2027 World GreenMech Contest

Taiwan Edition

Regulations

Organizer: World Forum for GreenMech Promotion

Supervising Organizations: Taoyuan City Government

Department of Education,

Taoyuan City Government

Executive Organizer: Genius Toy Taiwan Co., Ltd.

Official Website: www.worldgreenmech.com

Event Contact (Administrative Inquiries Only): Mr. Steven Chang/ wgm@mail.gigo.com.tw

Competition Rules & Q&A: Please refer to the **Contest Q&A on page 4**. All competition-related inquiries must be submitted through the **Competition Consultation Form** on the official website.

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1. Purpose

The 2027 World GreenMech Contest is organized by the World Forum for GreenMech Promotion. Based on scientific principles, the competition integrates the five dimensions of STEAM learning and development: Science, Technology, Engineering, Art, and Mathematics. The Contest consists of three Competition Categories: GreenMech (GM), Robot for Mission (R4M), and GreenMech Junior (GMJR). It is designed to encourage participants to apply what they have learned in class and demonstrate ingenuity and creativity through building blocks, hands-on construction, and programming. Through the competition, we aim to promote creative science education and provide students with a stage on which to fully demonstrate their abilities.

1.1. Competition Category Abbreviations

- GreenMech is abbreviated as GM.
- GreenMech Basic is abbreviated as GM-B
- GreenMech Advanced is abbreviated as GM-A.
- Robot for Mission is abbreviated as R4M.
- Robot for Mission Basic is abbreviated as R4M-B.
- Robot for Mission Advanced is abbreviated as R4M-A.
- GreenMech Junior is abbreviated as GMJR.
- GreenMech Junior-Sciencer is abbreviated as GMJR-S.
- GreenMech Junior-Programmer is abbreviated as GMJR-P.

2. Competition Information and Contest Q&A

2.1. Competition Categories and Divisions

Competition Category	GM	R4M	GMJR-S	GMJR-P	Notes
Eligible Participants	Elementary School Division, Junior High School Division, Senior High School Division	Elementary School Division, Junior High School Division, Senior High School Division	kindergarten through Grade 4 (date of birth between Aug. 1, 2016 and Jul. 31, 2021)	kindergarten through Grade 4 (date of birth between Aug. 1, 2016 and Jul. 31, 2021)	
Team Size	3-4 participants	3-4 participants	2 participants	1-2 participants	For participant replacement, see Section 2.2.
Number of Coaches	1-3	1-3	1	1	The Coach may be a teacher or parent.

2.2. Participant Replacement

If a participant needs to be replaced due to illness, injury, a serious accident, visa or passport-related issues, or other circumstances beyond the participant's control, the coach must, in principle, submit a replacement request by **July 12, 2027**. Each team may replace no more than 50% of its originally registered participants, and relevant supporting documents must be provided.

Participant replacements will generally not be permitted after July 12. However, if a participant is unable to compete due to any of the circumstances stated above, the team may submit supporting documents and, with the approval of the Chief Judge, replace the participant with an eligible substitute participant.

Anyone who has not completed the official registration process may not be added after the registration deadline. Once a participant has been replaced, the previously submitted commemorative shirt size may not be changed.

2.3. No Cross-Division Registration

To ensure fairness, each student participant may register for only one Competition Category and one eligible Division and may not register repeatedly across Divisions. Eligibility and Division placement are based on the student status and grade level submitted at registration, and supporting documents shall be retained for verification. In the event of an eligibility Appeal, the Organizer may request additional supporting documentation. If eligibility cannot be verified, the participant's award eligibility will be revoked.

