



Deltares

DigiPact Experiments



Deltares

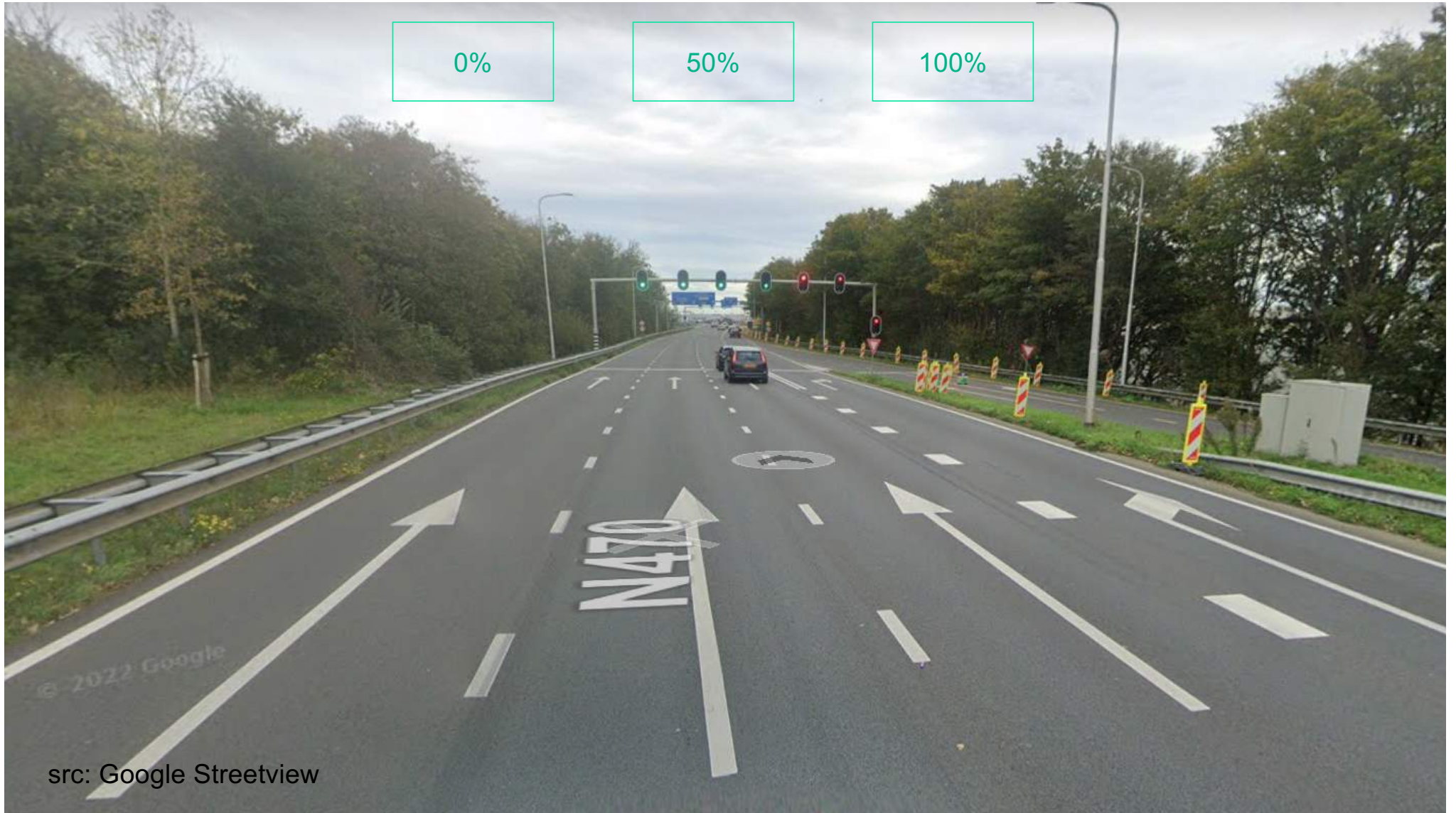


Erasmus
University
Rotterdam





Strategy, tactics and operation



0%

50%

100%

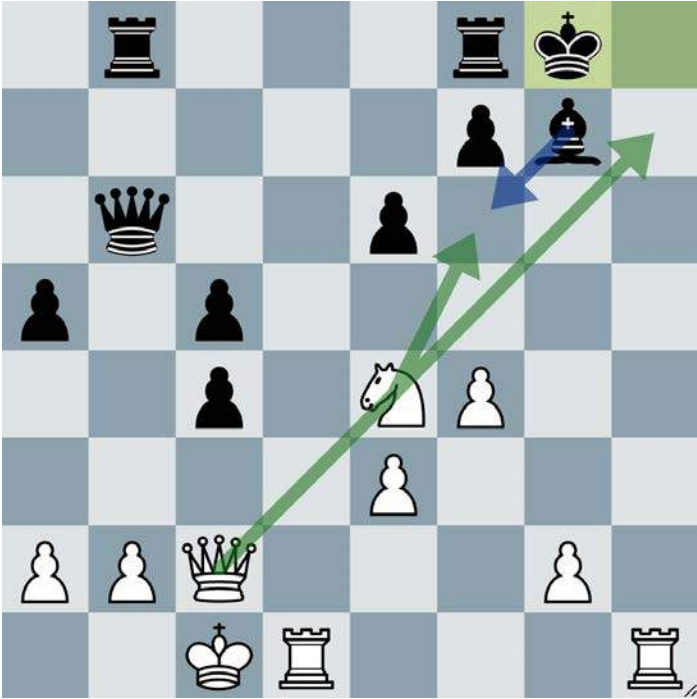
src: Google Streetview

Strategy



Deltares

Tactic



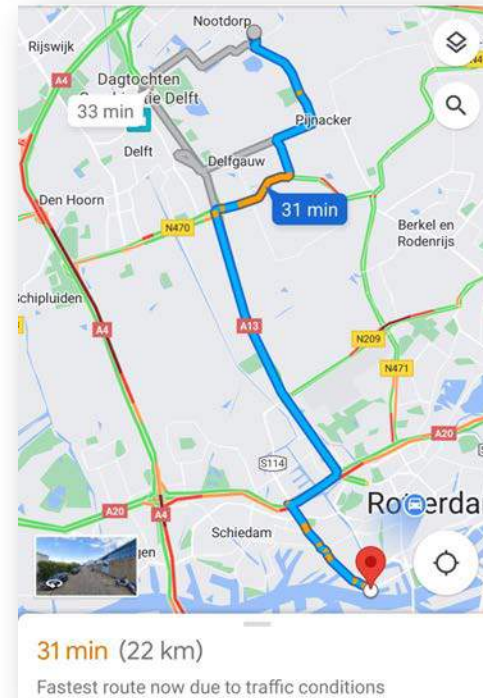
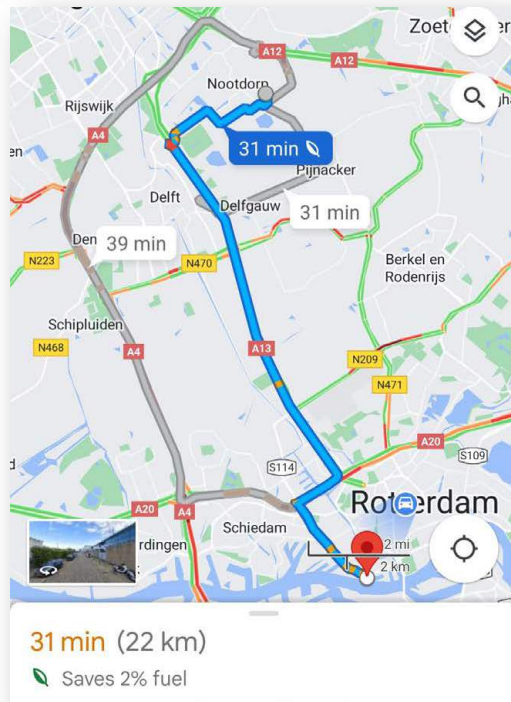


