



Your challenge - to design a robot (or team of robots) to perform to music for a minimum of one minute and not more than two minutes.

RoboCup Junior (New Zealand) THEATRE RULES 2012

Your task is to entertain, delight and thrill the audience. We expect your robot to be decorated and dressed to please. The challenge is intended to be as open ended as you choose to make it.

Team members are also encouraged to design a uniform and/or logo that reflects the theme of their performance.

Students should participate in one of two divisions, 'Junior' or 'Senior.' Junior is for students up to and including Year 8, and Senior is for Year 9 and above.

1. The Robot

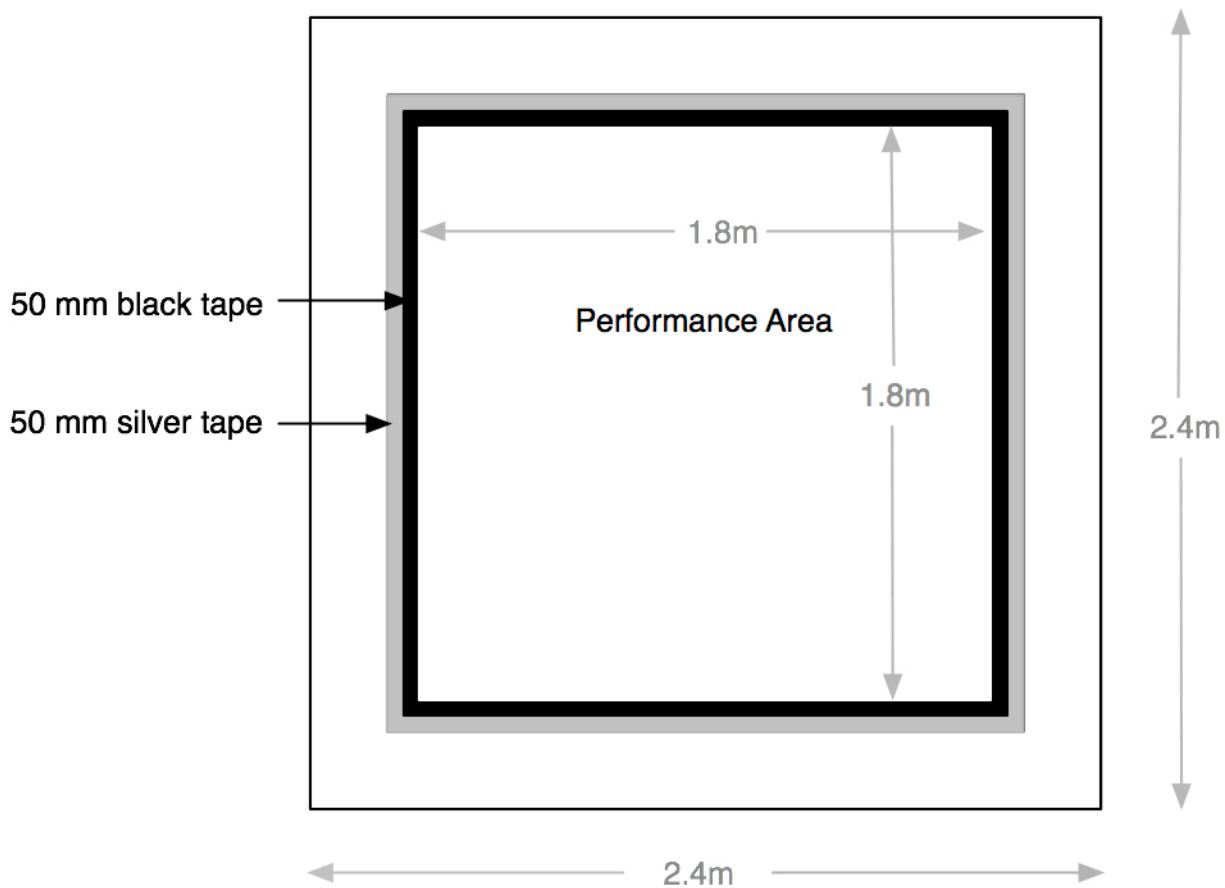
- 1.1 Robots can be of any size, number of motors, microprocessors or sensors.
- 1.2 The competition is open to any platform you wish.(LEGO, Fischer Technic, Elekit, basic stamp etc)
- 1.3 A maximum number of 3 robots may be used in the performance. A robot is defined as an autonomous construction which is running a program.

2. The Stage and Performance

- 2.1 The performance must be longer than one minute but less than two minutes. The music will be stopped after two minutes.
- 2.2 The stage will be square of 2.4 x 2.4 m unpainted **MDF**. A 1.8 x 1.8 m performance area will be marked centrally inside the 2.4 x 2.4 floor using a line of 50mm black tape.
There should be no significant dark marks within the performance area. Competitors must not walk across the stage in shoes. Socks are preferred to bare feet.
Immediately outside the square of black tape will be a square of 50mm silver tape. This will allow robots to tell which direction they have approached the boundary line from.
- 2.3 While every effort will be made to provide a flat, smooth surface, teams robots should be prepared to cope with variations up to 3mm in height.
- 2.4 Teams may provide their own Performance Area floor surface, as long as such flooring fits within the 1.8 x 1.8 m boundary. This surface may be marked or decorated.
- 2.5 Teams are encouraged to use sensors or other devices to prevent their robot from leaving the performance area.
- 2.6 A robot will be considered to be 'out' if all parts of the robot have crossed the inside edge of the black tape line. Penalties will apply for each time a robot leaves the performance area.