2.4. Eligibility for World Competition Registration

	Regions with a City/County Qualifying Competition	Regions without a City/County Qualifying Competition	Other Overseas Countries/Regions
Recommended Registration	**GM/GMJR-P:** Up to 20 teams: 3 teams may be recommended; 21-30 teams: 4; 31-40 teams: 5; 41 or more teams: 6, maximum 6. **R4M:** Up to 10 teams: 3 teams may be recommended; 11-15 teams: 4; 16-20 teams: 5; 21-25 teams: 6; 26-30 teams: 7; 31 or more teams: 8, maximum 8. **GMJR-S:** Up to 10 teams: 3 teams may be recommended; 11-20 teams: 4; 21-30 teams: 5; 31-40 teams: 6; 41-50 teams: 7; 51-60 teams: 8; 61-70 teams: 9; 71 or more teams: maximum 10. Please report the number of participating teams by May 12 (Wed.), 2027 to reserve recommendation quotas, and submit the recommendation list by June 14 (Mon.), 2027.	1. Each city or county may recommend up to one team for the GM Advanced Division, R4M Basic Division, R4M Advanced Division, and GMJR-P Division. For the GMJR-S Division, each city or county may recommend up to two teams. 2. A Local Organizer school that conducts a city/county qualifying competition may recommend one additional team if none of that school's teams qualified for the next-stage competition based on the qualifying results. The additional team may be from any Competition Category or Division, with a maximum of one additional team per Local Organizer school. If any team from that school has already qualified for the next stage based on the qualifying results, this additional quota may not be used. Because the Taiwan Competition and World Competition are combined in 2027, a team receiving this additional recommendation may participate in the 2027 World Competition and Taiwan Competition. This provision does not mean that a Local Organizer school automatically receives World Competition Eligibility in other years.	Recommended by the organizer in their respective country or region.

	Regions with a City/County Qualifying Competition	Regions without a City/County Qualifying Competition	Other Overseas Countries/Regions
Recommended Registration		3. World Competition recommendation quotas are subject to the announcements and regulations of the host country for that year. The Organizer reserves the final authority to determine recommendation Eligibility. Please submit the recommendation list by **May 12 (Wed.), 2027**. Note: The Organizer reserves the right to make final revisions and adjustments.	
Open Registration	Teams not selected through recommendation may register independently. The number of available places will be announced on the Official Website on **May 31 (Mon.), 2027**.	The number of available places will be announced on the Official Website on **May 31 (Mon.), 2027**.	

In 2027, the World Competition and Taiwan Competition will be held jointly. For Taiwan teams, the same competition result will be counted separately toward the World Ranking and the Taiwan Ranking. International teams will be included in the World Ranking only.

