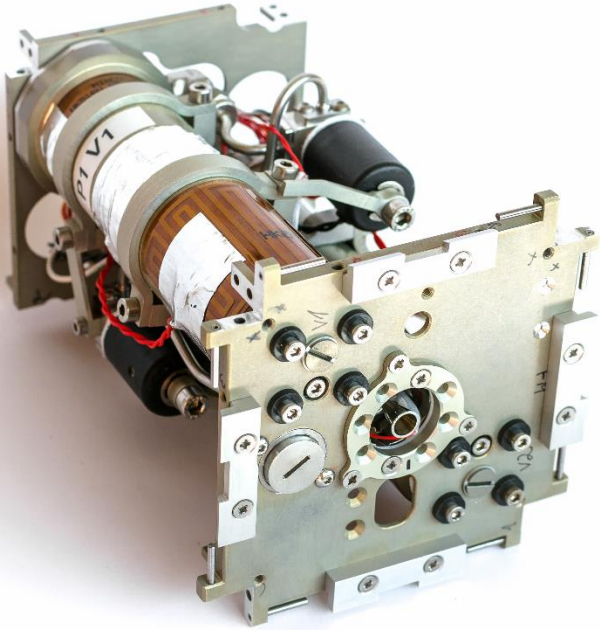


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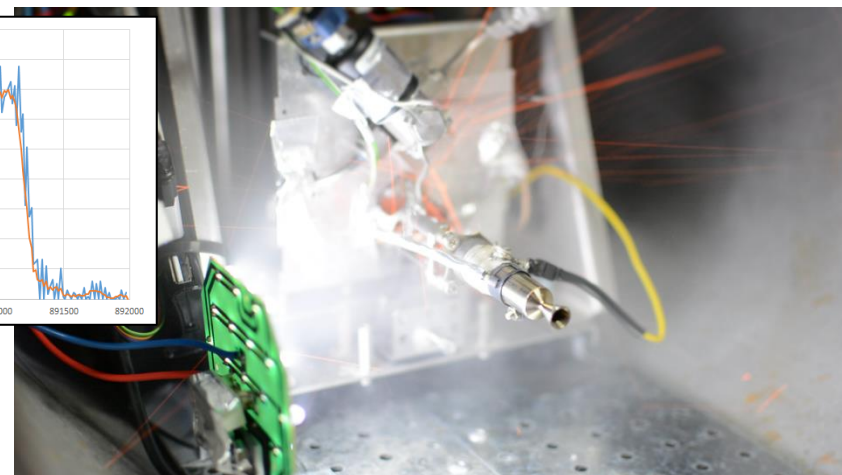
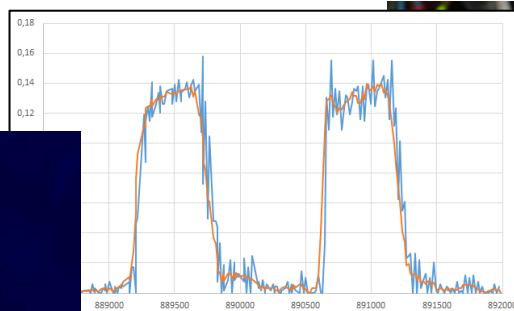
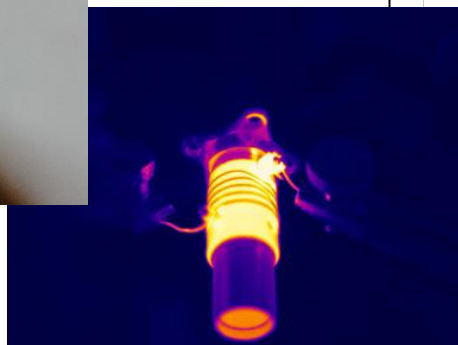


# LituanicaSAT-2 / QB50 - ADN Propulsion



# Development Status and Preliminary Results

Feature	Characteristic
Propellant	ADN blend
Min impulse	0.001 Ns
Min control valve impulse	3 ms
Nominal impulse	1 Ns
Isp (500 - 3000 ms @ 25 mBar / steady state)	112 - 150s / 220s (TBD)
Inlet pressure min - max	6 - 25 Bar
Thrust	0,3 N
Hot ramp up / tail off	< 50 ms / < 100 ms
Propellant volume (LituanicaSAT-2 mission)	2 x 80 ml (TBD)
Injector temperature range (thermal controled)	+60 °C .. +85 °C
Chamber temperature	< 1600 °C
Preheat temperature / time	220 °C / 18 min – 300 °C / 30 min
Power consumption (Idle / peak / operation)	0,05 W / 9 W / 4,5 W
Dry mass	0,6 kg





**Thank You!**

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