

RC-Leap Rules

Revised on September 15th, 2025

Introduction: The music festival kicks off as band members take the stage, using robots to activate circuitry, microphones, lighting, audio effects, large screens, and camera equipment, ensuring the smooth running of the live performance.

≤ 14 years old

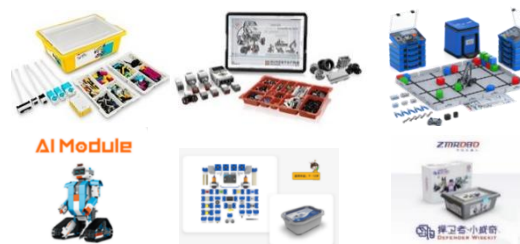
1 Competition Field

A. Field dimensions: 0.9m x 2m; material: UV knife-coated fabric.



2 Robot Requirements

A. Participants must bring their own equipment and programming devices. Components must be plastic building blocks. Recommended kits include LEGO Spike Prime 45678, EV3, VEX IQ, Whale AI Module, Aikeruite, micro:bit, Zhongming , or equivalent.



- B. Each robot may use only 1 controller and no more than 4 motors.
- C. No restrictions on the types or quantity of sensors.
- D. Robots must be constructed with plastic interlocking blocks; 3D-printed parts are prohibited.
- E. Teams may bring pre-assembled robots and task-specific structures, which can be replaced during the competition based on task requirements.
- F. Robot size must not exceed the START area dimensions (no restrictions on height or weight).

3 Competition Tasks

3.1 Task Overview

Operate robots using remote control and automatic methods to complete various site tasks.

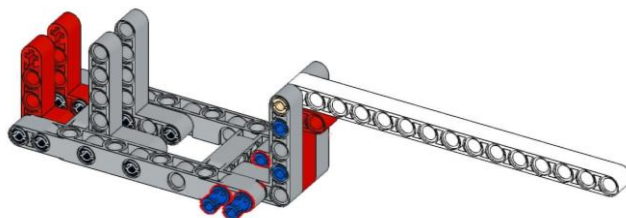


3.2 Task Details

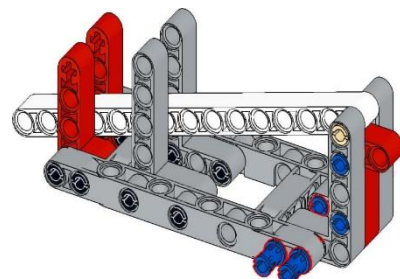
- A. Field tasks are divided into remote-controlled and autonomous types.
- B. Remote-controlled tasks are performed via remote operation. The remote-controlled robot starts from the START zone and can complete multiple remote-controlled tasks consecutively in one go. It may also return to the START zone midway to replace mechanical structures before setting out again for further tasks.
- C. Autonomous tasks require the robot to operate independently. Once the robot is manually activated in the START zone, the team must not make any contact with the field props, the robot, or the remote controller until the robot autonomously returns to the starting zone. Adjustments can be made before setting out again.
- D. There are no restrictions on the order of completing remote-controlled and autonomous tasks. Teams may decide the sequence of tasks themselves and may also intersperse them as needed.

3.2.1 Circuit Inspection (**Remote control task**)

- A. Two cable interfaces are on the field. Inspect both nodes to ensure circuits are closed.
- B. Scoring: Each node with the beam pressed into the gap earns 15 points.



Initial state



Completion status

3.2.2 Microphones (**Remote control task**)

- A. Three microphones must be positioned (initially placed within dashed circles on the field, upright).

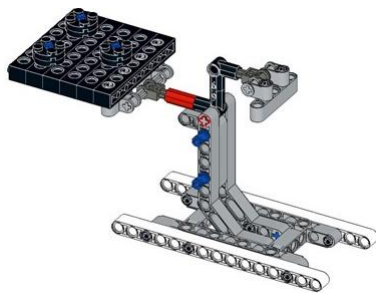
B. Scoring:

- a) 10 points per microphone if placed within the correct area (partial projection allowed) and upright.
- b) 5 points per microphone if placed in the correct area but not upright.
- c) 3 points per microphone if not in the correct area but fully moved from the initial position.

