

SRC

Team Description Paper for RoboCup 2017

Yangsheng Ye, Yue Zhao, Qun Wang,
Xiaohe Dai, Yuan Feng and Xiaoxing Chen

Seer Robotics Club
Shanghai Seer Robotics Technology Co.,Ltd.
BoXia Road No.22, Room 301, Pudong District
Shanghai, P.R.China
yys@seer-robotics.com

Abstract. SRC is a new Robocup Small Size League Soccer Team found in last year. The main members of the team graduated from Zhe Jiang University. In this paper, we introduce our robotics system in respects of hardware and software framework.

1 Introduction

Our team is a lab founded by Seer Robotics Company for robotics research since 2016. And now we are cooperating with SJTU's(Shanghai Jiao Tong University) robotics lab in SSL. And the main members of Seer Robotics is former participating members of RoboCup Small Size League between 2011 and 2015. Now we decide to comeback to the game. We are doing reconstruction for our robotics system from the foundation. We just make the robots work, so it may seems incompleteness or inadequacy now.

2 Hardware

2.1 Controller Board

CPU: STM32F407VET6

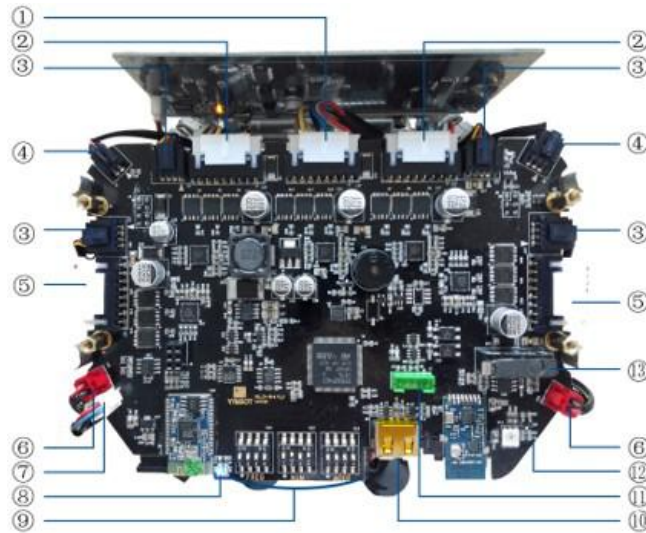


Fig. 1. Controller Board

- 1 Colored LED interface
- 2 Motor Controller interface
- 3 Encoder interface
- 4 Infrared interface
- 5 Motor interface
- 6 Speaker interface
- 7 LED screen interface
- 8 Mode setting switcher
- 9 Bluetooth indicator
- 10 Debug interface
- 11 Joystick indicator
- 12 Booster switcher

2.2 Structure



Fig. 2. Structure

1 LED screen

2 Charge status indicator

3 Kicker mechanism

4 Bluetooth Speaker

5 Battery

6 Universal wheel

7 Power button

8 Energy-storage capacitor

3 Software

3.1 RoboKit Framework

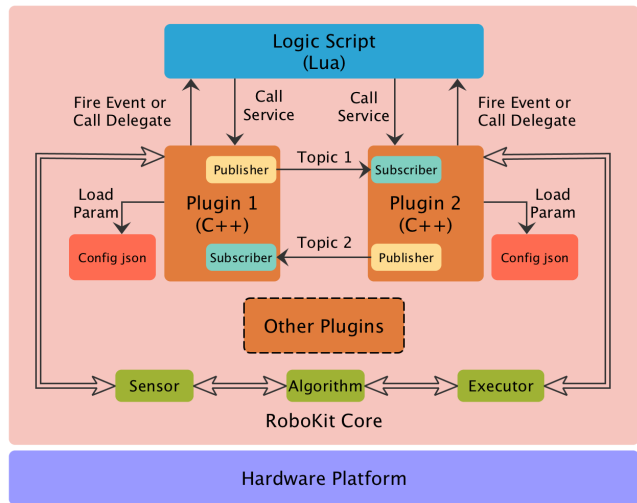


Fig. 3. Structure

RoboKit is a robotics framework developed by us. It provide plugin system, communication mechanism, event system, service system, parameter server, network protocol, logging system and Lua Script bindings etc. We develop it with C++ and Lua, and it is a cross platform framework(working on windows, linux, macOS etc.). For SSL, we developed some plugins based on this framework, such as vision-plugin, skill-plugin, strategy-plugin etc. Vision-plugin contains multi-camera fuse, speed filter and trajectory prediction. Skill-plugin contains all of the basic action such as kick, intercept, chase, chip etc. And strategy-plugin contains defense and attack system.

4 Conclusion

Our hardware and software is still under development, so this is a brief introduction, and it may have great changes in the next period of time.