



ROBOCUPJUNIOR ONSTAGE - SCORESHEETS 2023

<p>OnStage League Committee 2022: <i>Margaux Edwards (Australia) CHAIR</i> <i>Christian Häußler (Germany)</i> <i>Nicky Hughes (UK)</i> <i>Nicolas Doyon (Canada)</i> <i>Luis Gonzalo Morales (Mexico)</i> <i>Evgeny Shandarov (Russia, On Leave)</i></p> <p>OnStage League Committee 2023: <i>Christian Häußler (Germany)</i> <i>Nicky Hughes (UK)</i> <i>Nicolas Doyon (Canada)</i> <i>Amy Eguchi (USA)</i> <i>Thundluck Sereevoravitgul (Thailand)</i> <i>Koto Sakamoto (Japan)</i></p>	<p>RoboCupJunior Execs: <i>Julia Maurer (USA)</i> <i>Roberto Bonilla (USA)</i> <i>Marek Šuppa (Slovakia)</i> <i>Margaux Edwards (Australia)</i> <i>Marco Dankel (Germany)</i> <i>Li Shi (China)</i> <i>Rui Baptista (Portugal)</i></p> <p>Trustees representing RoboCupJunior: <i>Luis José López (Mexico)</i> <i>Irene Kipnis (Israel)</i></p>
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These are the official OnStage scoresheets for RoboCupJunior 2023. They are released by the RoboCupJunior OnStage League Committee. English rubrics have priority over any translations. Please note that score sheets are public, and all comments and suggestions will be welcome. Use the RCJ forum (<https://junior.forum.robocup.org>) if you want to provide feedback.

OnStage Overview

All teams are judged in the following areas: a **Technical Description Poster**, Technical Demonstration **Video**, Technical Interview, and an OnStage Performance.

Teams must present four of their robot(s) features throughout all elements of the competition: what the team believes are their best system/sensor integration, electromechanical design, interaction, or software solutions implemented on their robot(s).

The aim should be to present the integration of the chosen features and how the features contribute to the progression of the performance.

Examples of features include, but are not limited to:

- Locomotion
- Object/human detection or avoidance
- Human, robot and/or prop interaction
- Manipulation (grabbing/grasping)
- Visual/audio recognition
- Localization and mapping

Teams should describe and provide reasoning for their four chosen features in the Technical Description Poster and during their Technical Demonstration Video, before being judged on the implementation of these features during the Performance. Teams should demonstrate their understanding of their systems in the Technical Interview.

For clarification on a teams' features, please do not hesitate to reach out to the OnStage committee using listed communication forums.

Preface

Rubrics are made for teams to know what relevant aspects will be appreciated in terms of education by the judges at RoboCupJunior OnStage 2023. They are a useful source of information for teams.

These score sheets will be used at RoboCupJunior OnStage to evaluate your team.

Official RoboCupJunior site: <https://junior.robocup.org> (Click OnStage tab)

Official RoboCupJunior forum: <https://junior.forum.robocup.org/>



OnStage Technical Video Demonstration Score Sheet 2023

Team Name: Country/Region:

Category	Examples of how high marks may be achieved are:	Mark
Robotic Demonstration	Demonstration of a fully working robotic system. <ul style="list-style-type: none">- Demonstrates the overall capabilities of the robot(s), including the four chosen features- Demonstrates fully working robotic systems without costumes as described in the Technical Description Poster	/3
Design Process	Explain the design processes used during the development of the robotic systems including electromechanical, sensor, communication and software design choices. <ul style="list-style-type: none">- Highlights how the team overcame challenges in their design process, especially focusing on team's problem solving and teamwork- Communicates team member's roles and the contributions to the different systems (electromechanical, software etc.)	/3
Presentation	Clarity and quality of the presentation. <ul style="list-style-type: none">- Presents a well-polished demonstration. Graphics and accompanying materials are clearly explained and presented.- Effectively communicates the technical capabilities of the robot to the audience in a concise and clear manner.- Technically unusual, creative, or ambitious concepts in the team's robotic performance are clearly explained.	/3
Innovation and Sustainability	Illustrating new and/or innovative features to the OnStage competition <ul style="list-style-type: none">- Innovation achieved with clear evidence of testing, research and development.- Innovation can be an inspiration for future competitors- Teams are able to explain how they considered sustainable practices during the development of their project.	/3
Feature Selection Process	Features <ul style="list-style-type: none">- Teams will be rewarded for including an explanation of their selection process and demonstrating their four features to be judged during their performance.	/3
Total Score		/15