src: ad.nl



src: nos.nl

Fuel optimized routes

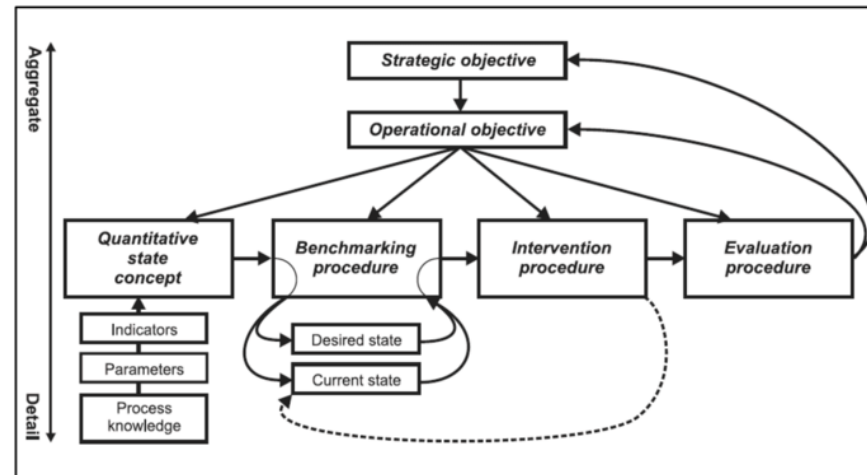


Deltares

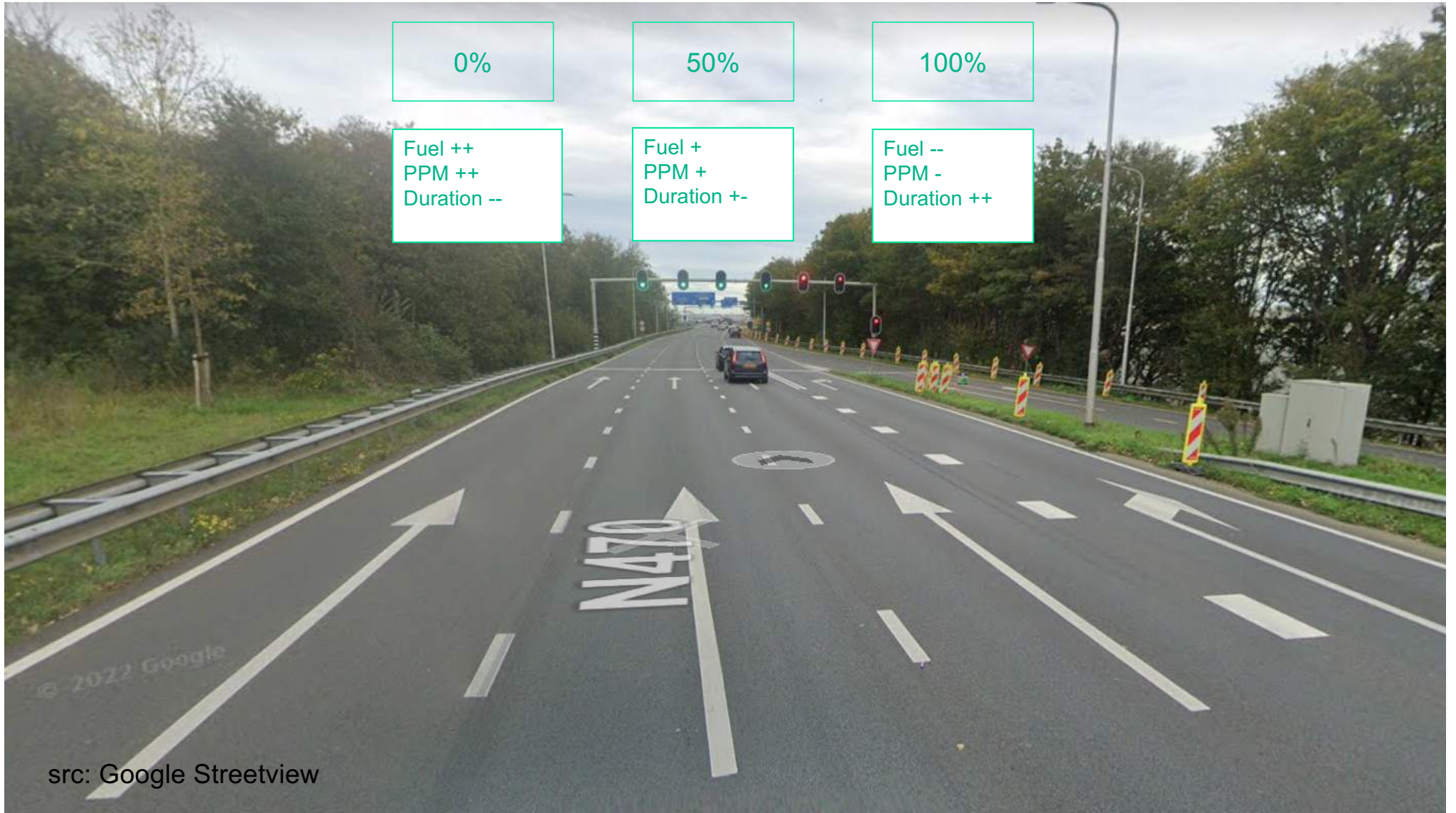
src: Google Maps

Strategies

- Reduce emissions
- Improve air quality
- Reduce accidents
- Increase comfort
- Increase throughput



src: Koningsveld 2003



0%

50%

100%

Fuel ++
PPM ++
Duration --

Fuel +
PPM +
Duration +-

Fuel --
PPM -
Duration ++

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src: Google Streetview

Strategies in inland shipping

Strategy: reduce emissions (CO₂)



