



# **GUIDELINES FOR RULEMAKING**

## **ROBOCUPJUNIOR**

Rule-making is a very important part of holding a competition. In rule-making Competition goals, Participants' culture, etc., must be considered. In this article, some opinions are suggested based on experience.

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# GUIDELINES FOR RULEMAKING

## ROBOCUPJUNIOR

Reaching the goal is a time-consuming process. The rule changes every year for at least two reasons:

- 1) Develop specific and strong connections between RoboCupJunior and RoboCup major leagues.**
- 2) Make some new challenge and increasing student knowledge.**

If rules change, it must consider the goals and some general point:

### **1) RoboCupJunior is a “Junior” competition.**

The junior student has a limited time for learning, experience and enjoying. While changing the rule, it should be considered that the students must implement these rules. For example, now, RoboCupJunior soccer open weight robot is complex, hard to design and build. It needs good mechanical design and industrial tools to build. For example, in rules 8.2.B.1 “A single robot can only use one camera. All commercial omnidirectional lenses/cameras are not permitted. Only omnidirectional lenses/cameras made by students are permitted, meaning ...”

On the other hands, it's combined with rules 3.5.2 “Robots must be constructed in a way that they do not enter the goal.” The student must design and build a mirror and a robot that can have a good vision to all around the robot and meanwhile does not enter the goal. These two rules simultaneously create a mechanical challenge that teams must lose sight of in order not to enter the goal. For example, teams could be allowed to have more than one camera. Someone can do it (a lot of teams done this challenge) but it's hard. Especially in the building process.

## COMPETITION GOAL DEFINITION

The first step of holding competition is to clarify competition goals and roadmap for all participants. After that, rules must be based on on competition goals and roadmap.

## **2) STRICT RULES DO NOT NECESSARILY INCREASE COMPETITION QUALITY.**

When rules become hard, mentor changes the strategy. they design and build the robot. and the student role's changes from researchers to operators. They only know how to use the robot on the field, not how to research. Consequently, the result will be the exact opposite of the rule's goal.

## **3) STUDENTS ARE NOT SCIENTIFICALLY SIMILAR ALL OVER THE WORLD.**

Students aged 14 to 19 around the world do not have the same facilities, education, and training. For example, in Iran, students aged 17 and 18 years learn vast amounts of mathematics and physics. And many nongovernmental institutions teach them at the college level. Also, students in the Middle East (except for a few countries) have less access to various electronic components. On the other hand, some ideas are economically feasible in some countries, but not possible in other places. For example, argon welding is easily and cheaply available in laboratory form in Iran, but it is not necessarily the case in other countries.

As a result, RoboCup faces a wide range of cultures and knowledge. While changing the rules or creating a new rule, it is necessary to consider the applicability of changes anywhere in the world.

For this, we should regularly get feedback from the teams and talk to them. Also, Action should be taken to familiarize students more during competitions.

## **4) RULES MUST INCREASE SIMULTANEOUS KNOWLEDGE AND CREATIVITY.**

While laying down the rules, it should be noted that rules should not prevent creativity. For example, limiting image processing to special hardware or a particular way can lead to the loss of creativity. For example, 2 years ago, a 16-year-old student in Iran, with the help of special lenses and the use of color sensors, instead of image processing, followed the passive ball. Anyway, when rules force participant to use a special way or special hardware, they feel they are under pressure.

## **5) THE RULES SHOULD HELP TO INCREASE THE ATMOSPHERE OF FRIENDSHIP.**

The rules should be designed to maintain friendly conditions between the teams. participants will not accept rules that are solely intended to prevent fraud or compulsion to disseminate knowledge. read more in 6. Many things can be done to create this atmosphere. For example, a friendlier atmosphere can be provided by changing the way of competitions.

## 6) THE CULTURAL DILEMMA ONLY SOLVES WITH A CULTURAL SOLUTION

For legislation, this should always be considered. When a cultural problem (such as fraud, deception, etc.) occurs, creating new law is not a solution. The nature of the law is to create a rational framework for creating competition. If the law is used as a tool for cultural reform, the result will be that participants will always seek new ways of fraud. The participant will try to bypass rules and no one can prevent them from these behaviors.

In addition, this will lead to the recognition of fraud as an influential element in the rules.

A clear example of this is seen in the 2019 Junior Soccer draft01 No. 1.11. At the end of this section, a new law has been created with this title:

"Whenever a robot is removed from play, it must be turned off."

in RoboCupJunior forum in the post "<https://junior.forum.robocup.org/t/soccer-rules-for-2019-released/755/5>," Mr. Marek said:

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*I understand where you are coming from but the rule was explicitly design to prevent complains that usually go like this:*

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*This robot still sent information to the other one in play whilst being out-of-play!*

*Oh, and they are also pushing some buttons on that out-of-play robot -- how do we know they are not remotely controlling the other one?*

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This complaint is totally wrong. The technical committee will never succeed in eliminating "all the ways of fraud."

In the above example, even if the robot is turned off, is the way closed to fraud? Teams can control the robot using Bluetooth and mobile phone or any other external device. Or they can keep whatever parts of the robot they want on. The investigation of this fraud will be far more difficult and unpredictable.

This is a cultural issue and must be treated within a cultural way. It's like a government wants to keep people from lying. It will fail unless there is a 24/7 and infinite surveillance on them. But if lying becomes a bad and embarrassing issue, the number of people who say lies will decrease.

Fraud in the tournament must be considered as an ugly and shameful thing. In this way, the number of fraud will decrease.