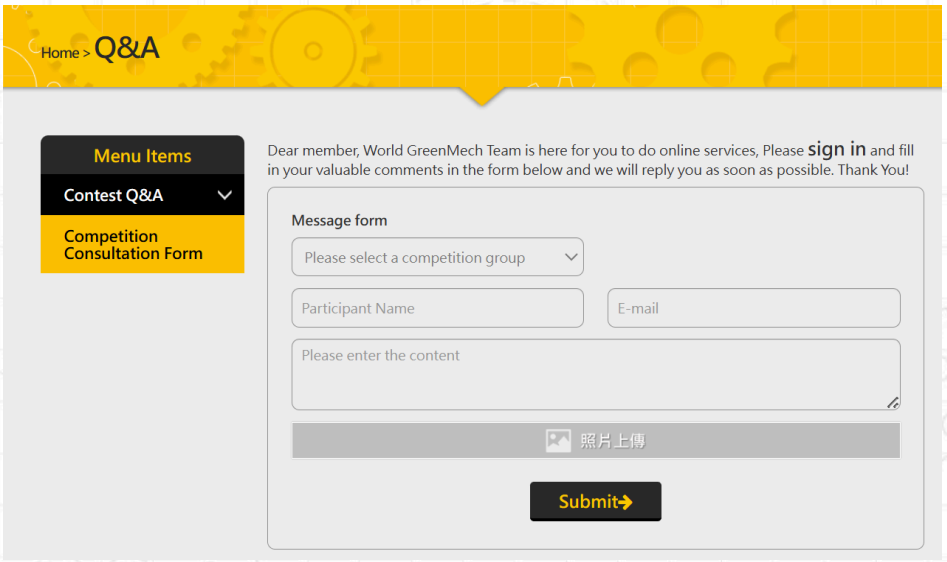
2.5. Competition Schedule

	Online Registration Period	Accepted Team List Announcement	Competition Date	Competition Venue	Notes
Regional Qualifying Competitions	Arranged by each region	Each region must submit its recommendation list by June 14. Quotas cannot be reserved after the deadline.	Arranged by each region	Arranged by each region	Each region must report the number of registered teams to the Organizer by May 12 (Wed.) to reserve recommendation quotas.
World GreenMech Contest - Taiwan Edition	June 22 (Tue.)-June 24 (Thu.), 2027 (all teams must register online during this period)	June 28 (Mon.), 2027	Aug. 19 (Thu.)	Taoyuan Arena (Taoyuan Municipal Gymnasium) https://maps.app.goo.gl/4hvrxqLfenNdWBhu6	In the event of a natural disaster, follow the Taoyuan City Government announcement regarding school closure. Please refer to the latest announcement on the official website.

- **Note:**

  If you cannot find the information you need, please refer to the **Contest Q&A** available on the official website. If your question has not yet been addressed in the **Contest Q&A**, you **must first sign in to your member account** and submit your inquiry through the **Competition Consultation Form** on the official website.

  The Organizer will review and respond to all inquiries through the official website. When appropriate, new questions and answers will be added to the **Contest Q&A** so that all participating teams can access the same information. To ensure that all inquiries are properly categorized, accurately documented, and answered consistently, **questions regarding the competition rules will generally not be answered by email or telephone**. Please submit all rule-related inquiries through the **Competition Consultation Form** on the official website.



https://www.worldgreenmech.com/en/eng_qa2.asp

Contest Q&A

3. Registration Information

- **Registration Period:**
  Teams participating in the World Competition must complete online Registration between **June 22 (Tue.) and June 24 (Thu.), 2027**.

- **Registration Information Maintenance:**
  To revise registration information, such as the team name or participant name, please log in to the Official Registration System and complete all changes by July 12 (Mon.), 2027. Changes will not be accepted after the deadline.

- **Team Information:**
  Taiwan teams must provide team information in Chinese for Chinese Certificate printing. If two teams use the same team name, priority will be given to the team that completes Registration first, and the Organizer will notify the other team to change its name. English team names are limited to 30 letters and must not contain inappropriate language. The English names of schools and student participants (passport spelling) should be limited to 60 characters and must not contain inappropriate or suggestive wording.

- **Registration Fees and Registration Deposits:**
  To promote STEAM education and encourage more students to participate in international exchange, and with appreciation to the Taoyuan City Government and Taoyuan Arena for supporting this competition as a public-benefit educational event, the registration fees are as follows:

    - **Taiwan Teams**
      No registration fee will be charged for GreenMech (GM), Robot for Mission (R4M), GreenMech Junior–Science (GMJR-S), or GreenMech Junior–Programmer (GMJR-P). Each team is required to pay a registration deposit of NT$1,000. The deposit will be refunded to the original payment method within one month after the competition, provided that the team completes check-in, participates in the competition, and fulfills all required procedures. The Organizer reserves the right to withhold the deposit if a team withdraws without justification, fails to complete the required check-in or competition procedures, or commits a serious violation.

- **International Teams**
  The registration fee for international teams is USD 130 per team.
  Registration is considered complete only after the fee has been paid within the deadline announced by the Organizer. Registration fees already paid are non-refundable unless the competition is cancelled by the Organizer or otherwise announced.

- **Other Matters**
  The registration deposit is not a registration fee and will be refunded in full to teams that meet the refund requirements. All fees must be paid within the deadline announced by the Organizer; failure to do so will be treated as incomplete Registration. The Organizer reserves the right to adjust Registration methods, fee standards, and related rules. For matters not covered herein, the latest announcement on the official website shall prevail.

- **Note:**
  The latest announcements and supplementary regulations will be published on the Official Website. Please check the website regularly.