30g / tonkm

Deltares



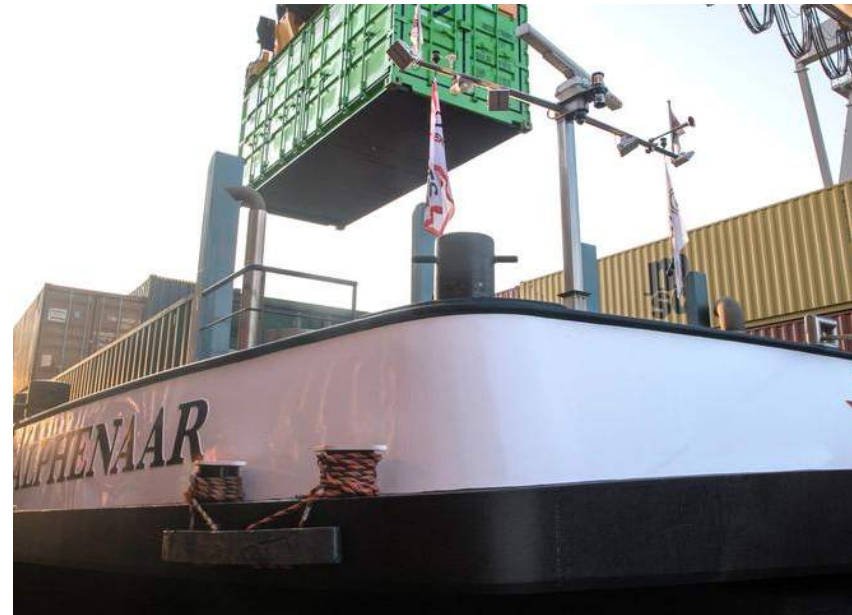
110g / tonkm

Strategy: zero emission



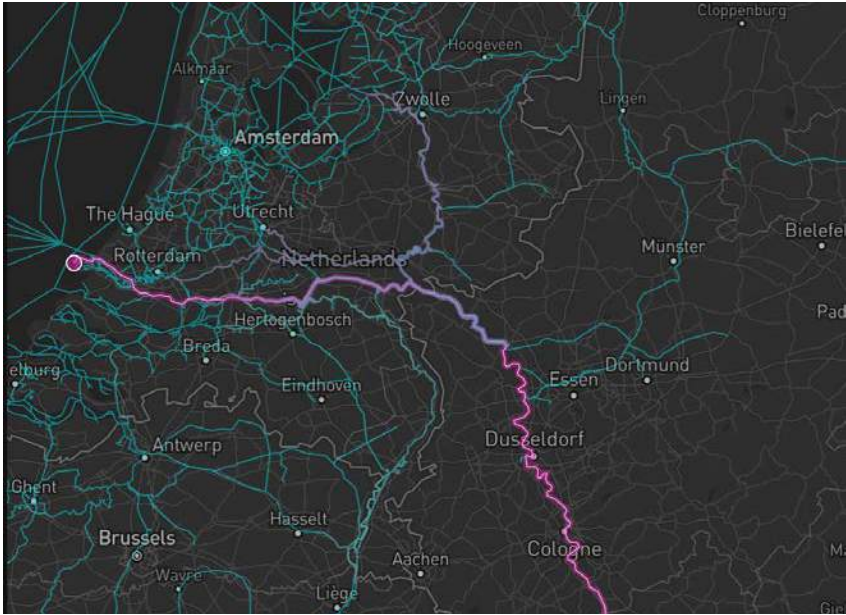
30g / tonkm

Deltares

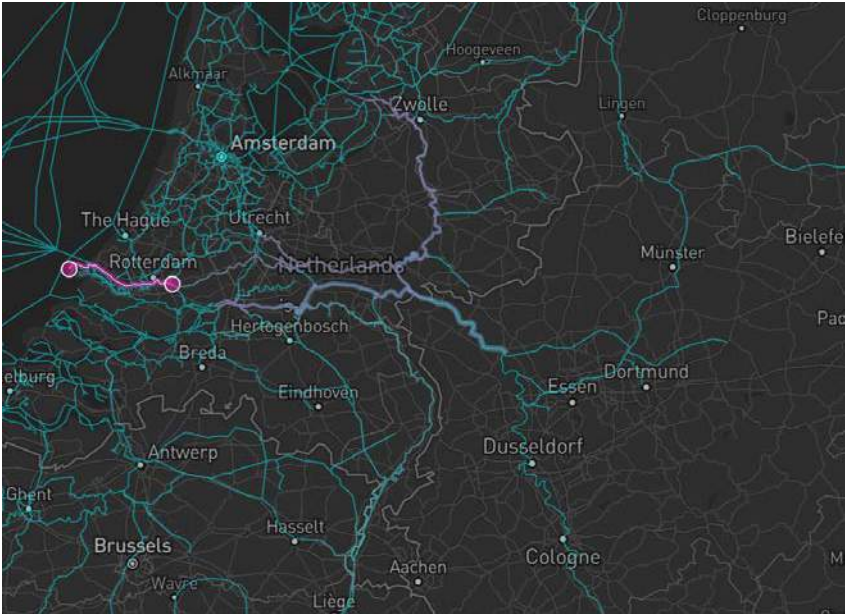


Battery powered ship (src: nu.nl)