OnStage Technical Interview Score Sheet 2023

Team Name: **Country/Region:**

Category	Examples of how high marks may be achieved are:	Mark
Programming	<p>Ability to explain the program and the interactions between the hardware and software:</p> <ul style="list-style-type: none"> - Choice of programming language - Difficulties with the software - Development of appropriate models, datasets and/or libraries to solve programming solutions - Efficient and optimized programming with clear documentation and commenting with evidence of version control - Development of calibration, testing and debugging functionalities 	/7
Electromechanical Systems	<p>Ability to explain why electromechanical design choices were made:</p> <ul style="list-style-type: none"> - Choice of materials, microcontrollers and actuators - Development of custom electronics (including PCBs) - Power management, regulation, and battery choices - Design choices are made to ensure systems are reliable and durable - Sustainable design choices including the choice of materials <p>Explain how systems are fit for purpose - examples include:</p> <ul style="list-style-type: none"> - Complex mobility - omnidirectional/legged robots - Stable builds, system kinematics and design of custom components - High precision systems including pneumatics - Functional arms/hands/faces - Robotic arms for manipulation - Automatic balance system 	/7
Sensor and Communication Systems	<p>Ability to explain the role of sensors and communication in the systems and how the robots interact with the stage environment:</p> <ul style="list-style-type: none"> - Robot systems can dynamically respond to unplanned events - Robots can sense their environment and use the information to dynamically respond with an action - Integration of multi sensor systems to develop solutions - Development of communication between sensors - Creation of communication architectures (asymmetric communication) <p>Explain how systems are fit for purpose - examples include:</p> <ul style="list-style-type: none"> - Visual/Audio recognition - Developed guidance, navigation, and control systems - Robot-Robot and/or Natural Robot-Human interaction - Stage/Robot localization systems 	/7
Innovation and Feature Development	<p>Ability to explain and showcase innovative features or robotic components</p> <ul style="list-style-type: none"> - Innovation achieved with clear evidence of testing, research and development. With innovations that can inspire future competitors - Teams are able to explain developments based on past feedback and performance results 	/6
Teamwork and Collegiality	Evidence of team collaboration, problem solving and spirit in the performance and competition.	/3
Deductions <i>(At discretion of judges up to -15)</i>	<ul style="list-style-type: none"> • Judges believe the work was not done by team members • Team members are unable to explain their technical involvement with the robot • Team infringements of the 2023 Rules 	
Total Score		/30



OnStage Technical Description Poster Score Sheet 2023

Team Name: Country/Region:

Category	Examples of how high marks may be achieved are	Mark
Abstract and Performance Description	<ul style="list-style-type: none">- Clear overview of the performance idea and how the chosen technology adds to the performance as described in the abstract- Demonstrates authenticity in the project and performance development	/6
Technology and Innovation	<ul style="list-style-type: none">- Electromechanical, sensors, communication and software choices are clearly described- Clearly defined features with evidence of learning through the use of words, diagrams and images- Teams clearly define their systems and features through the use of diagrams- Depth and understanding of the chosen features and how the chosen features add value to the performance- Poster submitted using the correct format in paper format (A1) and virtually	/9
Total Score		/15



OnStage Performance Score Sheet 2023

Team Name: **Country/Region:**

Category	Examples of how high marks may be achieved are	Mark								
Visual Impact and Quality of the Whole Performance	<p>The robotic performance makes attempts to communicate with and engage the audience. For example:</p> <ul style="list-style-type: none"> - There is a clear link/theme/idea/message displayed throughout the performance. - The theme is consistent and is well understood. - Performance is engaging and takes steps to entertain the audience. - Effective use of the performance space, relative to the theme or overall idea. - Robot costumes compliment the performance, add value, and provide visual impact. 	/12								
Robotic Interaction and System Integration	<ul style="list-style-type: none"> - Interaction with original and innovative props or scenery and impacts the performance in a way that is engaging and adds value. - Risky/difficult movements are taken and compliment the theme. - Impactful and interesting interaction between robots and/or humans. - All robotic systems integrated are used extensively throughout the performance. 	/12								
Effective implementation of features presented by the team.	<p>Implementation of Features: Excellent implementation and impact - features works as expected and add extensive value to the performance:</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tbody> <tr> <td style="width: 80%;">Feature 1:</td> <td style="width: 20%; text-align: center;">/4</td> </tr> <tr> <td>Feature 2:</td> <td style="text-align: center;">/4</td> </tr> <tr> <td>Feature 3:</td> <td style="text-align: center;">/4</td> </tr> <tr> <td>Feature 4:</td> <td style="text-align: center;">/4</td> </tr> </tbody> </table>	Feature 1:	/4	Feature 2:	/4	Feature 3:	/4	Feature 4:	/4	/16
Feature 1:	/4									
Feature 2:	/4									
Feature 3:	/4									
Feature 4:	/4									
<p>Deductions: (-3 for each at discretion of judges)</p>	<ul style="list-style-type: none"> • Each unplanned human intervention (including remote or human controlled actions) • One or more restart(s) • Each 10 seconds over or under the allotted time (on stage or performance) • Performances that do not reach the minimum performance time will not be scored. 									
Total Score		/40								

Teams that infringe the rules will be warned that such infringements will not be allowed in the second performance.