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4. On-site Competition Regulations

4.1. Identity Verification

- **Eligibility Documents:**
  At Registration, participants must upload a valid electronic proof of current student status and any required personal-data consent documents through the Registration System for eligibility review. The form provided in Section 11.1, “Proof of Student Status,” may be used, or it may be replaced by a student ID card, official enrollment certificate, or another valid document recognized by the Organizer. Registration will be considered incomplete if the required documents are not fully uploaded.

- **On-site Identity Verification:**
  In principle, physical proof of student status will no longer be collected on the competition day. Each team must complete Check-in at the time and location designated by the Organizer. Participants must wear the official T-shirt and affix the Team Sticker provided by the Organizer to the upper right sleeve. The Organizer may verify participant identity against Registration information during Check-in, Materials Inspection, or before competition.

- **Participant Replacement:**
  After the Registration Deadline, participants may not be replaced in principle. If replacement is genuinely necessary because of illness, accident, or another force majeure circumstance, an application must be submitted in accordance with the Organizer’s rules, and replacement is permitted only after approval by the Chief Judge, as applicable. An approved replacement participant must also complete a review of proof of student status and all other required documents before entering the Field. Anyone who has not completed the review may not compete.

- **Eligibility Review:**
  If the Organizer has questions regarding a participant’s identity or Eligibility, it may request additional supporting documents. If sufficient documentation proving Eligibility cannot be provided after notice, the Organizer may revoke the participant’s Eligibility, together with all related Scores and award eligibility.

4.2. Materials Inspection

Teams must bring all building blocks in an unassembled state. Chain links do not need to be disassembled. Tubing used for pneumatic or hydraulic mechanisms does not need to be disconnected. However, if the tubing is connected to a motor, it must be disconnected before inspection.

4.3. Venue Equipment

Tables will be provided at the venue. Teams may bring their own chairs for resting only, provided that the chairs do not obstruct aisles or traffic flow.

4.4. Reference Materials

Teams may bring printed materials, images, and audio/video files for reference, except in GMJR-P. Please refer to the GMJR-P rules for the applicable restrictions.

4.5. Record Retention

All Divisions must cooperate with the Organizer in recording the operation of competition entries for record-keeping purposes.

4.6. Appeals

- **General Appeal Rules:**
  If a participant has questions regarding a competition decision, Score, or another matter that may affect competition fairness, an Appeal must be submitted according to the procedures below. All formal written objections are referred to as “Appeals” and are divided into “Appeal 1” and “Appeal 2” according to their subject matter.

4.6.1. Appeal 1: Appeal Concerning the Team’s Own Score or Decision for the Match

1. Each team’s competition position will be provided with a “Judge Reminder and Score Verification Form,” which includes an “Appeal 1” section.
2. Immediately after the match, participants must verify the Score and the Judge's decision for that match.
3. If participants question their team’s Score or the Judge's decision for that match, they must first raise the issue with the official responsible for the match. If the objection remains after an on-site explanation, the participant must record the matter appealed, the specific facts, and the applicable rule basis in the “Appeal 1” section and sign to confirm.
4. If participants have no objection to the Score or decision, they must check the “No Appeal” box and sign to confirm.
5. Appeal 1 must, in principle, be submitted during Score Verification for that match. Once Score Verification has been completed and the “No Appeal” declaration has been signed, no new Appeal may be submitted regarding Scores or decisions that were already known at that time.

4.6.2. Appeal 2: Appeal Concerning Another Team or Another Matter Affecting Competition Fairness

1. If another team is suspected of violating the competition rules, or another circumstance may affect competition fairness, a formal Appeal must be submitted under the “Appeal 2” procedure.

2. The Appeal 2 form may only be obtained and completed at the Competition Secretariat. The appellant must clearly state the specific facts, time or match involved, team or person concerned, and the applicable rule basis, sign the form, and return it to the Competition Secretariat.

3. After receiving an Appeal 2 form, the Competition Secretariat will assign an Appeal number according to the order in which completed forms are returned and will forward the Appeal documents to the Chief Judge, as applicable, as soon as possible.