Strategy: increase range

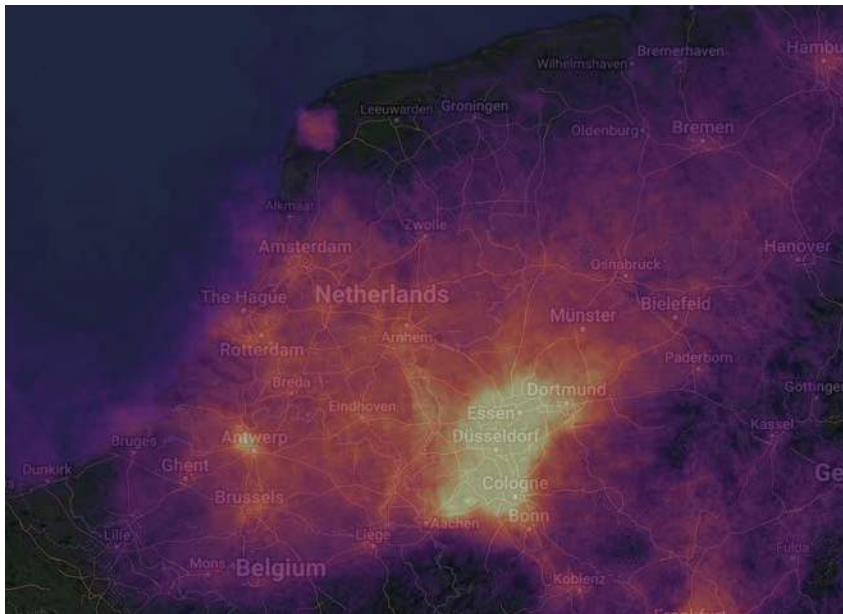


Diesel range

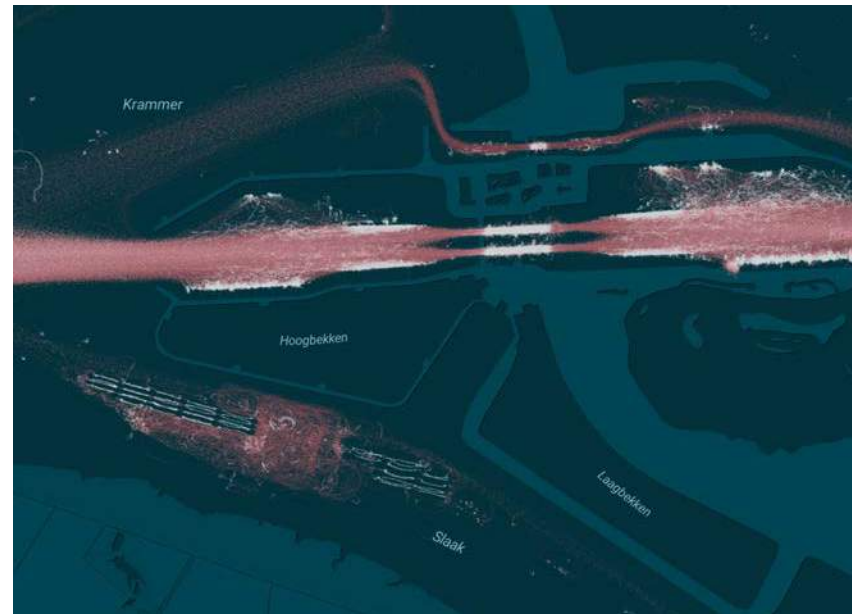


Battery range

Strategy: cleaner air



NOx concentration, src: Sentinel 5, GEE



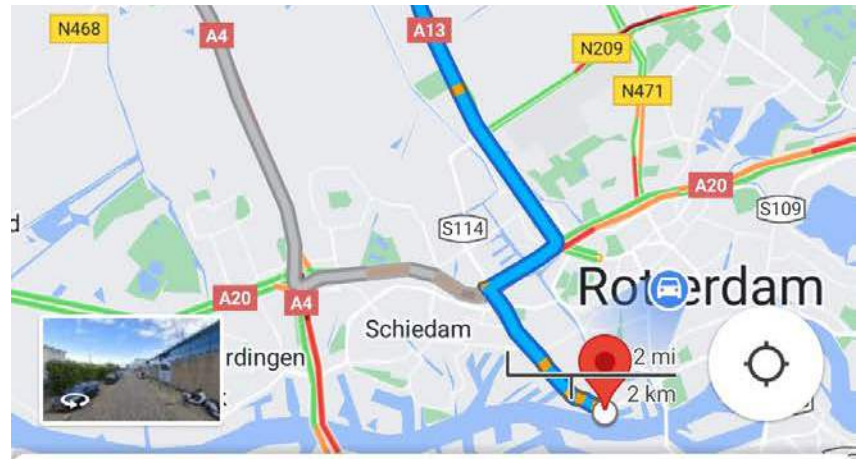
Emissions @ Krammersluizen, src: ais-scrolly

