

***General Rule:** Check the general rule before reading this game rule. Please be aware that the general rules apply equally to all events during the competition.

***Attention:** Please be aware that this is a provisional version of the rules, there may be some changes. Especially, since the size and weight of the testing material are still on progress, there may be new updates.

Physical Computing	League	Participation	Construction
	Junior (Lower grade)/ Junior (Upper grade)/ Challenge	1~2 Person	1~ Robot
			On Site

1. Game Description

Participants are required to organize storytelling on the monitor and physical according to the storytelling using diverse physical(hardware) and computing(software). It is a competition that focuses on the use of proper algorithms and coding commands through universal coding program. This game is conducted face-to-face or non-face-to-face.

2. Robot

2-1. Robot type Embedded board that can be controlled using scratch and entry may be used without limitation. However, any materials that may threaten other people is prohibited.

2-2. Constitution

2-2-1. Construction The robot must be made on-site. However, props that doesn't move connected to the driving unit may be made in advance.

2-2-2. Sensor of the robot and driving(output)

Classification	Sensor	Driving Unit (Output)
Junior(Lower grade) Year of Birth 2015 ~ 2013	0 (If used, additional points will be given.)	
Junior(Upper grade) Year of Birth 2012 ~ 2010	No more than two	
Challenge Middle School (Junior High School) Year of Birth 2009 ~ 2007	Two or more	

2-3. Power Individual power source or power supplied by laptop USB.

2-4. Size May be produced and presented in without limitation in space. However, the participant is responsible for all problems occurred while producing and presenting due to size of the robot.

2-5. Action There must be an action that fits the purpose of the production plan and actions to explain the scene.

3. Playfield regulation

3-1. Stadium If operated online, no specific stadium required. However, tripod must be prepared for conference call via ZOOM. Presenter and robot must be seen well on the screen.

3-2. Space usage Participants can use freely under their judgement.



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4. Competition

4-1. Main Theme Main theme will be posted on the website, and the sub theme will be given on the day. The participant must choose one among them and prepare a production plan and code

4-1-1. Example of theme

Main Theme	Sub Theme
Biomimetic	Robot making people to enjoy life and their spare time
	Robot helping office workers to increase their work efficiency
	Robot working in place where people can't
	Robot recovering patient and helping disabled
The robot for the womankind	Robot for grandmother
	Robot for housewife
	Robot for sisters
	Robot for mothers
	Robot for pregnant

4-1-2. Main theme of 2022

Smart City

4-2. Robot and laptop inspection.

4-2-1. Robot inspection(Non-face-to-face) Driving technology and understandings in coding will be reviewed in priority, and extra robot inspection will not be conducted.

4-2-2. Laptop inspection(Non-face-to-face) Driving technology and understandings in coding will be reviewed in priority, and extra laptop inspection will not be conducted.

4-2-3. Robot inspection(Face-to-face) All robot must be disconnected.

4-2-4. Laptop inspection(Face-to-face) Pre-making program is not allowed, and must be made on-site.

4-3. Construction Time

Maximum 4 hours.

Each time must control their own planning, production and editing time within limited time. If going over the limited time, 10% the total point will be deducted every 5 minutes. If going over 30 minutes from the limited time, the work will be disqualified.

4-4. Submission After constructing robot, the participant must hand in production plan and coding file to the administrator. If going over the limited time, points will be deducted every 10 minutes.

4-4-1. Face-to-face

Submission due: Will be noticed on-site.

Submission: Each team must save their work in USB memory stick with production plan, and submit it to the organizer. (USB memory stick will be returned after saving the data.)



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4-4-2. Non-face-to-face

Submission due: Will be noticed via homepage.

Organizer's e-mail address: support@iroc.org

4-5. Presentation

4-5-1. Judges will evaluate presenting ability and robot's movement based on the sequence decided by lottery. If there are any delays due to video call, the participant will get deduction on point and the presentation order will be postponed.

4-5-2. Modification and repair of the robot is prohibited while presenting. However, during inevitable situations such as damage of robot, battery outage, the participant may repair robots with the authorization of referee and staff.

4-5-3. Judge can ask question or request something to the participant during the presentation. If the participant participates or answers insincerely, points may be deducted by judgement of the referees.

4-5-4. Points will be deducted for participant whom with insincere attitude toward the competition.

4-5-5. Presentation order will be chosen by judges' lottery. If held non-face-to-face, the presentation will be held through Zoom conference. Judges may ask questions to the presenter based on examination guidelines, and if answered improperly, judges may deduct points. (Detailed timeline will be noticed through website.)

5. Evaluation and ranking decision

5-1. Evaluation criteria

Judge will be held based on the order of lottery.

Judges will evaluate according to the criteria below, and will sum up the points to decide the final rankings.

Topic (20pts)		Physical (20pts)		Computing (60pts)			
Story matching the topic	Creativity of the topic	Proper use of physical	Robot motion	Storyboard completeness	Cooperative completeness	Use of coding (variable, list, function)	Expression (display, sound)
0/10	0/10	2/4/6/8/10	2/4/6/8/10	2/4/6/8/10	2/4/6/8/10	6/12/18/24/30	2/4/6/8/10

5-2. Tiebreakers

If tied, rankings will be decided by the followings.

5-2-1. No.1 Result with no deductive point will have a higher ranking than below

5-2-2. No.2 Result with higher use of coding will have a higher ranking than below

5-2-3. No.3 Result with higher use of storyboard will have a higher ranking than below.

5-2-4. No.4 If still tied, the participants may be accepted as the same ranking.