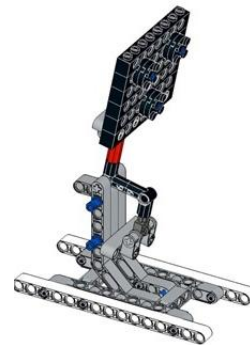


3.2.3 Raise Speakers (**Remote control task**)

- A. Two speakers on the field must be raised.
- B. Scoring: 10 points per speaker if upright.



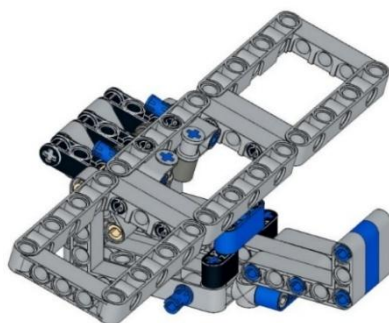
Initial state



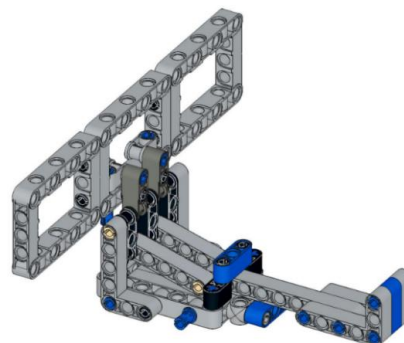
Completion status

3.2.4 Deploy Screen (**Remote control task**)

- A. Activate the large screen to display background videos.
- B. Scoring: 10 points for triggering the model to deploy the screen.



Initial state



Completion status

3.2.5 Band Members' Entrance (**Remote control task**)

- A. Five band members (Model random) are in the START area; deploy them in any order.

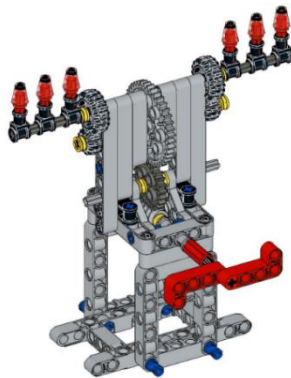
B. Scoring:

- 10 points per figurine if placed within the designated area (partial projection allowed) and upright.
- 5 points per figurine if in the area but not upright.
- 3 points per figurine if not in the designated area but on the field (excluding START).
- No points for manually placed figurines.

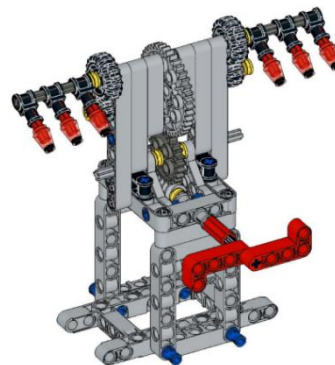


3.2.6 Activate Lighting (**Automatic Task**)

- Activate stage lighting effects.
- Scoring: 25 points for rotating the model >90 degrees to direct light toward performers.



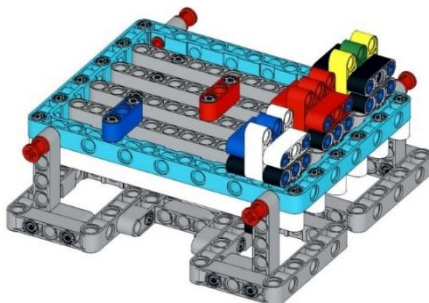
Initial state



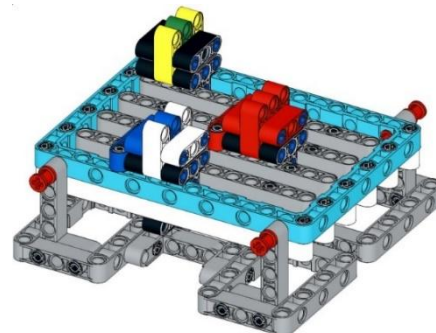
Completion status

3.2.7 Activate Sound Effects (**Automatic Task**)

- Activate sound effects.
- Scoring: 10 points per switch pushed to the designated position (max 30 points).
- This task can also be completed through remote control. If all three sound switches are pushed to the designated position, 10 points will be awarded; Otherwise, no points will be awarded.**