Tactics



Green steaming

Deltares



Green routing

Resilient Delta Experiments

Trickle down strategies



Deltares src: tes/globenewswire.com

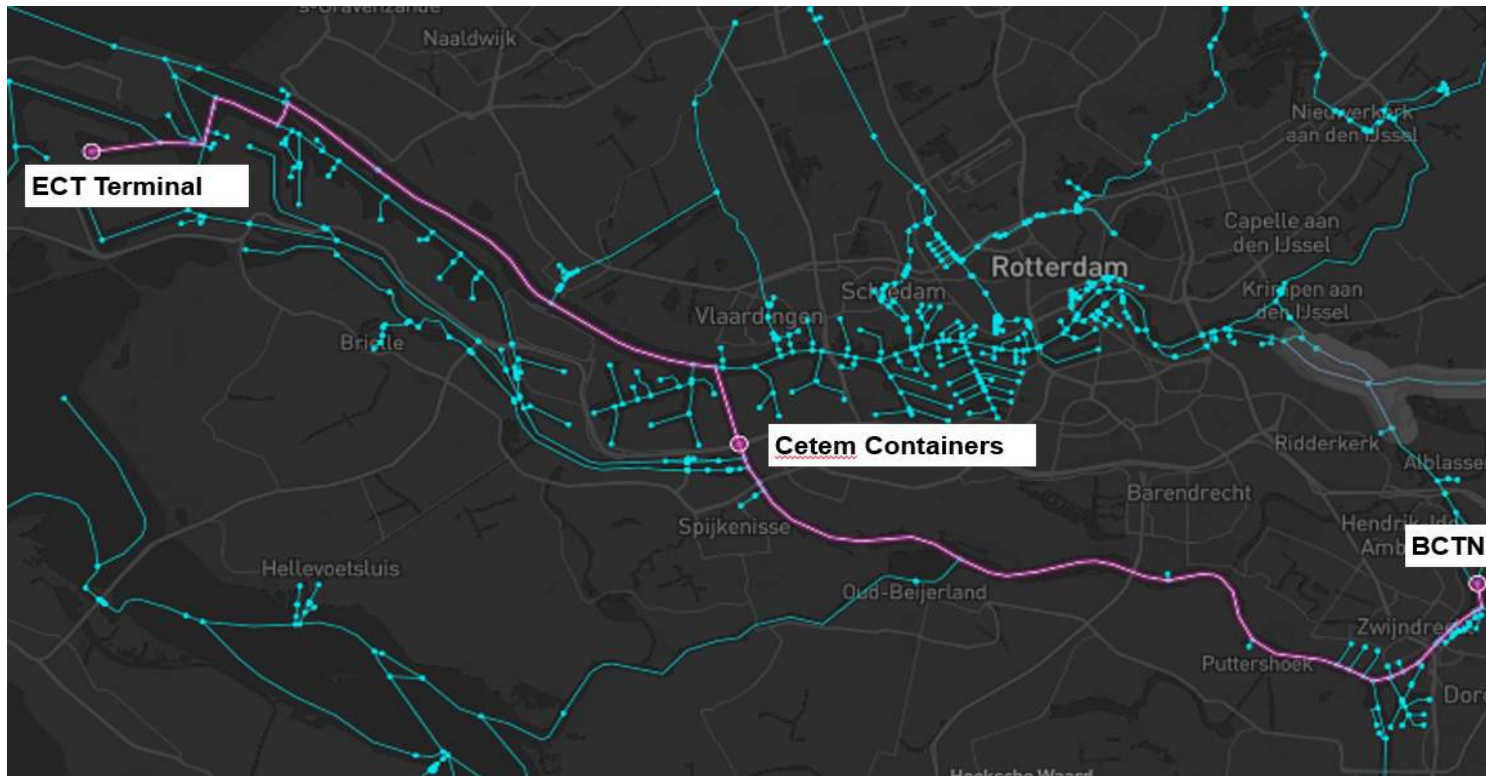
Lab scale



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Experiment plan

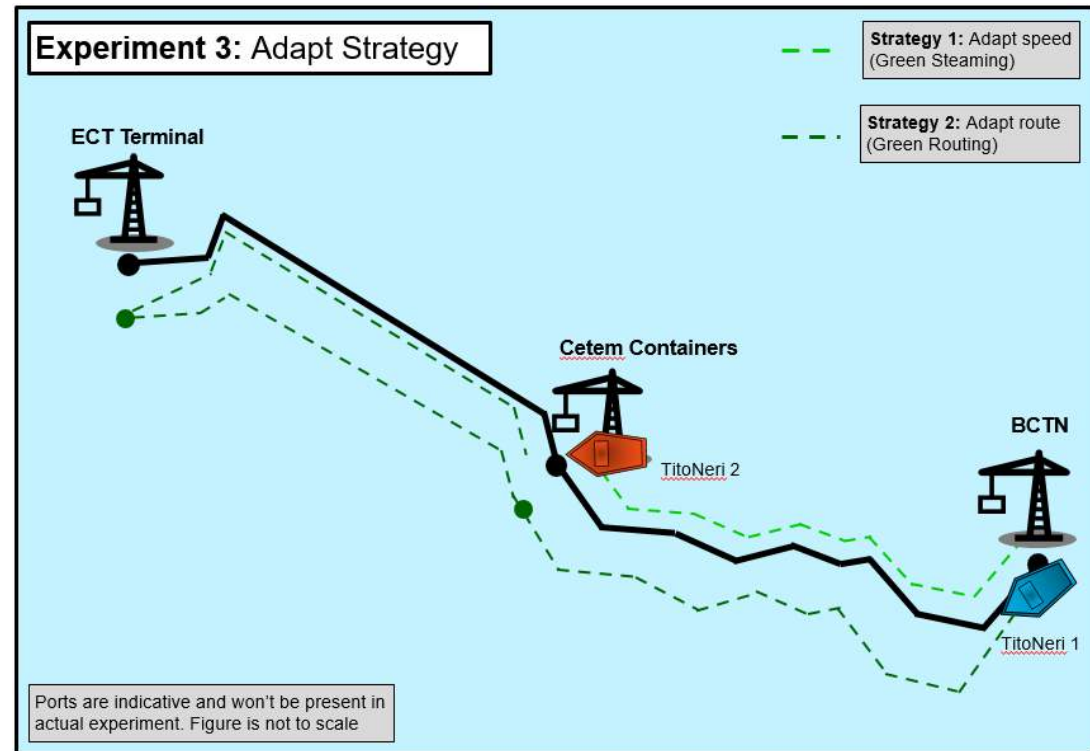
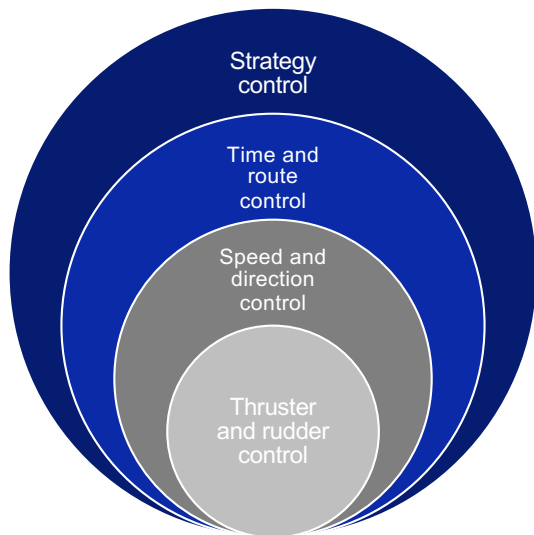
Experiment 3

