Surface tension in microgravity.

UNIVERSITY STUDENTS DISCOVERING THE POSSIBILITIES OF A TESTING UNIT IN SPACE

Albert Jonsson

M.Sc. Mechanical Engineering

Julia Magnusson Björk

M.Sc. Design and Product Development


UCCS
SSC


360 seconds in
microgravity.

“Providing as close to true conditions as possible for as many different research areas as possible”

The task.

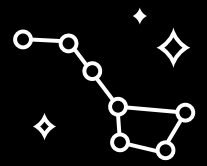
Execute an experiment of choice with a restricted volume of 100 x 80 x 30 mm.

Take advantage of the following circumstances:

- Microgravity.
- Vacuum.
- Radiation different from Earth’s.

All whilst following a budget and to be manufactured inhouse at Linköping University.

The goals.



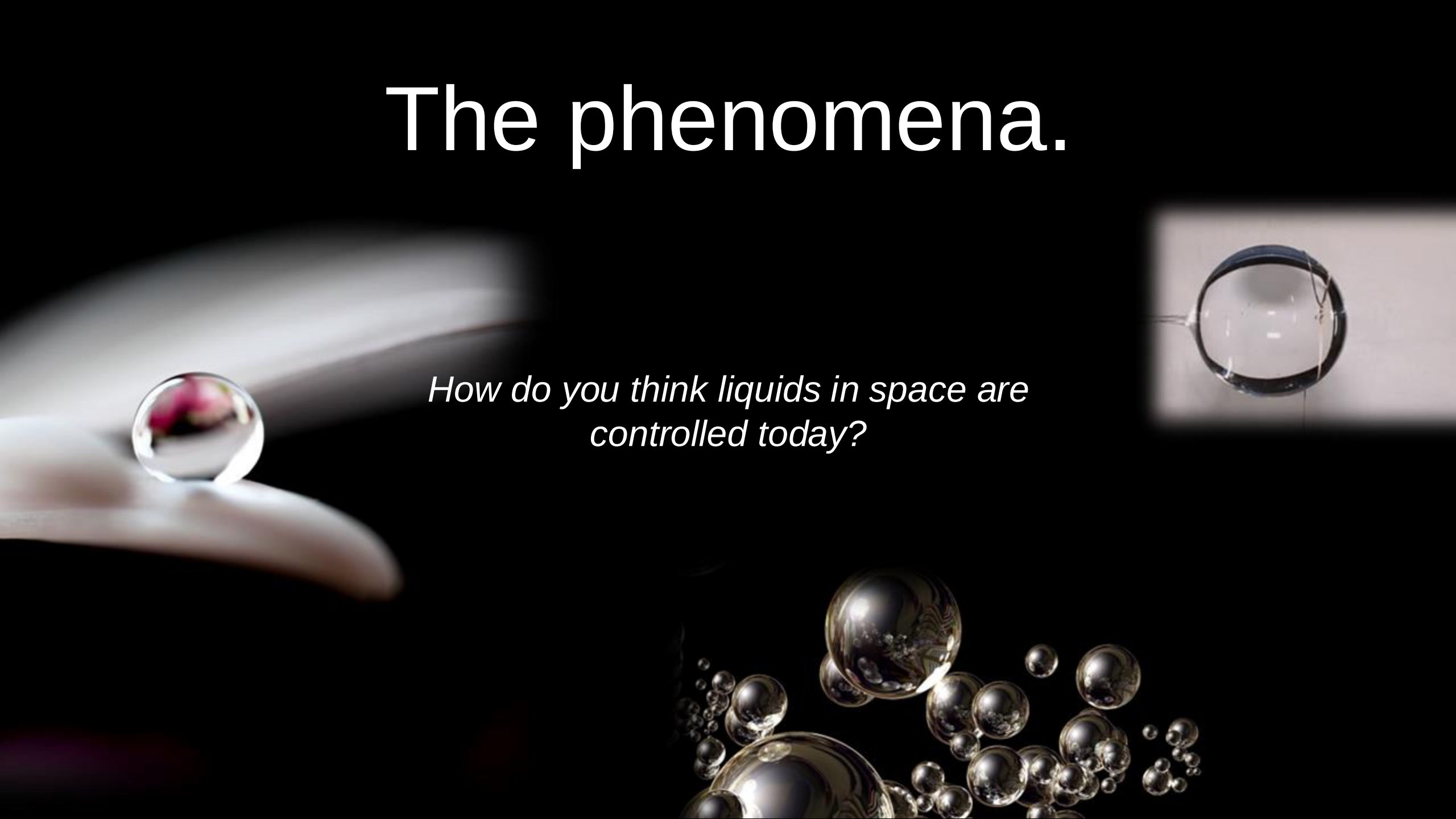
Scientific exploration

Academic collaboration

Data collection

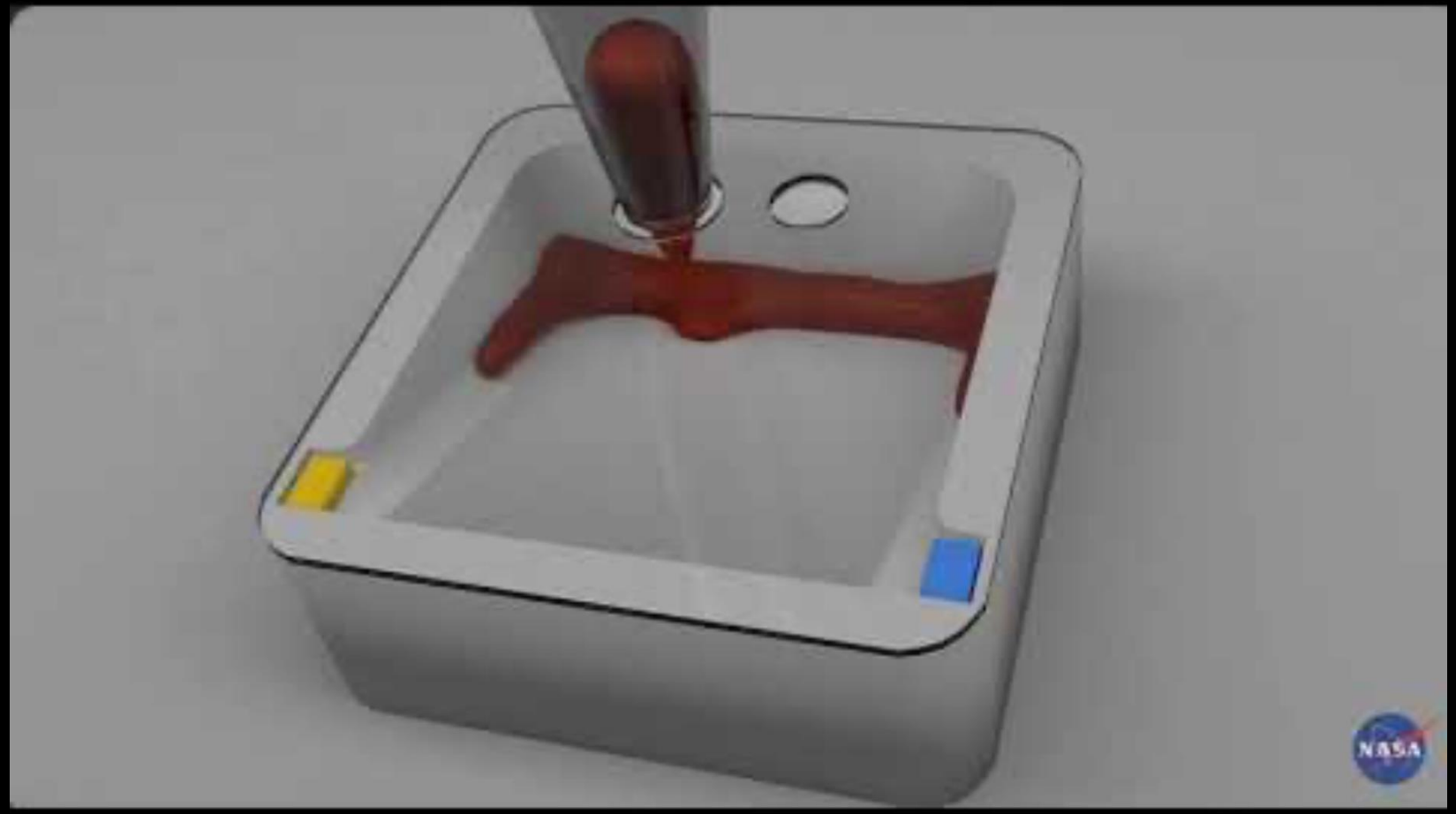
Explore surface tension
in microgravity.

