RoboCupJunior OnStage – Scoresheets 2019

These are the official OnStage scoresheets for RoboCupJunior 2019. They are released by the RoboCupJunior OnStage Technical Committee. English rubrics have priority over any translations. Please note that scoresheets are public, and all comments and suggestions will be welcome. Use the RCJ forum (https://junior.forum.robocup.org) if you want to help us to improve next year!

Preface

Rubrics are made for teams to know what relevant aspects will be appreciated in terms of education by TC at RoboCupJunior OnStage 2019. They are a useful source information for teams.
These scoresheets will be used at RoboCupJunior OnStage to evaluate your team.
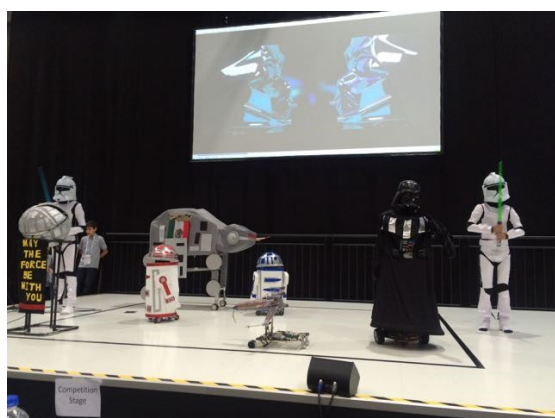
Official RoboCupJunior site: http://robocupjunior.org (Click OnStage tab)
Official RoboCupJunior forum: https://junior.forum.robocup.org/

Draft as of November 27th, 2018

OnStage **Technical Demonstration** Score Sheet 2019

Team Name: ………………………………………… **Country/Region:** ……………………..….…

Category: ☐ Preliminary ☐ Advance **Judge Name:** ………………………….........…...

The goals of the Open Technical Demonstration are to:

- Demonstrate the capabilities of the robot(s)
- Explain the robot system and key capabilities
- Demonstrate fully working robot systems which work as described
- Focus on the key, innovative and original capabilities of the robot(s) developed
- Effectively communicates the technical capabilities of the robot to the audience with high quality demonstrations

Examples of areas on which the demonstration and explanation could cover includes:

- Demonstration and explanation of a working mechanism which is complex, effective, overcomes a particular challenge or addresses reliability and stability
- Demonstration of successful robot-robot or robot-human interactions (e.g. through sensors or communication protocols)
- Successful implementation of a software algorithm
- A specific sub-system which is original and innovative
- Any interesting drive mechanisms and how these are controlled
- Choice of sensors and what the sensors are used to detect or interact with and explanation of algorithms used for sensing
- Any signal progressing of sensor data which is used (e.g. analogue/digital/frequency domain)
- Explanation of software architecture developed
- Integration of entire system (e.g. software, electronics, mechanics)
- Any communication mechanisms used to ensure efficient and reliable communication between robots
- The biggest challenges/problem which have been overcome, e.g. sourcing enough power, reliability, interactivity
- Any feedback loops used (e.g. using sensor feedback)

Category	Mark
Presentation of fully working robotic system. More complex robotic systems will score higher marks. For example: 0-4 for a fully working but simple robotic system (kit based), 5 to 7 for a fully working robotic system with a range of sensors/actuators, 8 to 10 for fully working robotic system built from scratch including the electronics.	/10
Robot capabilities demonstrated in the presentation (hardware, software, sensors, algorithms, mechanical engineering, electronics, and communication). For example: 0-2 for basic capabilities with simple sensor/actuator feedback loops, 3 to 5 for integrating hardware/software in more interesting ways to create the robotic capabilities, 6 to 8 innovative and creative robotic features combined to create unusual robotic capabilities.	/8
Clarity and quality of the presentation. For example: 0 to 1 for presentation which is difficult to follow and does not show robot capabilities, 2 to 3 effective presentation where most of capabilities of the robot are clearly explained, 4 to 5 Presentation clearly demonstrates all the robot capabilities are professionally presented by the team.	/5
Concept and technical innovation Marks awarded for the project idea in terms in a technically unusual, creative or ambitious concept for the robots and robotic performance.	/7
Total Score	/30

Award Recommendations: Personal Notes:

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OnStage **Technical Interview** Score Sheet 2019

Team Name: ……………………………………… **Country/Region:** ……………………..………

Category: ☐ Preliminary ☐ Advance **Judge Name:** ……………………………..……..…..