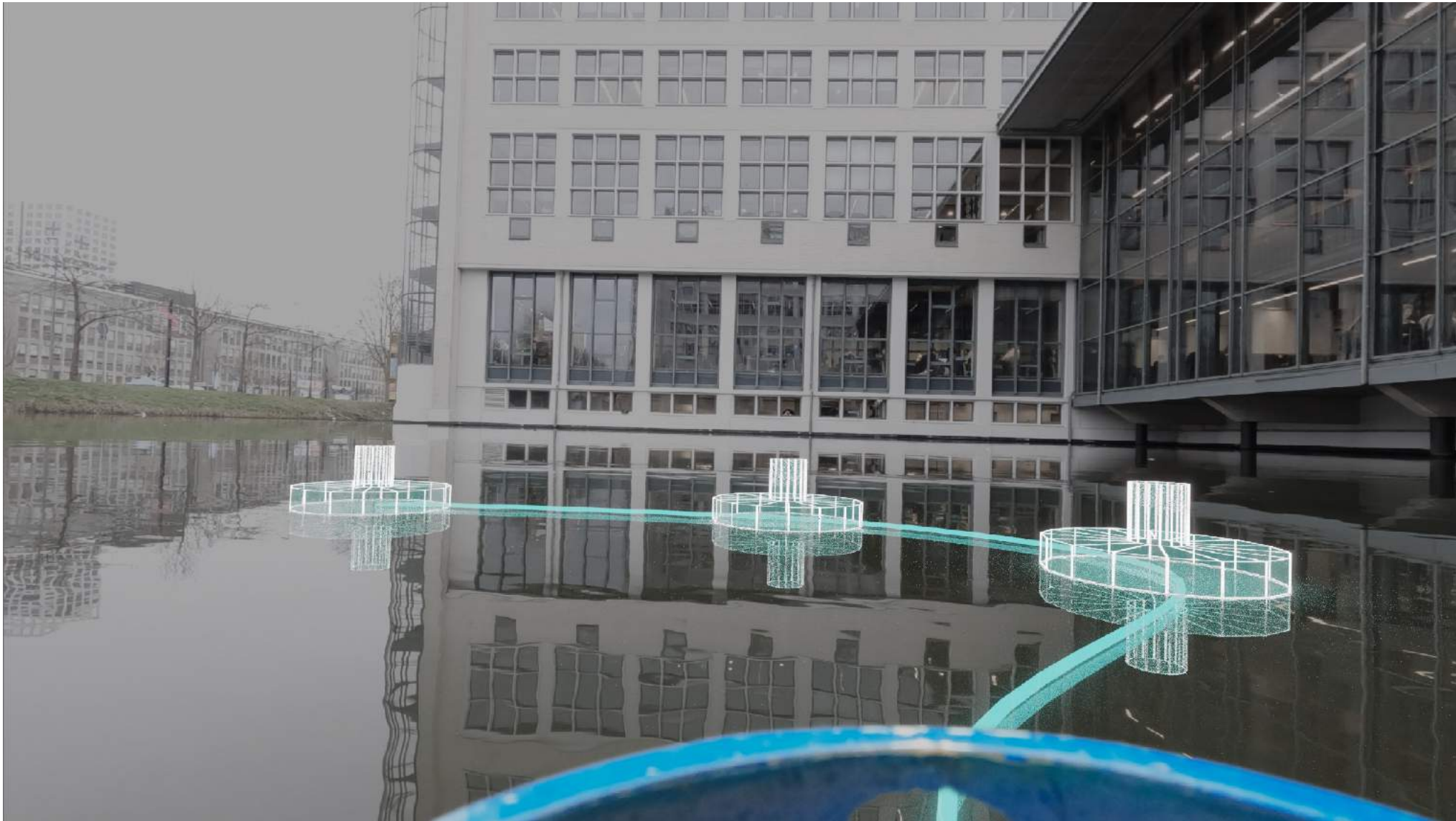


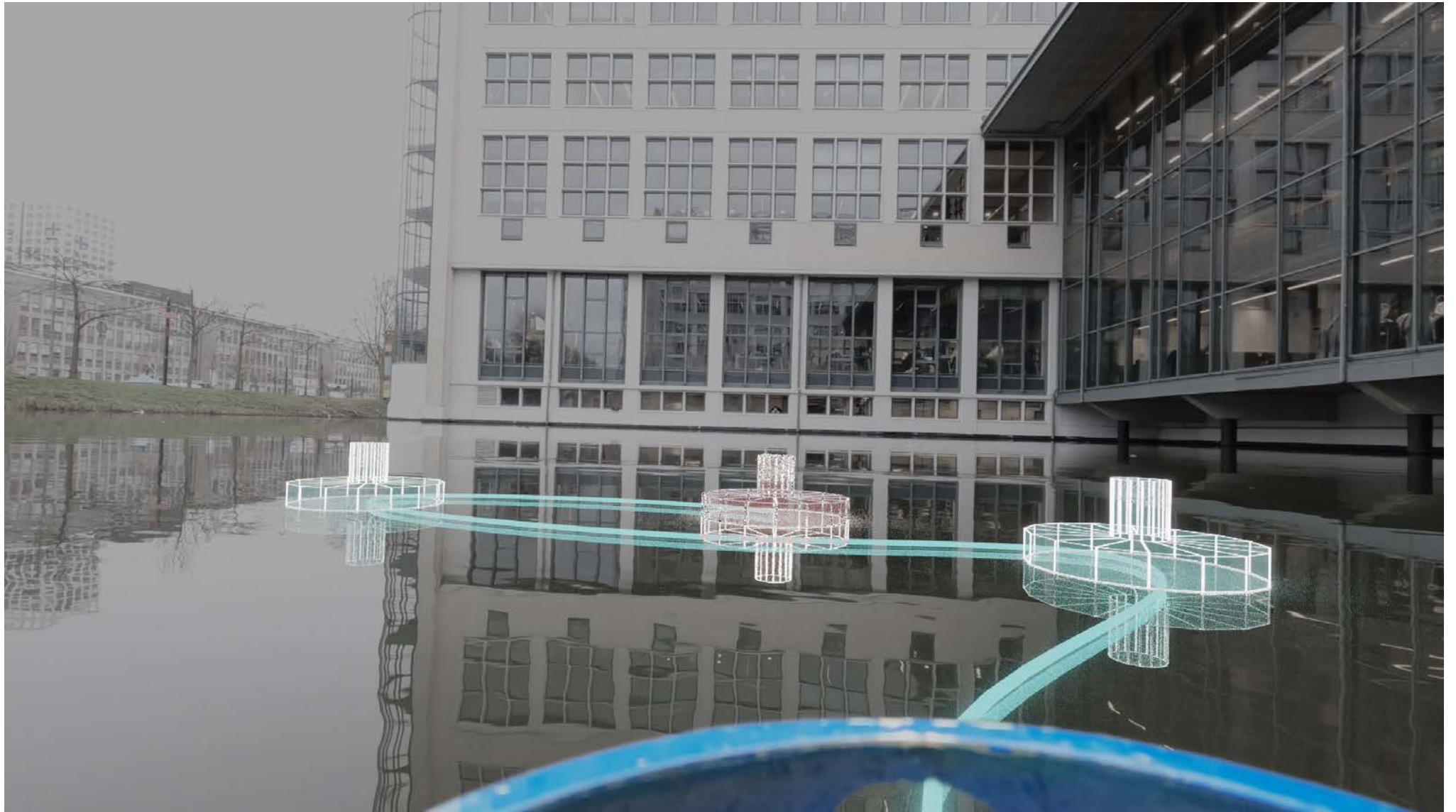
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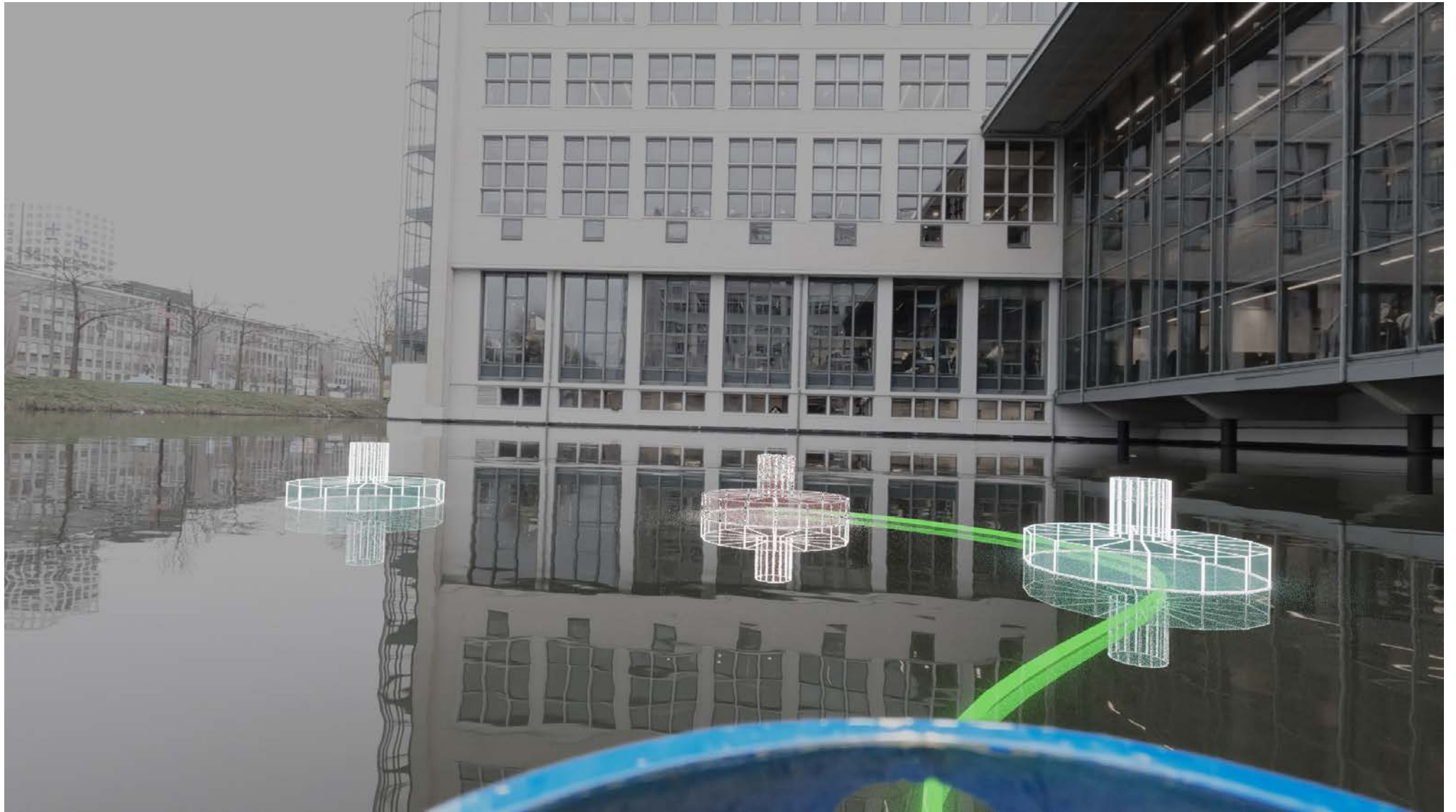
Experiment plan

