Hanqing Xie

JdeRobot-Academy: robot navigation using Open Motion Planning Library

Country: China
GitHub: https://github.com/hywel1994
Email: hywel1994cn@gmail.com
Tel: +86 18694500708
Time zone: GMT+8

Personal for GSoC 2018: https://github.com/hywel1994/gsoc-2018-jderobot-application/blob/master/Resume/personal-for-GSoC-2018.pdf

Education

2017 –present **Shanghai Jiao Tong University, Ocean and Civil Engineering** **Master**
Machine Learning, Computer Vision, Artificial Neural Network, Underwater Robots, Numerical Analysis, Matrix Theory, Optimal Estimation and System Modeling

2013 - 2017 **Shanghai Jiao Tong University, Ocean and Civil Engineering** **Bachelor**

2014 - 2017 **Shanghai Jiao Tong University, Industrial Design** **Bachelor**

Time line

Week	Date	Plan
1	Apr 9th - 15th	get familiar with JdeRobot-Academy
2	Apr 16th - 22nd	get familiar with JdeRobot turtlebot robot and adrone from parrot, Implement their path following node
3	Apr 23rd - 29th	find a method to display the ROS path message in gazebo
4	Apr 30th - May 6th	learn ompl's api and analyze ompl code sample
5	May 7th - 13th	develop navigation node with ompl in ROS
6	May 14th - 20th	develop visualization tool with qt in ROS
7	May 21st - 27th	Implement basic simulation framework
8	May 28th - Jun 3rd	Implement obstacle gazebo plugin and gazebo world
9	Jun 4th - 10th	Implement navigation tool with dynamic obstacle
10	Jun 11th - 17th	prepare for exams in this term
11	Jun 18th - 24th	have exams in this term
12	Jun 25th - Jul 1st	Implement the integral ROS gazebo simulation framework
13	Jul 2nd - 8th	test and debug
14	Jul 9th - 15th	get familiar with ICE communication middleware
15	Jul 16th - 22nd	modify the interface and transplant the framework into ICE environment
16	Jul 23rd - 29th	Implement the integral ICE gazebo simulation framework
17	Jul 30th - Aug 5th	test and debug
18	Aug 6th - 12th	sort out data, organize a readme and write a summary throughout this project

Programmer

2017 - preset

Autonomous navigation for unmanned sailboat

This project aimed to participate in the WRSC &IRSC 2017 in Norway. This system is composed of common, driver, basic control, path planning, mission planning, perception, detection and simulation module.
GitHub: https://github.com/hywel1994/Sailboat-Ros

2017

PX4 precise landing by visual method

This programming aims to make drone automatically landed on the aruco. It can improve the landing precise than only using GPS. Then I combine two methods RTK GPS and vision tool.
GitHub: https://github.com/hywel1994/Aruco_Ros

2018

Automatic inspection of wind turbine blade based on computer vision

The project is the biggest project that I have participated in so far. My work was implementing the ROS interface to DJI drone and android app by c++, and transplant the object detection code by python into ROS environment.

Skills

Language: C++, Python, C#
Applications: ROS, gazebo, OpenCV
System: Ubuntu

Reason for participation

Google Summer of Code is a global grogram that provide us a great chance to make contribution to an open source with the guidance from the best mentors in world. When I knew the information about GSoC, I made a decision to try my best to participate in. I extremely believe it can help me improve my code skill and robot algorithm. If I have the chance to participate in this project, I will try my best to complete this project. And it will be my amazing experience and priceless fortune in my college life.

My research is autonomous navigation for unmanned sailboat. My research focus on sailboat path planning algorithm (Astar, RRT, machine learning) and object detection in sea. As you know, my major is not directly related to computer major, this project is a chance for me to learn more path planning algorithm from OMPL and prove my programming ability. And this work can be a reference for my unmanned sailboat research. I would like to keep maintaining this project and make more contribution for community after GSoC.

I am looking forward to participate this project with JdeRobot.