The phenomena.

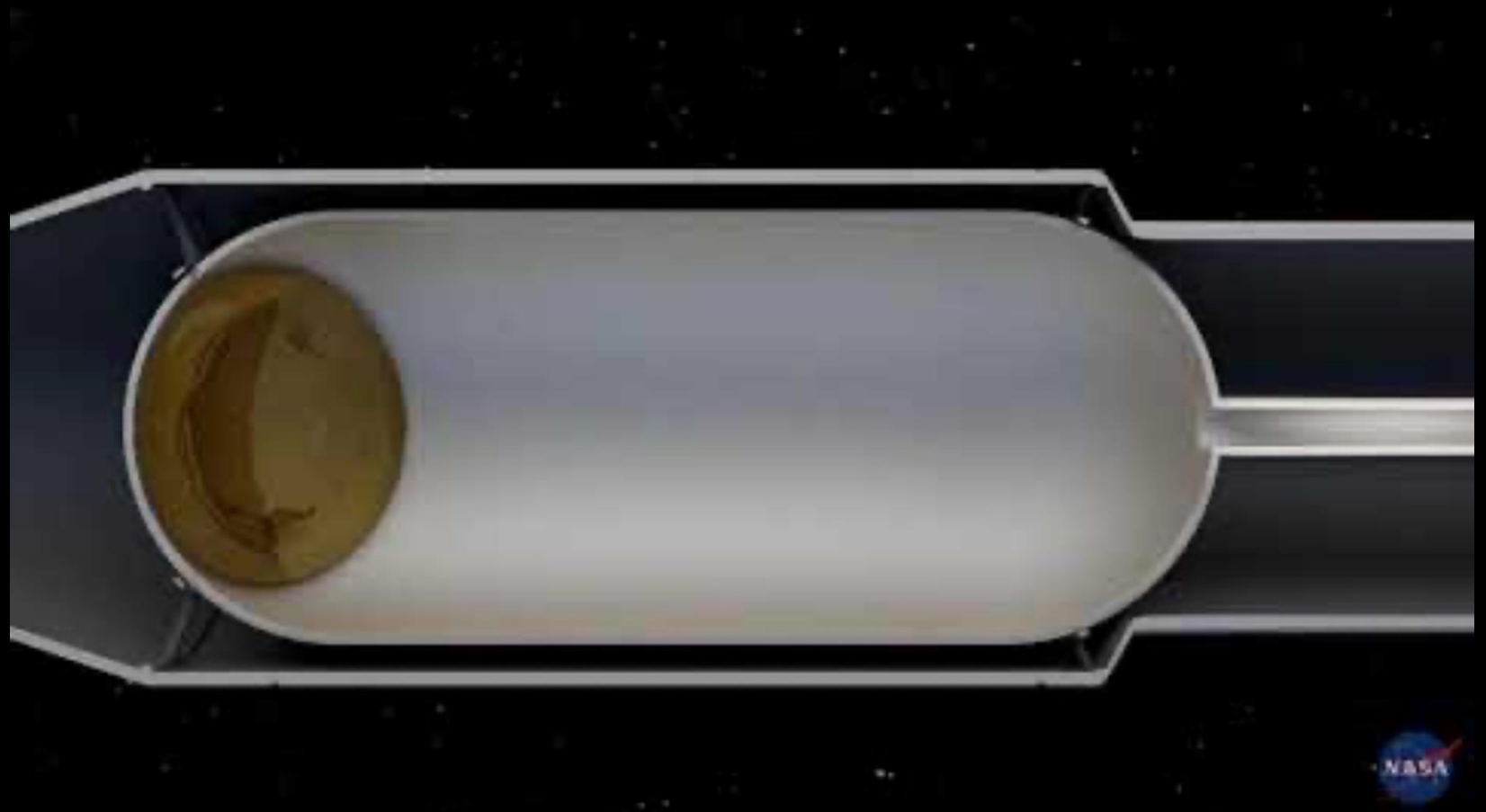


How do you think liquids in space are controlled today?