- 2.7 Teams will be penalized (see Judges' Performance score sheet) for any contact made with their robots once the performance has begun, unless this is an intended part of the choreography.
- 2.8 Members of the team may dance/interact either inside or outside the designated area. Any human interaction will be considered as props.
- 2.9 The total performance time allowed per team is 6 minutes. This includes set-up time, the performance of 1 to 2 minutes, and any re-starts (see section 9). Judges will not watch any performance after the six minutes has passed, and will score based on what was seen before that time expired. Marks will be deducted for going overtime.

RoboCupJunior NZ Stage Plan for Theatre Competition



3. Lighting, props and special effects- (see also 5.1)

- 3.1 This will only be permitted if the equipment is operated by a team member.
- 3.2 Equipment should have been assembled/ developed by team members. Judges will reward more highly a team who uses self-built props and equipment, over a team who uses 'off-the-shelf' items.
- 3.3 Scenery and props are permitted.
- 3.4 Set-up time is part of the six minutes allowed per team for the total performance (see 9.4)

4. The costume

- 4.1 The costuming and/or decoration of robots is encouraged, and will be rewarded in scoring.
- 4.2 Commercial elements such as dolls, soft-toys, commercial costuming are permitted. However, higher marks will be allocated to teams whose robots feature student made / assembled elements.
- 4.3 Commercial assembled elements may be considered as a costume if colours and structure clearly enhance the robot's appearance.
- 4.4 Costumes are to be mainly the students' own work.

5. Team T- Shirts + Costumes

- 5.1 If costumes or Team-designed T-shirts are worn, they will be considered as props and will be rewarded in scoring.

6. Music

- 6.1 Music is to be supplied to the organisers, as indicated at the local event. At the national event, it is to be supplied, when called to the performance area.
- 6.2 Audio sources (must be playable on a computer either from a CD or memory stick) should be high quality and contain only the music for the performance on it. MP3 is the preferred format for RCJA events. The music must be delivered to the organisers one week before the competition.
- 6.3 Music must be labelled with the team name, school and title of music.
- 6.4 In the case of a malfunction see **section 9: Restarts**
- 6.5 Music must not be of a suggestive, offensive or violent nature, vulgar, discriminatory or prejudicial as decided by the judges. Any team whose music breaches this requirement will not be allowed to perform to that music.
- 6.6 Teams are advised to start the music first, and then synchronise the robot/s start/s.

7. Mechanical Malfunction

- 7.1 Robots which lose parts, become stuck, fall over or mechanically malfunction may be righted and quickly repaired by a team member. (A penalty is incurred for each malfunction – see judges' performance score sheet.)

8. Programming-Computers

- 8.1 No remote control devices, computers, mobile phones, bluetooth devices or IR-emitting devices apart from the robots themselves are permitted within 5 metres of the Performance Area. A team using a micro-processor such as an RCX may use another RCX programmed to 'mail' a specific number to their robot to begin their performance. Users of other systems may be required to convince a Technical Scrutineer that a remote-starting system will not interfere with other teams' robots.
- 8.2 Competitors using the Lego RCX are advised to mask/shield their RCX infra-red window to prevent their program being corrupted (black electricians' tape works well)

- 8.3 Competitors are reminded that the LEGO infra-red tower has a range of about 3m. It is the responsibility of the computer operator to ensure that the IR power is turned to 'low' and the tower is shielded to reduce stray emissions.
- 8.4 In the case of a complete malfunction in their program, the Team Leader indicates to the performance judge that the program has malfunctioned and may request a re-start. The following team must be ready to take the stage while the malfunction is fixed. A penalty will be incurred by the team with the malfunction.
- 8.5 The Team Leader may take the robot to the team's laptop and download the program again.
- 8.6 It is the team's responsibility to have their laptop on and showing the correct program should this eventuate. The computer is not permitted on the stage.
- 8.7 Teams are permitted to change their programs/ choreography /robot build from the preliminary round to the finals round, but be warned: it was your preliminary performance that may have put you in the finals round!

9. Re-Starts

- 9.1 If the robot experiences a mechanical or programming malfunction, the team leader must request a re-start immediately by signalling **clearly** to the judges.
- 9.2 If the performance has been going for more than one minute, no re-start is permitted.
- 9.3 Another team may be permitted to perform while the previous team cures their malfunction.
- 9.4 A total performance should not take longer than 6 minutes in total: this includes initial set-up, re-starting music and /or re-starting robots.
- 9.5 No more than 2 restarts are allowed.