Category	Examples of how high marks may be achieved are:	Mark
Programming	• Efficient programming • Advanced programming (optimized, elegant) • Innovative programming solutions • Development of libraries (as distinct from functions) • Machine Learning • Ability to explain how the program works and interactions between the hardware and software • Ability to explain why programming decisions were made, choice of programming languages, and any difficulties with the software	/ 7
Mechanical Hardware	• Mechanical systems that are Reliable / Complex / Innovative • Mechanisms that have been developed for very high precision, or for mechanically 'difficult' situations • Advanced and functional arms/hands/faces • The robot has the ability to manipulate objects • The robot can move on any terrain • Automatic balance system • Appropriate actuators used • Ability to explain how the mechanical systems work • Ability to explain why decisions were made, e.g. choice of components	/ 9
Electronic Hardware	• Some of the electronics have been custom built with different functionality than offered in the market • Innovative use and integration of sensors • Useful GPS, gyroscope and accelerometer • Innovative use of technologies to aid the robot (e.g. cameras 360º, alternative source power (hydrogen, solar), holograms, different micro-controllers etc.) • Ability to explain how the electronics work • Ability to explain why decisions were made, and any difficulties with the electronics	/ 7
Robotic Communication & Interaction	• Useful robotic communication • Useful vision recognition • Useful voice recognition • The robot has the ability to talk • Development of communication architectures • Sensors used to achieve robot-robot interaction, for example robots following robots • Sensors used to achieve robot-human interaction • Ability to explain how and why the communication is occurring	/ 7
Deductions *(at discretion of judges, up to 15 points each)*	15 points deducted if: • Judges believe the work was not done by team members • The robot was reused from a previous competition • Team members are unable to discuss their technical involvement with the robot	
Total Score		/30

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OnStage **Preliminary Performance** Score Sheet 2019

Team Name: …………………………………………… **Country/Region:** …………………… **Judge:** ………

Category	Examples of how high marks may be achieved are	Mark
Quality of the Whole Performance	• There is a link, or common theme demonstrated in the whole performance. The idea of the performance is well understood. • A performance that is engaging throughout • Ambitious use of the stage area • Home-built robot costumes complement the performance and are engaging • Original and innovative performance Only robots and up to two performers are allowed on stage Use of props or scenery on the stage is allowed only when used for interaction with the robot.	/ 12
Robot's Movements	• Non-repetitive robot movements and/or a varied robot performance • Reliable robots that do not fall apart and work as expected for the duration of the performance • Risky movements by robots (e.g. Robot(s) can balance itself) • Fluid movements similar to humans • Robot(s) moves around the whole stage area • A slick and polished performance throughout the display • Robot movement(s) are choreographed tightly to the music.	/ 12
Effective Use of Technologies	• All sensors are used and add value to the performance • Technologies are used in new or different ways not seen before • Unusual technologies are used – for example unusual mechanical, electronic or power systems • Effective use of advanced technologies (e.g. vision recognition, voice recognition etc.) • A digital display that integrates and/or complements the performance	/ 10
Communications & Interactions	• Communication between robots to develop the performance • Human-robot interaction that is not remote control • Robot-robot interaction • Synchronization and/or communication between robots • Interaction between digital display and the robots • Robot(s) can avoid hitting with unexpected objects	/ 6
Deductions (at discretion of judges)	Points deducted for: • -3 points for each unplanned human intervention • -5 points for each restart • -3 points for each 10 seconds over the allotted time • -3 points for each infraction of the outer boundary Teams that infringe the rules will be warned that such infringements will not be allowed in the second performance.	
Total Score		/40

OnStage **Advanced Performance** Score Sheet 2019

Team Name: …………………………………………… Country/Region: ……………………… Judge: ………

Category	Examples of how high marks may be achieved are	Mark
Quality of the Whole Performance	• There is a link, or common theme demonstrated in the whole performance. The idea of the performance is well understood. • A performance that is engaging throughout • Ambitious use of the stage area • Home-built robot costumes complement the performance and are engaging • Original and innovative performance Only robots and up to two performers are allowed on stage Use of props or scenery on the stage is allowed only when used for interaction with the robot.	/ 10
Robot's Movements	• Non-repetitive robot movements and/or a varied robot performance • Reliable robots that do not fall apart and work as expected for the duration of the performance • Risky movements by robots (e.g. Robot(s) can balance itself) • Fluid movements similar to humans • Robot(s) moves around the whole stage area • A slick and polished performance throughout the display • Robot movement(s) are choreographed tightly to the music.	/ 12
Effective Use of Technologies	• All sensors are used and add value to the performance • Technologies are used in new or different ways not seen before • Unusual technologies are used – for example unusual mechanical, electronic or power systems • Effective use of advanced technologies (e.g. vision recognition, voice recognition etc.) • A digital display that integrates and/or complements the performance	/ 12
Communications & Interactions	• Communication between robots to develop the performance • Human-robot interaction that is not remote control • Robot-robot interaction • Synchronization and/or communication between robots • Interaction between digital display and the robots • Robot(s) can avoid hitting with unexpected objects	/ 6
Deductions (at discretion of judges)	Points deducted for: • -3 points for each unplanned human intervention • -5 points for each restart • -3 points for each 10 seconds over the allotted time • -3 points for each infraction of the outer boundary Teams that infringe the rules will be warned that such infringements will not be allowed in the second performance.	
Total Score		/40

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