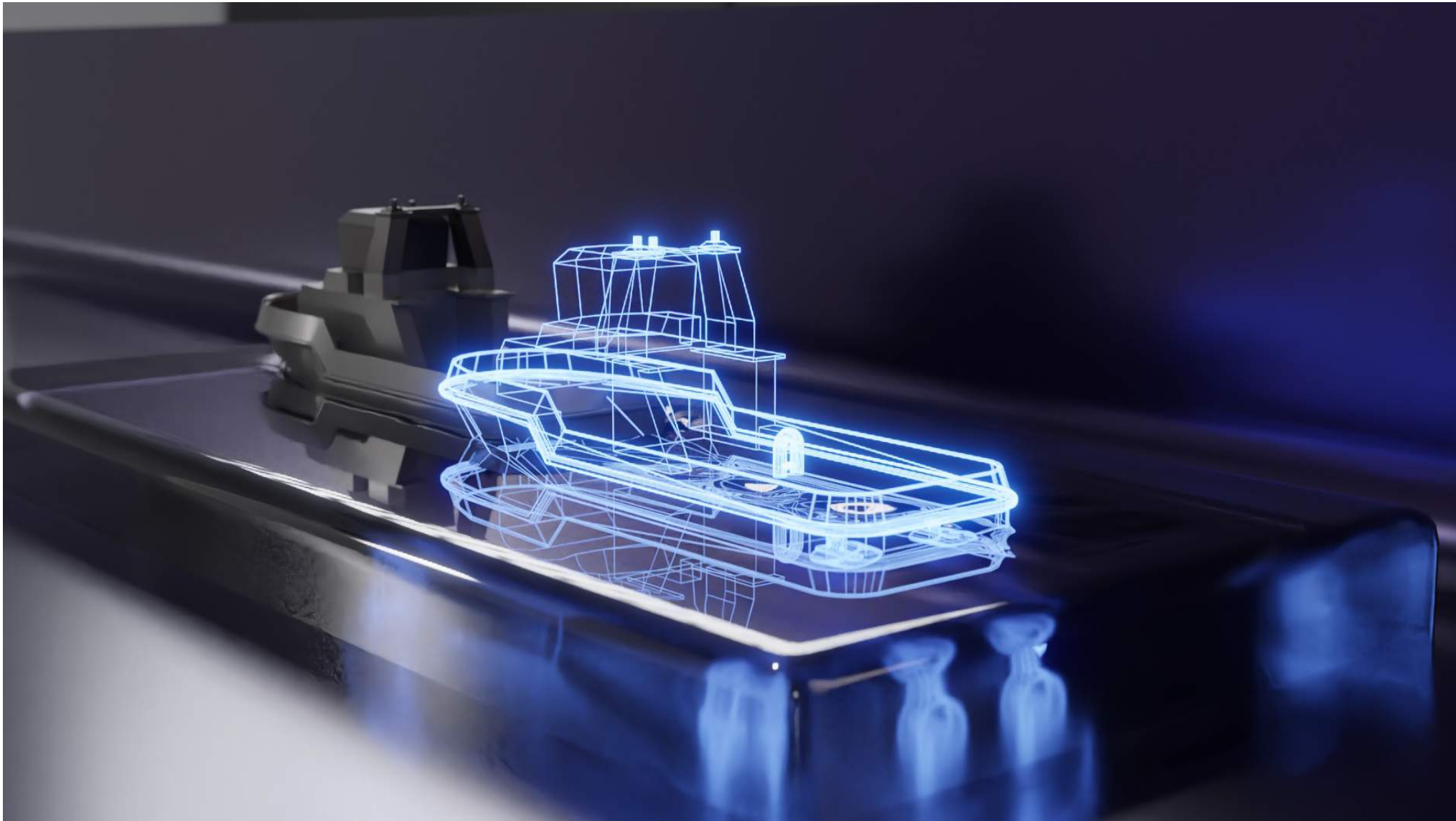
Experiment 3









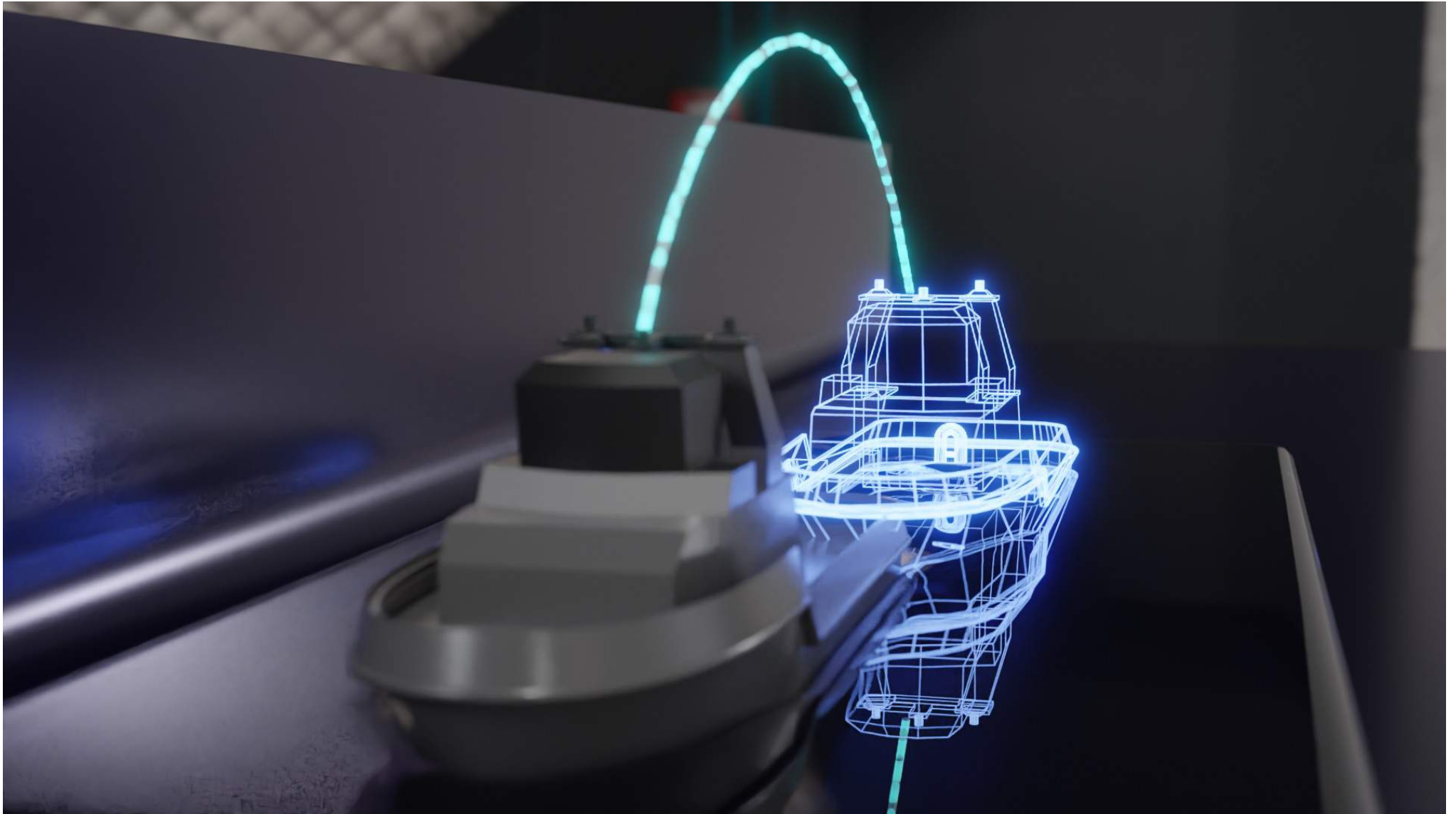


Current frame: 2023-01-30 15:25:00 ≤ t < 2023-01-30 15:25:01



Animation range 2023-01-30 15:25:00 to 2023-01-30 15:39:19 Step 1,000 seconds





Data Source

CURRENT SOURCE
2023-01-30_digipact_test2_2000.bag

START TIME
2023-01-30 3:12:04.441 PM CET

END TIME
2023-01-30 3:14:34.234 PM CET

DURATION
0:02:29.793

Topics Problems

Filter by topic or datatype

/RAS_TN_DB/current_waypoint 748
sensor_msgs/NavSatFix 4.99 Hz

/RAS_TN_DB/geopos_est 749
sensor_msgs/NavSatFix 5.00 Hz

/RAS_TN_DB/heading_est 2,883
std_msgs/Float32 19.25 Hz

/RAS_TN_DB/heading_ref 748
std_msgs/Float32 4.99 Hz

/RAS_TN_DB/tpctime 748
sensor_msgs/TimeReference 4.99 Hz

/RAS_TN_DB/tcpvel 749
geometry_msgs/TwistStamped 5.00 Hz

/RAS_TN_DB/telemetry 2,883
std_msgs/Float32MultiArray 19.25 Hz



/RAS_TN_DB/u_ref
std_msgs/Float32MultiArray @ 1675087924.442109386 sec