The phenomena.

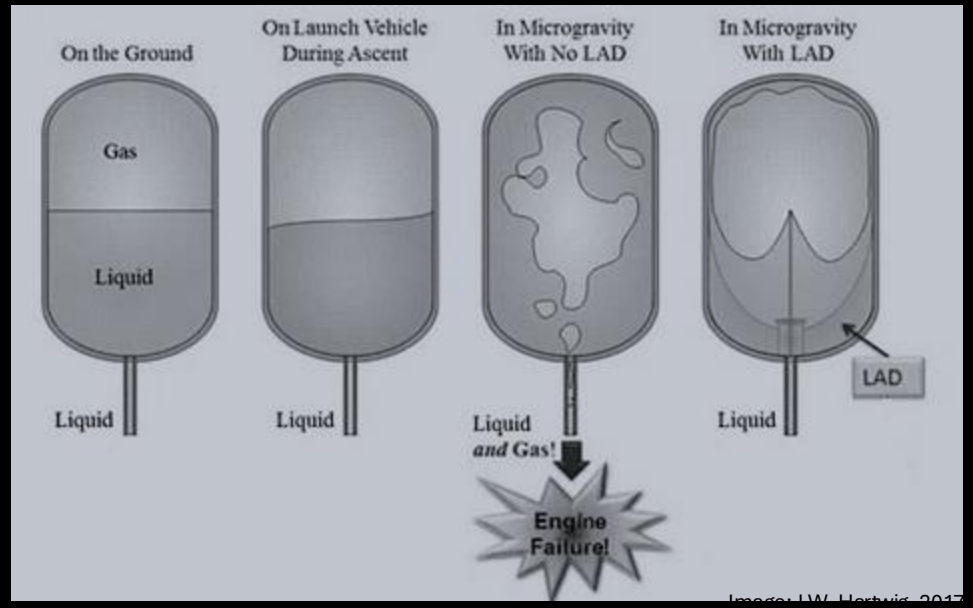


The phenomena.



State-of-the-Art today.

PMS : Propulsion management system/device
LAD : Liquid Acquisition Device



The requirements.