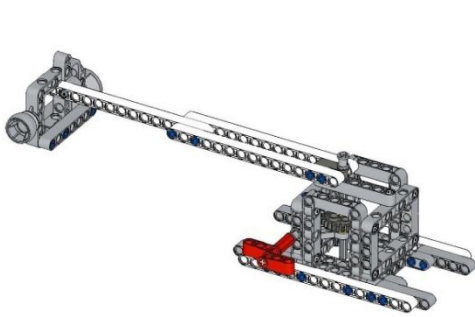
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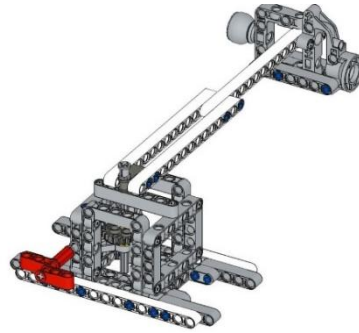
Completion status

3.2.8 Camera Crane Operation (**Automatic Task**)

- A fixed camera crane is on the field.
- Scoring: 25 points for rotating the crane handle clockwise >90 degrees.



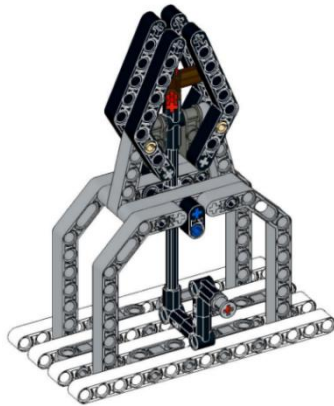
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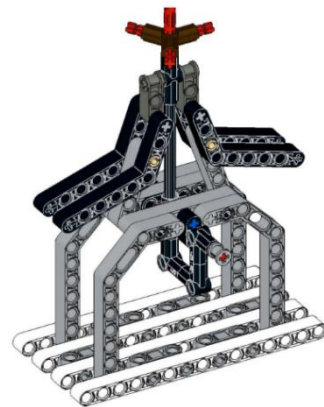
Completion status

3.2.9 Cold Fireworks Display (**Remote control task**)

- A. Trigger cold fireworks on both sides of the stage.
- B. Scoring: 10 points per fully opened fireworks model.



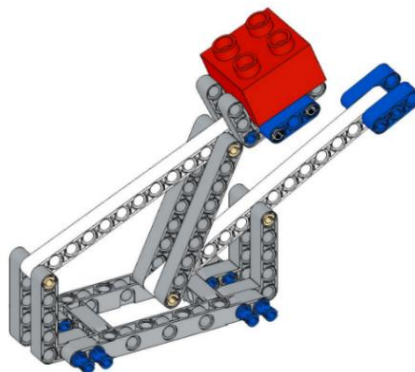
Initial state



Completion status

3.2.10 "Stage Dive" (**Remote control task**)

- A. Trigger the "stage dive" platform to move the prop outside the team's field.
- B. Scoring: 25 points if the prop exits the field; 10 points if it remains within the field.



3.2.11 Bonus Task (**World Championship**)

- A. Bonus tasks (announced before on-site debugging) earn 30 points upon completion.
- B. Tasks align with basic tasks but require real-time program adjustments based on prop positions.

3.2.12 Robot Integrity

5 points if no parts detach during the competition (structural changes excluded).

3.2.13 Retry Penalty

5 points deducted per retry (see 4.4).

3.2.14 Total Score

- A. Base score: 270 points; with bonus tasks: 300 points.
- B. Remaining time score = 10% of total points.
- C. Remaining time score = (Remaining seconds ÷ Total seconds) × 30.
- D. Total score = Task score + Remaining time score.