layout 2 keys
dim 0 items
data_offset 0

data
Float32Array
(5) [2000, 2000, 0, 0.28849971294403076, 0.28849971294403076]

/RAS_TN_DB/geopos_est
sensor_msgs/NavSatFix @ 1675087924.515834122 sec

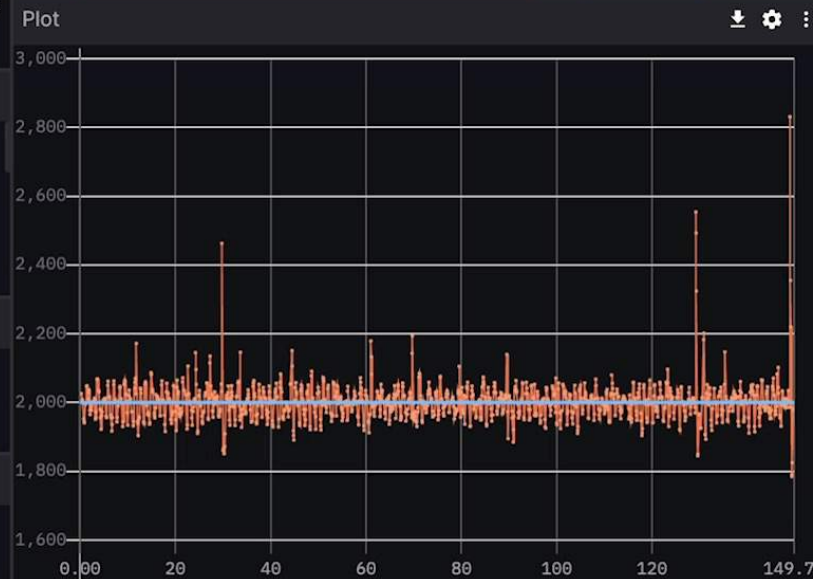
header frame_id: gps
seq 2307
stamp 2023-01-30 3:12:04.507 PM CET
sec 1675087924
nsec 507856845

/RAS_TN_DB/heading_ref

Waiting for next message

/RAS_TN_DB/heading_est

Waiting for next message

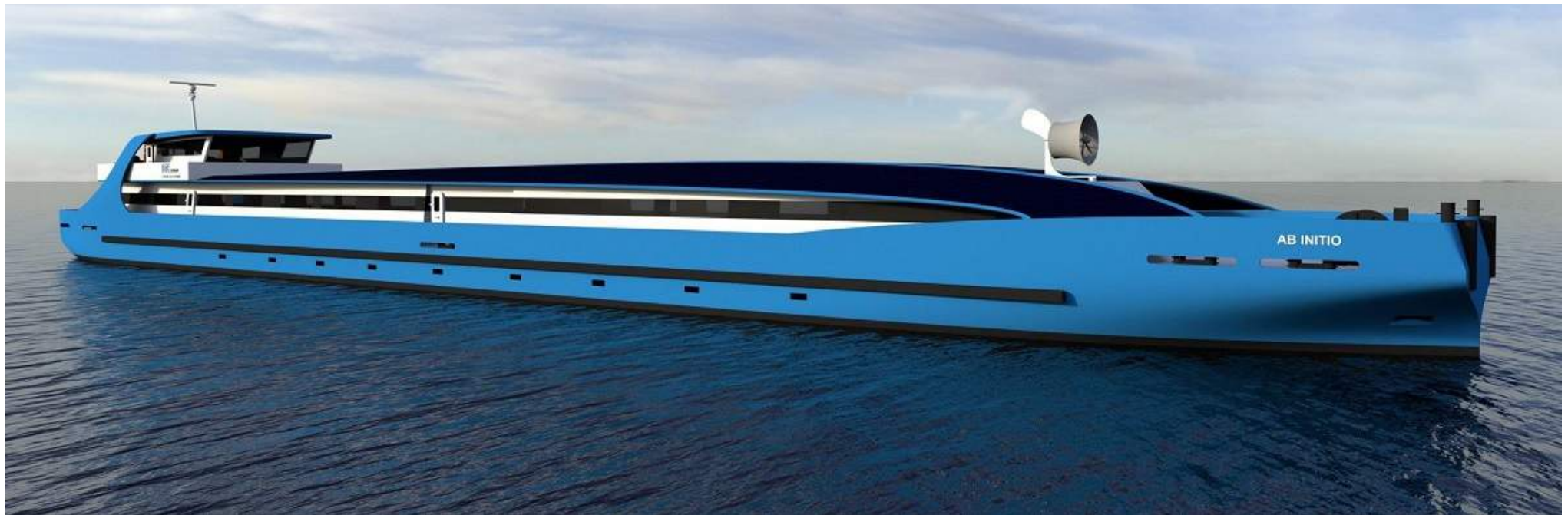




Follow up

PATH2ZERO

PAving THE way towards Zero-Emission and RObust inland shipping



TRANS2

- Joint development and application in the community, for inspiration and new initiatives/research.
- Master of Science and PhD research
- Research at the TO institutes, engineering companies, etc.
- Collaboration with the shipping sector and governments.



Deltares

Contact

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