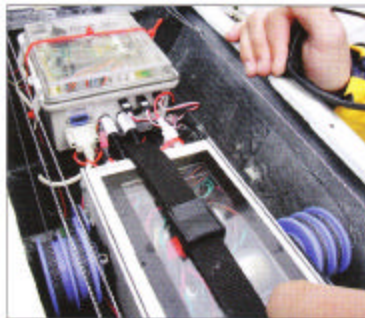


Ontario Sailor Magazine: Robotics Sailboats Cross Ocean



Students from Queen's University in Kingston sand the hull for the robotic sailboat.



This miniature system is what makes this vessel autonomous and energy-sustaining



The sailbot alongside some yachts in their slips.

Robotic sailboats to cross

Lukas de Roo likes to play around with sailboats. And computers.

He's combined his two passions and builds robotic sailboats.

These not-so-miniature boats, up to 4 metres (about 13 ft.) in length, sail themselves. Soon one of these tiny vessels may cross an ocean, tacking all the way.

The university engineering graduate says onboard computer systems will steer the boat as it zigzags its way across the ocean over a course that will take a month to complete.

Tiny instruments and linked computer systems will monitor wind and wave patterns so the sails are set properly. A compass and onboard GPS (global positioning system) will help in steering.

The spars and hull are made of carbon fibre, and the sails are new laminates.

A small bank of fuel cells will keep the servo motors running, which control tiny lines that tack the sails or turn the rudder, and keep the sailboat on its course across the ocean.

This is the future of robotic sailing, done on a small scale.

Students at universities across Canada and around the world are working on these tiny, fully-autonomous sailboats that sail themselves.

These so-called "sailbots" (combining the science of sailing and robotics) have been around for about four years and although new on the scene, the technology is advancing.

Engineering students have been designing and building the tiny boats for friendly sailing competitions at the North American and world robotics sailing championships, during which information is shared between the teams. But there are other uses, as well.

Some of the sailbots have already been fitted with sonar and are being used in the study of dolphin migrations in Europe. The boats may in the near future be used to study currents, wave patterns, weather and other phenomena.

"We see some benefits of having these autonomous, energy-sustaining vessels," said de Roo, who is 22. He credits work in the program with landing him a job. "What partly attributed to me getting a job was the experience I've had with the (robotics) team."



The Queen's University sailbot team.

He is a graduate of an engineering course at Queen's University and is a sailor himself, growing up with a Laser at a family cottage on Lake Winnipeg. Once in a while he helps a roommate and fellow graduate sail his Niagara 26 in Georgian Bay. That boat is kept in Midland.

For the students, there are two competitions a year, one in North America and the worlds in Europe. And the ultimate goal of the students is to compete in what will be known as the Trans-Atlantic Challenge – a sailboat race across the Atlantic Ocean.

"I believe that there will be someone that tries it (an Atlantic crossing with a sailbot) this year," said de Roo, who lives in Toronto and works for a firm that designs smelting furnaces. He said students are now working on boats that can do a crossing.

Students from various universities, including Queen's, Waterloo, the University of British Columbia (UBC), the U.S. Navy Academy in Annapolis, along with schools in Austria, Wales and elsewhere in Europe, compete every year to build the best robotic sailboat.

There are generally two competitions for the students each year: the North American Robotics Sailing Championships, held in Annapolis the past two years because of nearby resources like a yacht club; and the World Robotics Sailing Championships, held in Austria last year and this year to be held in Portugal in July.

These events are the lead-up to the ultimate competition, to have these robotic sailboats race across the Atlantic.

"This is what we've been working up to...it would be the robotics America's Cup," said de Roo, who may join his teammates from Queen's University in Kingston

Editor's Note: Cheers to Sailor and Queen's sailboat

Editor's Note

Get out on the highway



The one good thing about sailing is people can celebrate the sport in many different ways.

There are racers who like to compete with their dock mates to see who can go the fastest. They may be more "A" type personalities who enjoy stealing each other's wind, crowding the mark and yelling "starboard" a lot to each other.

And there are the cruisers, who like to go a little slower than their racing cousins but party hardy when they get there. You know the type: Party animals who usually go the distance. They always make the last dance at the dock party. They are the last ones standing, or wobbling, depending on the severity of the party.

Some sailors wear many hats and cross back and forth between these two groups, sometimes going fast and sometimes partying in the fast lanes.

Within these groups are sailors

who just enjoy a day sail in their home waters, never caring to pick up somewhere else.

Or there are those who take it just a little farther and sail across the Drake Passage on their way to Antarctica (see the story inside this magazine).

Some racers are okay with racing around the cans at their local club. Others want to get out on the highway and join as many as they can. They take part in large events like to the Georgian Bay Regatta.

Some even like to plan races and start yacht clubs (see the story inside).

Still other sailors enjoy organizing on a larger scale and get involved in provincial or national sailing organizations (yet another story in this magazine).

Different interests, yet they share in the desire to get out on the water. They enjoy sailing in its many forms. Get out there and enjoy. It's sailing time.

Greg McDowell,
Managing Editor

letters

An inspiration to senior sailors

Dear Editor:

I received your April addition today and think the article on my recent racing adventures was very well

done. So well in fact, that when my children read the piece, they all said "so that is what you have been doing".

It covers the subject of a maturing sailor not ready to

quit just yet very clearly and I hope it provides some inspiration to others.

Thank you again and good luck with your publication.

Brian Cramer

Cheers to Sailor and Queen's sailbot

Dear Editor:

I am a robotics teacher here in 'Sunny Florida'. One of your Canadian subscribers (my friend), sent me this article (from the April 2009 edi-

tion). Thank you for writing the article. I am going to share it with my students - it will give them encouragement and insight into what robotics can lead to.

The future of robotics is infinite! Three cheers for the 'Queen's University' sailbot team!

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