4. Appeals will, in principle, be handled in the order of the Appeal numbers assigned by the Competition Secretariat. Matters involving competition safety, an ongoing match, or another significant circumstance requiring immediate action may be prioritized as necessary.

5. After submitting an Appeal, the appellant must wait for the outcome at the location designated by the Competition Secretariat and may not enter the Competition Field on their own to seek out a Judge or otherwise interfere with competition operations.

6. For the Appeal 2 form, see the appendix “Appeal 2 Form.”

4.6.3. Principles for Handling Appeals

1. An Appeal must be based on specific facts and the competition rules. Mere dissatisfaction with a competition result, or failure to state the matter appealed with sufficient specificity, does not constitute grounds for changing a decision or Score.
2. The Chief Judge, as applicable, may verify the facts with relevant participants, Judges or Staff. When necessary, the matter may be referred to the Appeal Committee.
3. While an Appeal is being handled, participants and related persons must follow the Organizer’s instructions and may not interfere with the progress of the competition.
4. If an administrative, scoring, or officiating error by the Organizer is verified, the Organizer may make the corrections or remedies necessary under the circumstances.

4.6.4. Appeal Committee

1. **Purpose:**
   To maintain fairness and impartiality, the Organizer may establish an Appeal Committee to review Appeals submitted under these Competition Guidelines.

2. **Composition:**
   Appeal Committee members may be recommended by city or county governments, Local Organizer schools, or relevant organizations. For international competitions, participating countries may recommend representatives to ensure both expertise and representation.

3. **Recusal Principle:**
   The Chief Judge and relevant officials may attend to explain the case and provide supporting evidence but may not participate in the Appeal Committee’s vote.

4. **Review Procedure:**
   After an Appeal is accepted, the Chief Judge, as applicable, will explain the Appeal, relevant rules, and evidence to the Appeal Committee. The Committee will then deliberate and reach a decision. If handling the Appeal requires competition operations to be paused, the Appeal Committee should, in principle, complete its review and reach a decision within 10 minutes to minimize disruption to the Competition Schedule. The handling procedure may be adjusted when necessary according to on-site circumstances.

5. **Decision:**
   The Appeal Committee shall issue a written decision. The Committee's decision is the Final Decision for that Appeal and must be respected by all teams.

6. **If an Appeal Committee Cannot Be Formed:**
   If the Appeal Committee cannot be formed due to the absence of suitable members, an insufficient number of members, or another reason, the Chief Judge, as applicable, shall render the Final Decision based on these Competition Guidelines, the competition rules, and the relevant evidence.

4.7. Access Restrictions

If a Coach or parent enters the Competition Venue without permission or passes items to participants, 5 points will be deducted from the team's total Score. After 8:00 a.m., parents and Coaches are no longer permitted to enter the 1F competition area. Coaches and parents are prohibited from entering the competition area to take photographs in a manner that disrupts competition order.

4.8. Interference and Competition Fairness

No person may interfere with another team in any manner. Failure to correct the behavior after warning will result in a 5-point deduction from the team's total Score. Coaches and parents are prohibited from communicating with competing teams in any form. If such communication is documented by photograph and an Appeal is submitted, the first occurrence will result in a verbal warning and the second occurrence will result in a 5-point deduction from the total Score. All participants are expected to demonstrate courteous and professional conduct.

4.9. Communication and Electronic Devices

Electronic devices may be used during the competition, except in GMJR-P; please refer to the relevant GMJR-P rules. However, participants may not communicate with persons outside the competition area. If a violation is verified and continues despite warnings, 5 points will be deducted from the team's total Score. For emergencies, participants may seek assistance from the Competition Service Desk.

4.10. Property

Intentional damage, theft, or fraudulent taking of another person's property, once verified, will result in a 5-point deduction from the team's total Score.

4.11. Late Check-in

A team that cannot check in on time due to force majeure may still compete, but no additional competition time will be granted.

