

Some information we gathered :

We are using a TF03-180 LiDAR sensor. Can you please give any idea?

Ans :

1. If you're using a boat as the platform, it would seem nonsensical just to immerse the sensor as you would with sonar. Bathymetric LiDAR is many times more expensive than sonar.

The company I worked at had this exact same setup, most bathymetric lidar setups should already be waterproof out of the box, I guess it would be helpful to know what lidar sensor you are using to be sure

I don't think you can use a TF03-180 LiDAR lidar sensor to perform bathymetric measurements as it is the wrong wavelength- it won't penetrate the water column. Bathymetric lidar uses green wavelength.

2. You may want to look into green wavelength lasers and bathymetric Lidars. The effectiveness of these systems will depend on the max depth and typical conditions of the water you are expecting to work with.

3. Would something like this work?

<https://ardupilot.org/copter/docs/common-rangefinder-maxbotixi2c.html>

4. Have you looked for a small boat depth Gauge? They use sonar. What about something like this?

https://www.scheels.com/p/garmin-striker-cast-sonar/75375922905.html?store=&gclid=CjwKCAjwm7mEBhBsEiwA_of-TDH8SpiNi9eKMQ2EVW1tn2lgubbCZBhv4zQUIMesUiEKXkfNL8m5dRoC22cQAvD_BwE

Edit: maybe rig up something like this?

https://www.cabelas.com/shop/en/garmin-striker-4-sonar-fishfinder-and-gps-plott er?ds_e=GOOGLE&ds_c=Shop%7CGeneric%7CAllProducts%7CHigh%7CSSC CatchAll&gclid=CjwKCAjwm7mEBhBsEiwA_of-TEEREo2g8TQHlo7nS-kalP9gqXEgbE06Qm-Pi6qOgp--PQxSNXSqbxoCWWAQAvD_BwE&gclidsrc=aw.ds

5. <https://www.astralite.net> offers high resolution bathymetric LiDAR for drones. The limiting factor with bathymetric LiDAR is the scan depth is shallow even in clear

water. Shorelines and streams are the target applications. For deeper scans, multi-beam sonar on rc boats have been used for dredging applications.

6. The [Roboat](#) is a robotic boat equipped with either an Ouster OS1-128 or a Velodyne VLP-16. The Ouster lidar is a good choice because it has class-leading water resistance (IP68;IP69K, allowing it to survive high pressure water jets and total submersion). The lidar is used for scanning things on the land; these lidars cannot see anything beneath the water surface.

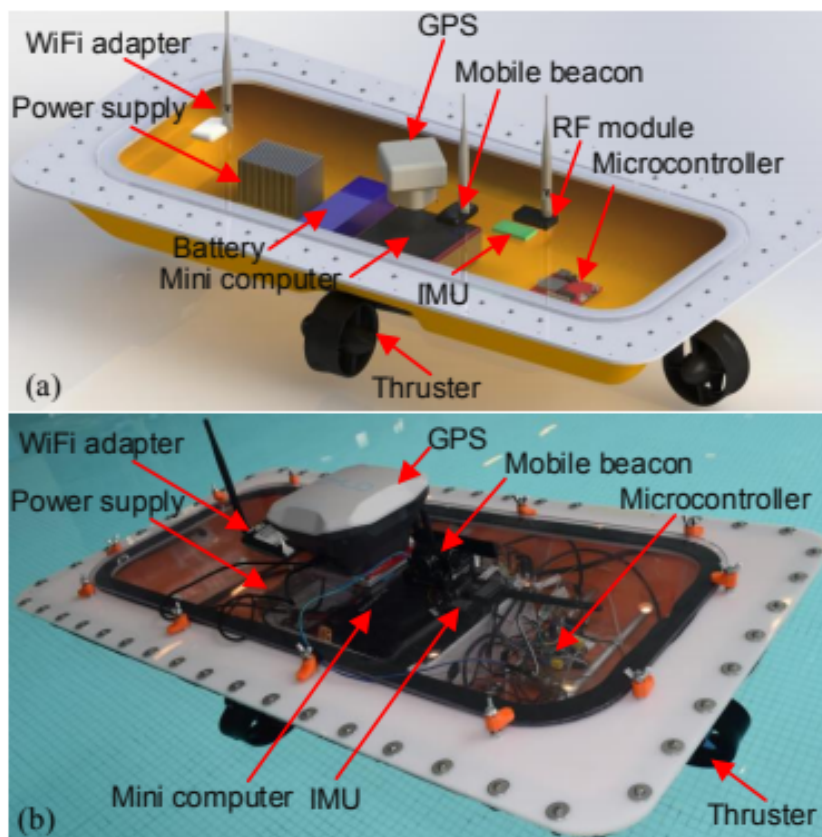


Fig. 3. The developed robotic boat. (a) Model design; (b) robot prototype.

Boat designed by Roboat

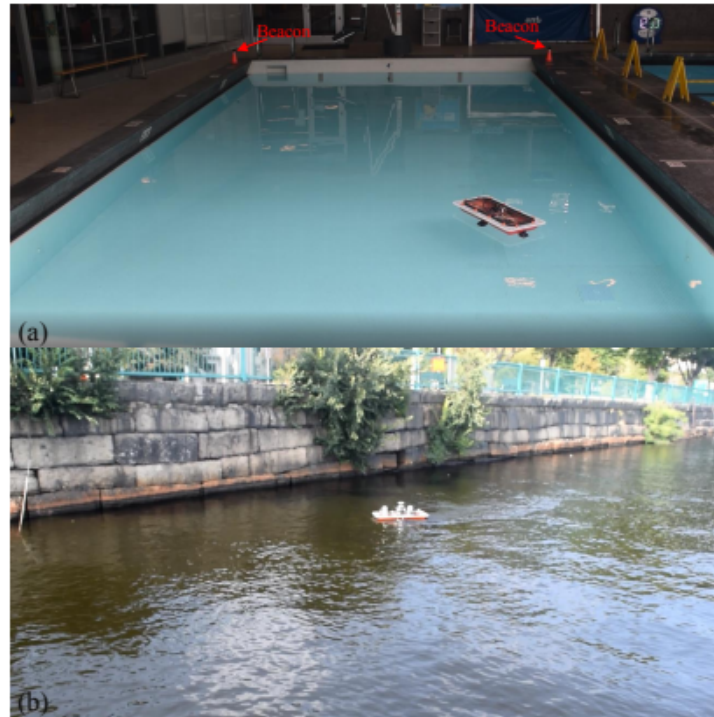


Fig. 6. Indoor and outdoor experimental scenes of the robotic boat. (a) Swimming pool, and (b) Charles River.


Link to paper :

http://senseable.mit.edu/papers/pdf/20180525_Wang-etal_NMPC_ICRA.pdf

There are many papers related to this in this website :


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