4 Competition Requirements

4.1 Competition Time

60 minutes for pre-competition debugging; 3 minutes per round.

The round stops immediately when time ends; judges tally scores.

4.2 Competition Rounds

Each team competes in two consecutive rounds.

4.3 Start of Competition

Judges count down "3, 2, 1" before whistling; teams activate robots.

4.4 Retry Rules

- A. Retry conditions:
 - a) Touching robots or props outside the START area.
 - b) Robot drive wheels leave the boundary of the field or malfunction on the field.
 - c) Robot cannot autonomously return to START (The complete entry of the robot drive wheel into the START area is considered a return).
- B. 5 points deducted per retry.
- C. Field remains unchanged; robot is moved back to START.

4.5 Ranking

- A. Rankings based on the best of two rounds.
- B. Tiebreaker: Team with more remaining time ranks higher.
- C. Further tiebreaker: Compare second-highest scores and remaining time.

5 Notes

- A. Field props have randomized colors.
- B. Spare parts must not be placed within the field boundaries.
- C. Task order is flexible.
- D. Robots may restart tasks if they return autonomously to START.
- E. If a robot fails to start, adjustments are allowed without stopping the timer.
- F. Final scoring occurs post-competition.

6" Leap " Score Sheet

Judge Items			Value	Points	Score
1	Circuit Inspection	Beam pressed into the gap on the other side.	0 1 2	15	
2	Microphones	Microphone placed within the correct area (partial projection allowed) and upright.	0 1 2 3	10	
		Microphone placed within the correct area (partial projection allowed) but not upright.	0 1 2 3	5	
		Microphone not in the correct area but fully moved from the initial position.	0 1 2 3	3	
3	Raise Speakers	Speaker erected in an upright position.	0 1 2	10	
4	Deploy Screen	Trigger the prop model to unfold the large screen.	0 1 (N) (Y)	10	
5	Band Members' Entrance	Figurine deployed in the designated area (partial projection allowed) and upright.	0 1 2 3 4 5	10	
		Figurine deployed in the designated area (partial projection allowed) but not upright.	0 1 2 3 4 5	5	
		Figurine not in the designated area but on the field (excluding START area).	0 1 2 3 4 5	3	
6	Activate Lighting	Rotate the model to direct light toward performers, with a rotation angle exceeding 90°.	0 1 (N) (Y)	25	
7	Activate Sound Effects	Sound effect switch pushed to the designated position.	0 1 2 3	10	
8	Camera Crane Operation	Rotate the crane handle clockwise by more than 90°.	0 1 (N) (Y)	25	
9	Cold Fireworks Display	Trigger the prop model to fully open the cold fireworks.	0 1 2	10	
10	Stage Dive	Trigger the "stage dive" platform to move the prop outside the team' s field.	0 1 (N) (Y)	25	
		Trigger the "stage dive" platform, with the prop landing within the team' s field.	0 1 (N) (Y)	10	
11	Bonus tasks	Complete bonus tasks	0 1 (N) (Y)	30	
12	Robot remains intact throughout the operation (no detached parts).		0 1 (N) (Y)	5	
13	Number of retries (retry penalty, 5 points per retry)			-5	
14	Time bonus = (Remaining time (seconds) ÷ Total time (seconds)) × 30 (10% of total score)				
			Total Score		
			Remaining Time:		

7 Raising Objections

7.1 Raising Objections

- A. No objection to the referee's decision.
- B. If there is any lack of understanding during the application of the rules, the team captain may raise an inquiry with the referee.

8 Flexibility of Rules

If the concepts and foundations of these rules are adhered to, the rules should be flexible enough to accommodate changes in the number of participants and the content of the competition.

9 Liability

- A. Participating teams are always responsible for the safety of their robots and for any incidents caused by their team members or robots.
- B. The RobotChallenge organizing committee and its personnel cannot be held liable for any incidents caused by participating teams or their equipment.