

ROBOAT



Autonomous shipping on Amsterdam canals



Innovation

- Safe autonomous electric shipping and sensing in urban waterways
- Roboat is a new kind of on-demand infrastructure: autonomous platforms will combine together to form floating bridges and stages, collect waste, deliver goods, and transport people, all while collecting data about the city. How can we re-imagine urban infrastructures with cutting-edge technologies?
- These technical innovations make it possible to revitalize old business models (picking up waste in old town Amsterdam, construction debris/materials logistics) and also allow new businessmodels, eg inspection/monitoring of infrastructure using advanced sonar technology



Emission reduction

- The powertrain of Roboat is 100% electric.



Milestones

- 2019 — Perception and motion controlling technology is mature
Full autonomous control of a 1:4 (100 x 50 cm) and a 1:2 (200 x 100 cm) scale model on the Charles river (Boston USA) and on the canals of Amsterdam.
- 2020 — Launch of full-scale model (400 x 200 cm), full aluminium hull, +- 5kW total thrust and 12-24kW LiPO battery capacity, to allow 9 hours of non-stop operation

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Technology brief

- Roboat is a 5 year research project and collaboration between the Amsterdam Institute for Advanced Metropolitan Solutions and the Massachusetts Institute of Technology. In developing the world's first fleet of autonomous floating vessels for the city of Amsterdam, it investigates the potential of self-driving technology to change our cities and their waterways.
- Mapping, localization, object detection, path planning and path following using a combination of advanced sensors such as LiDAR, stereoscopic camera's, IMU and GPS
- Four static thrusters allow for precise manoeuvring, including lateral movements to enable the Roboat to latch to each other and create a scalable platform. Multivessel coordination allows for complex manoeuvring with multiple Roboats working together



Required for deployment

- Laws/regulations concerning autonomous sailing on urban waterways
- Additional funding to speed-up development and pilots
- Execution of real-life pilots in Amsterdam, eg picking up private waste in old town Amsterdam (pilot is scheduled for 2021)
- Uptake of technology by private company, eg waste collection company



More information

Ynse Deinema

- www.roboat.org
- ynse.deinema@ams-institute.org
- contact@roboat.org
- +31 6 28 53 66 22

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Green Inland Shipping Event

Brussels, 16 October 2019



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