Sealed edges

No outward connection

Temperature

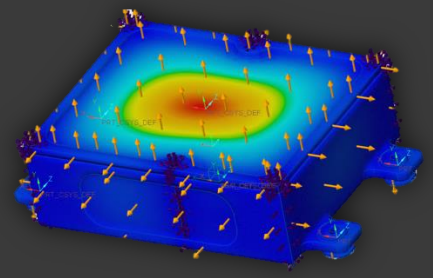
Size

All flight battery

Manufacturable

Differentiate the liquid

µg



Pressure proof

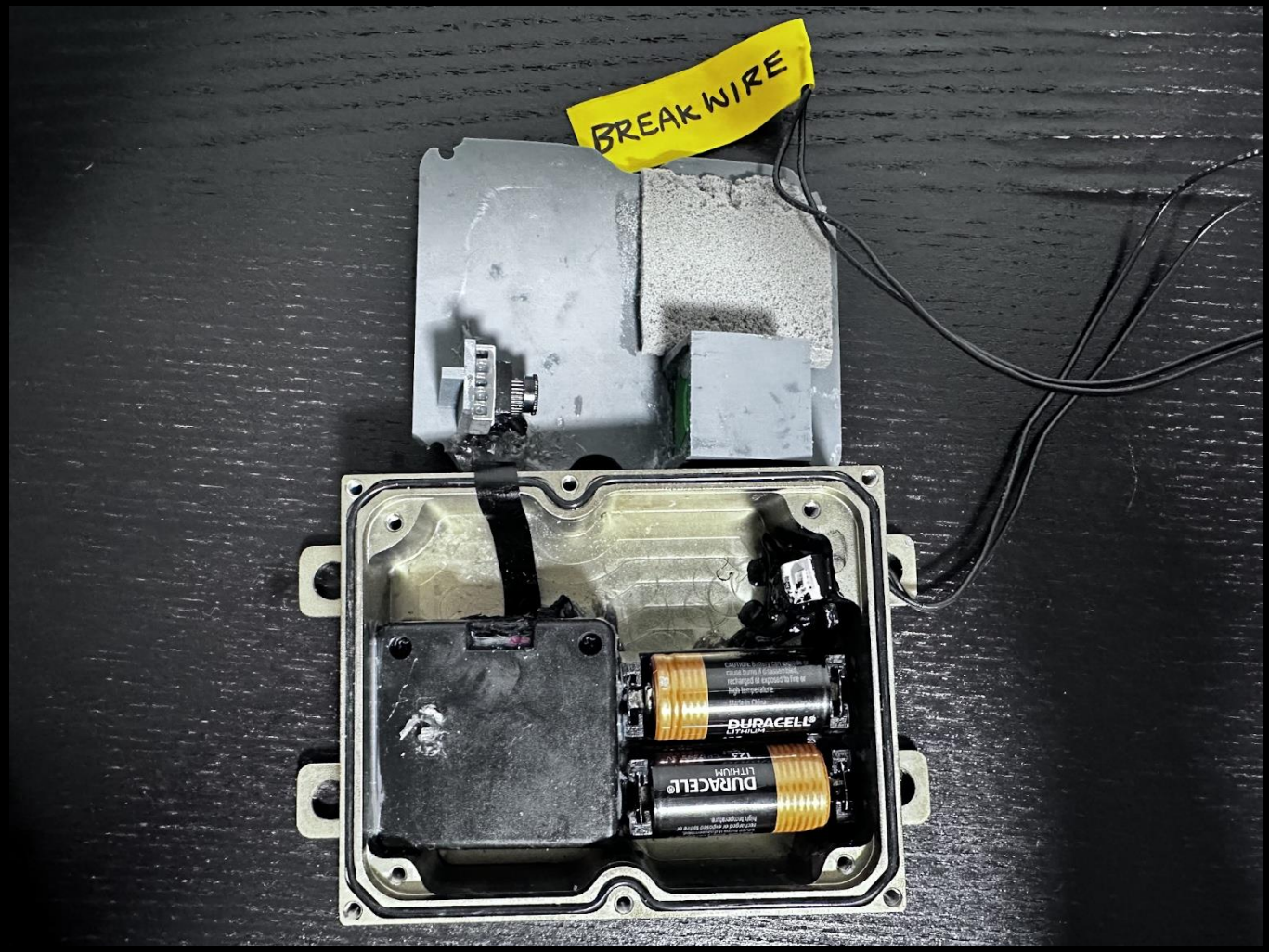
Filming the water

Break-wire system

Thoughtfully arranged components

Safe

The testing unit.



The fluid chamber.

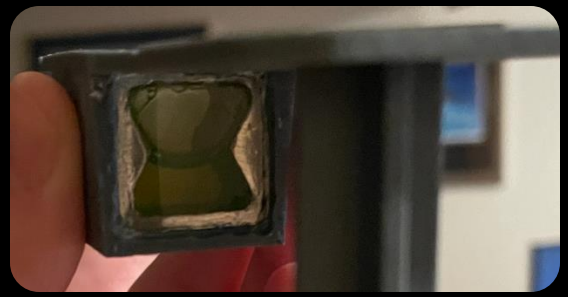
surface coating repelling the water

water with luminescent substance

aluminium

20 mm

Next up..

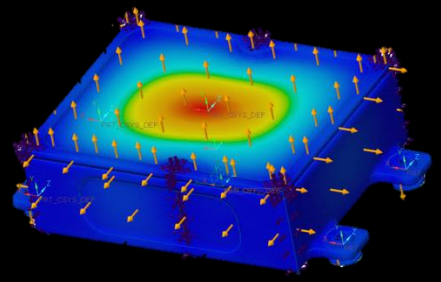



Cornerner Detection
corner
detection
2 cm
slime-green liquid)

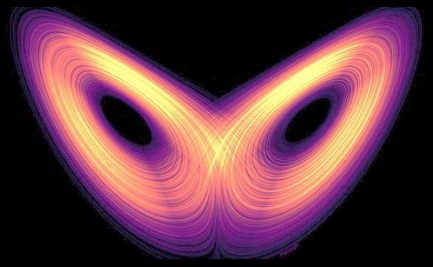

TATTS

What we can learn.

Utilize the power of collaboration with and between.



Designing with conditions in mind.



Small test can lead to big insights.

Thank you for your attention!

QUESTIONS ARE WELCOMED