5. Awards

- **Award Policy:**
  The Organizer may adjust Divisions and the number of Awards according to the actual number of participating teams, competition scale, and competition circumstances, and reserves final approval authority.

- **Ranking Principle:**
  When the World Competition and the host country's National Competition are held together, the Organizer may use the same Competition results to calculate the World Ranking and the host-country ranking separately in order to preserve the competition rights of host-country participants, and Awards will be granted under the respective award systems. As the 2027 World Competition will be held in Taiwan, the same results of Taiwan Teams will count toward both the

World Ranking and Taiwan Ranking; international Teams will count toward the World Ranking only.

- **Certificate Distribution and Mailing:**
  If time permits, certificates will begin to be distributed approximately 30 minutes after the Award Ceremony. Taiwan Teams that do not collect their certificates on-site may apply during the announced period for consolidated mailing to the first registered Coach. A handling and postage fee of NT$100 will be charged per school or service organization. Mailing arrangements and fees for international Teams will be handled on a case-by-case basis according to actual needs and costs.

- **Participation Certificates:**
  The Taiwan Competition and World Competition will be held together this year. As in previous years, the Taiwan Competition will not provide Participation Certificates or Team Advisor Certificates. Only the World Competition will provide English Participation Certificates and Team Advisor Certificates.

- **Certificate Reissuance:**
  If a certificate must be reissued due to a last-minute participant replacement or an error in registration information, Taiwan Teams will be charged **NT$200 per certificate** and international Teams USD 7 per certificate. If a last-minute participant replacement is approved on the Competition day, the relevant certificates will not be issued on-site and will be reissued after the Competition based on the updated information. International mailing fees will be charged separately according to the actual mailing method and cost.

- If registration information (such as Team name or Participant name) must be revised, please log in to the official registration system and complete the revision by **July 12, 2027.** Late changes will not be accepted. In accordance with personal data protection requirements, the list of successfully registered Teams published on the official website will not separately list the names of Coaches, parents, or Participants. Each Team must log in to the official registration system to confirm that all registration information is correct.

5.1. Award Percentage and Award Presentation Principles

Award Category	World Championship Awards	Taiwan Competition Awards	Number of Winning Teams
Gold Award	One certificate for each contestant and advisor, presented at the venue Cash prize: NT$10,000 per team	One certificate for each contestant and advisor	50 teams or fewer: 1 team 51–80 teams: 1 team 81 teams or more: 1 team
Silver Award	One certificate for each contestant and advisor, presented at the venue Cash prize: NT$6,000 per team	One certificate for each contestant and advisor	50 teams or fewer: 2 teams 51–80 teams: 2 teams 81 teams or more: 3 teams
Bronze Award	One certificate for each contestant and advisor, presented at the venue Cash prize: NT$3,000 per team	One certificate for each contestant and advisor	50 teams or fewer: 3 teams 51–80 teams: 5 teams 81 teams or more: 6 teams
Merit Award	One certificate for each contestant and advisor	One certificate for each contestant and advisor	After deducting the Gold, Silver, and Bronze Award places, the remaining places shall be calculated within the overall 85% award limit.
International STEAM Contribution Award	One certificate for each contestant and advisor; applicable only to overseas teams from countries other than the host country	Not applicable	Determined in accordance with the regulations for the applicable year and the recommendations submitted by each country
Commemorative Medal	One medal for each contestant who actually participates; provided solely as a participation souvenir and not indicative of any score, ranking, or award status	One medal for each contestant who actually participates; provided solely as a participation souvenir and not indicative of any score, ranking, or award status	Excluded from the award percentage calculation

1. **Overall Award Percentage** The total number of officially awarded Teams in each Division, including **Gold Award, Silver Award, Bronze Award, International STEAM Contribution Award, and Merit Award**, should in principle **not exceed 85%** of the actual participating Teams in that Division. If a Minimum Award **Score Threshold is established for Merit Award**, Teams below the threshold will not receive an Award. Accordingly, the actual Award Percentage may be below 85%, but no additional Awards or forms of recognition may cause the total number of officially awarded Teams to exceed 85%.

