LET'S BECOME A LIFELONG RESEARCHER :
Proposal of the implementation of Open Autonomous Education System in RoboCupJunior

Tairo Nomura

Saitama University, Japan

Abstract

RoboCupJunior is not just the robot competition but the world wide science and technology education. Good phrase to know the policy of RoboCupJunior is "It is not whether you win or lose, but how much you learn that counts!"[1]. But especially in Soccer challenge, recently, the technology that teams use is becoming more complex and high skilled in every year. That makes the administration of the RoboCupJunior competition more difficult and complicated. There are several issues related to this trend as follows;

1) Difficult to determine which part is the original idea of the team and which part is referred idea from other person or teams.

2) Difficult to determine which part is made by the team itself and which part is helped by others, and which part is ready made.

3) Difficult to determine whether really understand the technologies that team uses or not.

The researcher like us always takes care of 1). This is the very important point of evaluating the value of research itself.

On the other hand, 2) and 3) are related to other point of view. This is the issue of evaluating skills and knowledge of participants. Even the adult researcher always learns new knowledge and skill to improve its research like young student. But in RoboCupJunior, the balance of 1) and 2), 3) is not good, sometime we emphasize 1) more than 2) or 3).

We've already proposed to reduce the difficulty of 2) and 3), change the rule of soccer more research like, topic oriented to make team's focus much more on 1) [2]. But make the topic more research like means make more difficult topic like the humanoid robot, and there are still remain the issue of 2) and 3) if participants buy more complicated but useful hardware/software module and use their robot without understanding inside of the module such as the gyro sensor system and PID control software to control the human like robot not to fall down.

So we propose the new procedure of RoboCupJunior activity including the competition. Basic ideas are follows;

a) Facilitate every participant to become a researcher. To encourage this attitude, a1) every team should share all ideas related to the robot after the competition, such as source code and schematics. And a2) every team should make the team description paper/poster before participating the competition. In this paper, original idea and referred idea should be separated clearly, and also the process of how to build and program the robot should be described with the resources that the team uses.

b) To encourage teams to make the educational materials such as the video tutorial, or take place

the workshop if the team uses new technology.

c) All teams should do the referee during the competition. At least one of members of each team should be able to do the main referee, and others should be able to do the assistant. Also prepare the referee license system and give the member and staff the authorized referee licence.

d) At the competition, all a2) papers/posters are authorized from the RoboCupJunior international committee and archived on the official website. And each team gets d1)competition point, d2)research point and d3)referee point during competition, and give prize according to the total points of those three.

This paper shows the proposal of how to implement the educational activities of promoting 'researcher mind' to the RoboCupJunior participants. And show some case study in Japanese Robotics education activities to demonstrate the implementation of this proposal.

References

[1] RoboCupJunior(2014) Soccer rule, http://rcj.robocup.org/rcj2014/soccer_2014.pdf

[2] Tairo Nomura(2013) LIKE A HUMAN: , WEROBO2013, Netherland.