NTNU | Norwegian University of Science and Technology

Autoferry: Autonomous all-electric passenger ferries for urban water transportation

NTNU Digital Transformation stakeholder workshop, June 8th 2021

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Challenge

Complex urban mobility challenges

- More people move to cities and suburbs
- The need for more efficient transportation increases
- Preferably energy-efficient and low-emission modes of transportation
- Avoiding costly infrastructure like roads and bridges
- Waterways are not utilized efficiently

New mode of transportation

- Small, electric and autonomous urban passenger ferries
- Integrated with existing transportation systems
- On-demand services – available 24/7

Car | Bus | Train | Tram | Subway | Staffed ferries | AFERRY

Electric and autonomous urban passenger ferries

- A new, cost-effective, flexible and environmentally-friendly transport solution
- Develops a new market that does not exist today
- An automated and digitally-enabled transport solution that will provide new jobs

milliAmpére

- verdens første autonome passasjer- og sykkelferge over Kanalen

Egil Eide, Førsteamanuensis
Radiosystemer
Institutt for elektronikk og telekommunikasjon, NTNU

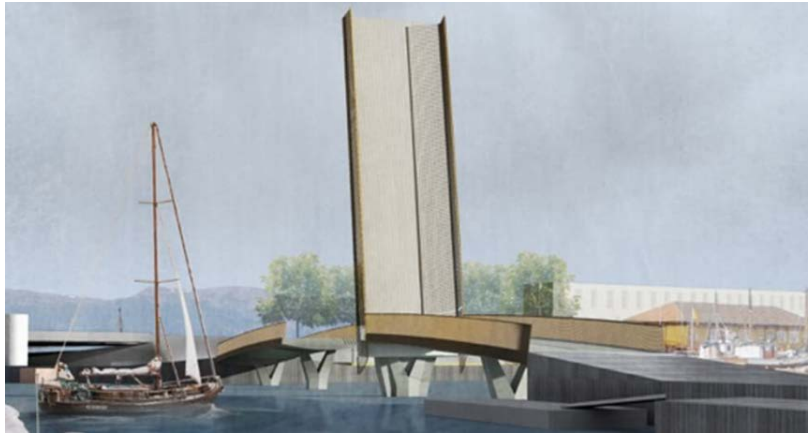
Example: Trondheim canal, Ravnkloa - Fosenkaia