2. **Gold, Silver, and Bronze Award Quotas** The World Competition and Taiwan Competition use the same logic for Gold, Silver, and Bronze Award quotas, based on the actual number of participating Teams in each Division as follows:

i. **50 Teams or fewer (including 50):**
1 Gold Award Team, 2 Silver Award Teams, and 3 Bronze Award Teams.

ii. **51–80 Teams:**
1 Gold Award Team, 2 Silver Award Teams, and 5 Bronze Award Teams.

iii. **81 Teams or more:**
1 Gold Award Team, 3 Silver Award Teams, and 6 Bronze Award Teams.

3. **International STEAM Contribution Award** To recognize the participation and contribution of participating countries, the Organizer may establish an International STEAM Contribution Award in accordance with the regulations for that year. **The award applies to participating countries/regions other than the host country** and is administered according to the eligibility, quota, and nomination method announced for that year. Each country must provide compliant award information by the deadline designated by the Organizer. The Organizer will consolidate the information and submit it to the certificate production unit. **The International STEAM Contribution Award is an official Award, and its recipient Teams are included in the overall 85% Award Percentage.**

4. **Merit Award Quota** The number of Merit Awards is calculated based on the actual number of participating Teams in each Division and the overall 85% Award Percentage, **after deducting the numbers of Gold, Silver, Bronze, and International STEAM Contribution Award Teams**. If a Minimum Award Score Threshold is established, Teams below the threshold will not receive an Award; therefore, the actual number of Merit Awards and the overall Award Percentage may be below 85%.

5. **Award Presentation and Certificate Issuance Principles** In 2027, the World Competition and Taiwan Competition will be held together. The same Competition results of Taiwan Teams will be used to calculate the World Ranking and Taiwan Ranking separately, and award recipient lists will be generated under the respective award systems.

The Award Ceremony will present World Competition Awards only. Teams receiving the World Competition Gold Award, Silver Award, Bronze Award, and International STEAM Contribution Award will be invited on stage. Whether Merit Award Teams are invited on stage, and the actual number invited, may be determined by the Organizer according to the day's Competition progress, available Award Ceremony time, and overall on-site flow. The official award status of Merit Award Teams not invited on stage will not be affected.

The Taiwan Competition will separately generate its award recipient list and issue certificates according to the Taiwan Ranking and award system. No separate Award Ceremony will be held, and Taiwan Competition award recipients will not be arranged to receive Awards on stage.

If the same Taiwan Team receives Awards in both the World Competition and Taiwan Competition, the Awards will be recognized separately; on-site stage presentation will be based only on the Team's World Competition Award.

5.2. Obligations of Award-Winning Teams

World Competition GM and R4M Gold, Silver, and Bronze Award Teams must provide a video of their entry within one month after the Competition. Prize money will be issued after the video has been submitted, for subsequent Competition promotion and educational use. Teams are encouraged to record footage during practice. GMJR Teams are not required to submit an entry video. **Award-winning teams in the GMJR divisions are not required to submit a competition project video.**

If a violation of these Competition Guidelines is verified, the Organizer may revoke the Team's award eligibility and recover the Award.

(1) English Video File Name: 2027 competition name, Division, and Team name, e.g., 2027_GM-B_Elementary_Superman.

(2) Video Content: Maximum total length: 5 minutes. The opening frame must show Team information.

GM: The video must include at least close-up footage of each Stage in operation, with the Stage number and Scientific Principle labeled in English, as well as a full-view video showing the complete contraption in operation.

R4M: Include an English introduction to the detailed Robot structure and a two- to three-minute full-view mission run.

(3) Video Format and Submission: The video must be in MP4 format with a resolution of at least 1920 × 1080 (Full HD) and submitted via a Google Drive link. Link permissions must allow the Organizer to view and download the file directly, and the link must remain valid until the review is completed.