10. Behaviour/Sportsmanship

- 10.1 It is expected that all participants, students and mentors will respect the aims and ideals of RoboCup Junior. In turn, the volunteers, referees and officials will act within the spirit of the event to ensure the competition is competitive, fair and most importantly fun.
- 10.2 Competitors not adhering to these rules may incur loss of points from their interview score. This is at the sole discretion of the Judges/ Theatre Co-ordinator.
- 10.3 It is not whether you win or lose, but how much you learn that counts.

11. Protests

- 11.1 Only the Team Manager may lodge a protest with the organisers.
- 11.2 The protest must be made in writing not more than 30 minutes after the performance, and should be lodged with the Theatre Co-ordinator and referred to the judges for action.
- 11.3 The written protest must include all relevant facts and corroborative evidence.
- 11.4 The protest will only be heard if it alleges breach of the rules: please indicate the rule/s that you believe have been breached.
- 11.5 Whilst every effort will be made to resolve the protest on the day, it must be understood that some protests may take longer and will not necessarily result in a changed outcome.

12. Scheduling

- 12.1 Every effort will be made to adhere to the pre-advertised running schedule, however due to late entries and un-foreseen circumstances there may be some variation. Teams must be available for interview/performance up to 30 minutes prior to, or after, the advertised times.
- 12.2 It is expected that all teams will be in attendance throughout competition day to support all performances.

13. Areas

- 13.1 Various areas are provided for different activities: teams should take care to be in the correct area at the appropriate time.
- 13.2 Each team will be provided with at least a table and chairs, and access to a power outlet. This area will be referred to as "The Pits".
- 13.3 An 'Assembly Area' will be designated. This is where teams should move to while waiting for their performance. An additional Assembly Area may be designated near the Interview Area for team members to wait to be invited in for their interview.
- 13.4 Parents, supporters and mentors are *not* permitted in the Assembly Area(s) or Pits. Breaches of this rule will result in the team receiving a yellow card. A further breach may result in the team receiving a red card, and being excluded from the competition.
- 13.5 Teams who are not ready in the assembly area for either interview or performance may be eliminated from the competition by the Theatre Coordinator. The full team must be present.

14. Team Interviews

- 14.1 The full team must present for the interview. The Team Manager is not required.
- 14.2 The interview will take about 10 minutes.
- 14.3 The robot must accompany the team.
- 14.4 The robot must be functioning and in performance condition.
- 14.5 The team should bring a clear print-out of the program they will use in their performance. Alternatively, the team may have their lap-top **on and displaying their program** in readiness for their interview.
- 14.6 All team members are invited to answer in the interview, not just the Team Leader, though the Team Leader may like to co-ordinate the interview.
- 14.7 Points will be given for those teams able to provide some form of learning journal, that shows the evolution of their entry and confirms it as being their own work. Refer to the judging criteria.

15. Parental / Mentor Assistance

- 15.1 Only the team is permitted in the Teams' Assembly Area, Interview Area, or on the stage. See 13.4.

16. Awards

- 16.1 In the interest of economics, certificates have been allocated on the basis of 4 members in a team. Additional items may be required to be sent at the discretion of organisers after the event.
- 16.2 Any other awards or prizes are at the organizers' discretion. This may include an award for the highest-placed novice team. This will be the team who is highest-placed in their division (Junior or Senior) and is competing at RoboCup Junior for the first time.
- 16.3 Whilst not a rule, all competitors are encouraged to stay for the finals and awards ceremony to acknowledge the achievements of other teams, the work of the organizers and the contribution of sponsors; thus encouraging good sportsmanship.

17. Scoring and Exhibition of Excellence

- 17.1 Scoring of teams will be made according to the criteria on the judges' score sheets (see separate file).
- 17.2 Where possible, depending largely on time available, each team will be allowed a second performance. If a second performance is offered, the **best score** from the two performances will be used to determine placement for the finals. If a final is held, the interview score will be carried forward. The performance score will be on the final performance only.
- 17.3 Teams will be placed on the basis of their scores in both the performance AND interview judging.
- 17.4 Performances will contribute 60% of a team's total score, and interview 40%. These proportions will be determined by the totals for each of the performance and interview score sheets.
- 17.5 To maintain consistency in scoring regardless of the number of judges present or number of performances made, and to maintain our stated balance between performance and interview, teams will be ranked in both the Junior and Senior division on the basis of their **total score** achieved by the following calculation:
 - a) Scores from each Performance Judge for that team are averaged.
 - b) This score produced is the AVERAGE PERFORMANCE score.
 - c) Scores from each Interview Judge for that team are averaged.
 - d) This score produced is the AVERAGE INTERVIEW score.
 - e) The final total score will consist of **60%** of the average performance score and **40%** of the average interview score. It is this total score that is used to place teams within their division.
- 17.6 Selected teams may be invited to present a 'Demonstration of Theatre Excellence' as part of the other league Finals. These will be selected on the basis of quality of performance, the number of entries, all at the discretion of the organisers. They will not contribute towards any scoring.