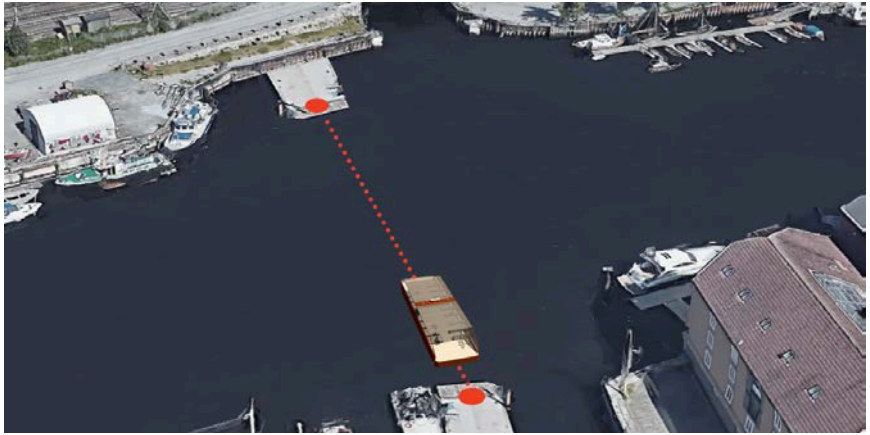
Pedestrian Bridge

- Construction cost: 60 MNOK
- Operating cost: 3 MNOK/year

Autonomous Ferry

- Construction cost: 12 MNOK
- Operating cost: 0,5 MNOK/year

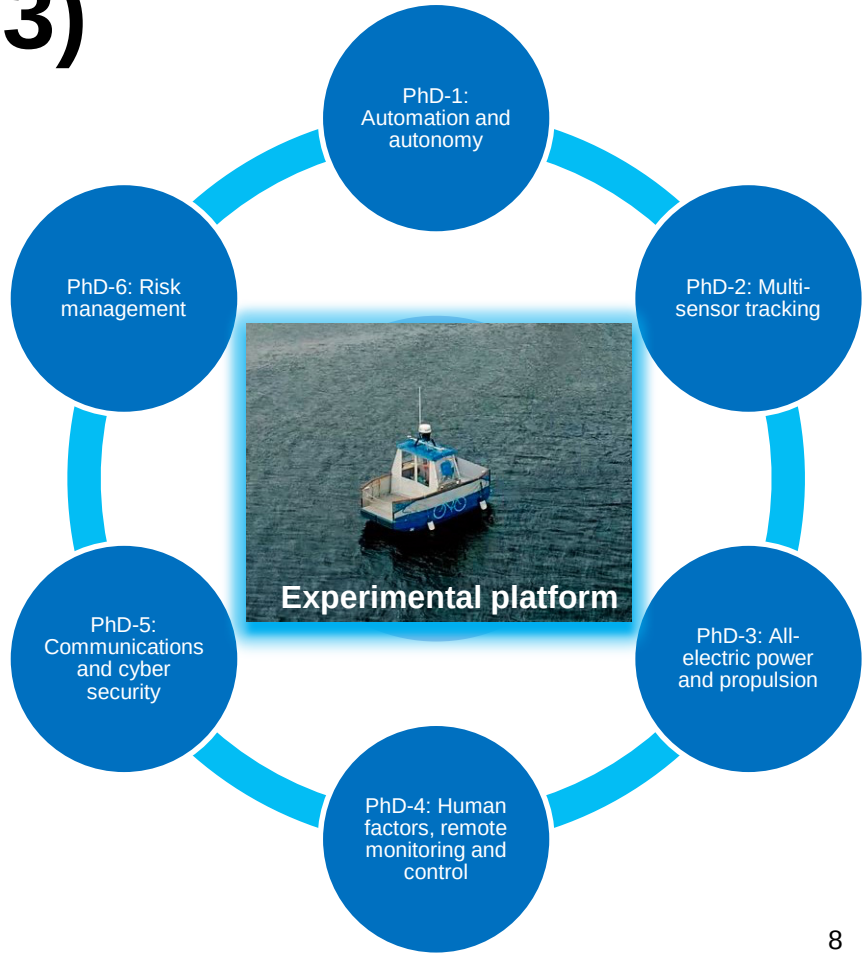




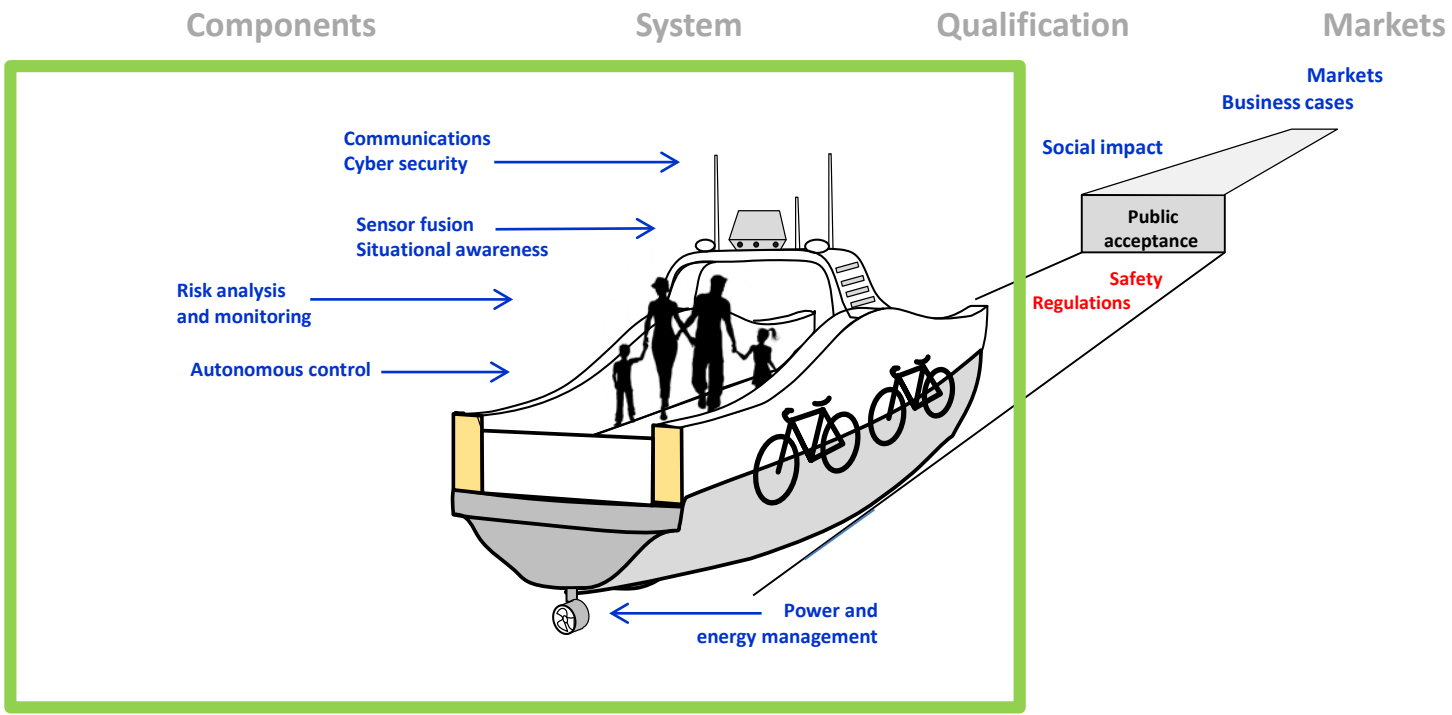
World’s first prototype autonomous urban passenger ferry: milliAmpere

Autoferry (2018-2023)

- Enable the creation of autonomous passenger ferries for environmentally-friendly and safe on-demand transport of people in urban water channels
- 6 PhD positions + 5 affiliated
- Unique full-scale experimental platform

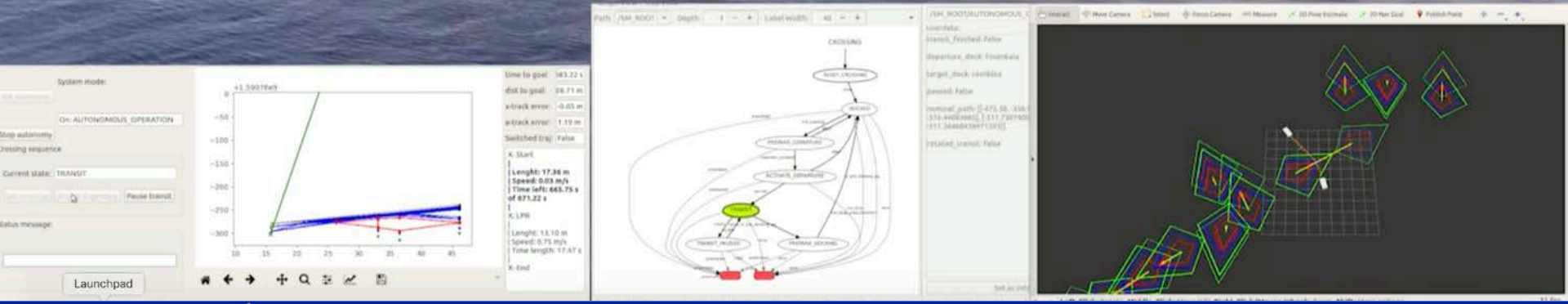


Autoferry: Research part of the journey



3-hour continuous test with milliAmpere in December 2020

https://www.youtube.com/watch?v=Ry3-yxVaDuE



World’s first autonomous urban passenger ferry: milliAmpere 2

milliAmpere 2 during initial sea-trials in April 2021.

NTNU Shore Control Lab

Thank you for your attention!

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