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6. Legal Matters

- **Participant Insurance:**
  The Organizer will arrange group insurance for all Participants covering the Competition day only. Insurance cannot be arranged for Participants whose required information is incomplete or incorrect.

- **Intellectual Property Rights:**
  Each entry must be confirmed by the Coach as original work and must not infringe any third party's patent or intellectual property rights. If third-party intellectual property is used, appropriate authorization documentation must be submitted. Participants are solely responsible for any legal liability arising from infringement.

- **Organizer's Intellectual Property Rights:**
  Participating Teams grant the Organizer authorization to use the intellectual property of their entries. For promotional and related purposes, the Organizer may modify, photograph, publish, exhibit, reproduce, or otherwise use award-winning entries.

7. GreenMech (GM) Competition Rules

7.1. Competition Notes

7.1.1. The Elementary School, Junior High School, and Senior High School Divisions are each divided into Basic and Advanced Divisions. The maximum number of teams eligible to participate is based on the number of teams that each city/county government is permitted to recommend.

7.2. Entry Specifications:

7.2.1. **Overall Dimensions:**
For the GM Basic Division, the footprint of the complete contraption must fit within a 150 cm × 40 cm Jumbo Base Grid Base. For the GM Advanced Division, the footprint must fit within 180 cm × 60 cm; there is no height limit. Within 100 cm above the base, no part of the contraption may extend beyond the footprint. If the team cannot correct a violation after being reminded, 5 points will be deducted from the total score. After each mechanism has returned to its original position, the contraption must remain within the specified area; points will be deducted for any part extending beyond the permitted area. Expansion or extension that occurs only after a mechanism is triggered is not subject to the footprint limit and will not incur a deduction.

7.2.2. **Competition Materials:**
Teams must bring unassembled GreenMech building components made from materials that have passed recognized national safety and non-toxicity certifications, including CE (Europe), ASTM (United States), ST (Taiwan), and CCC (China). If uncertified materials are used to assemble the contraption and a subsequent Appeal is verified, points may be deducted or the team may be disqualified from the Competition and awards depending on the severity of the violation. Teams are also responsible for safeguarding their own components to prevent loss.

7.2.3. **Additional Materials:**

1) The Basic Division may use additional materials, but they must be processed on-site and do not contribute additional points; therefore, their use is not encouraged. The Advanced Division has no such restriction and teams are encouraged to use Everyday Materials and Recycled Materials, processed on-site, to enrich their contraption, such as paper, wood, aluminum cans, and plastic bottles.

2) Program-controlled or remote-control devices may not be used in any mechanism. A 5-point deduction will be applied for each violation.

3) Electronic products such as mobile phones, tablets, and laptops are not recommended for use as part of the contraption. If used, no additional points will be awarded for any special effects they produce.

4) The GM Advanced Division permits 3D-Printed Parts (including decorative parts) and Laser-cut Parts. Each part must fit within 4 cm × 4 cm × 4 cm and must be brought in as an individual, unassembled part. A 5-point deduction will be applied for any non-compliant part.

7.2.4. **Materials Safety:**

Dangerous materials are strictly prohibited, including fire, corrosive chemicals, hazardous electrical components, biological materials, or any items that may cause discomfort or harm. If such materials are brought into the Competition Venue without authorization and the violation is verified, the team will be disqualified immediately.

7.2.5. **Power Supply Restrictions:**

For participant safety, the Competition Venue will not provide electrical power. All teams must prepare their own batteries. Each battery must be below 5 V, and the total voltage of batteries connected in series must not exceed 15 V. If a violation is verified, 5 points will be deducted from the total score and the team must correct it immediately. Any resulting impact on the team's performance is the team's responsibility. Lead-acid batteries, uninterruptible power supplies (UPS), and other large hazardous batteries are prohibited. A verified violation will result in a 5-point deduction from the total score. If battery damage or improper operation causes bodily injury, the team will be disqualified, and all consequences are the responsibility of the team and its Coach.

7.3. Elementary, Junior High, and Senior High School Divisions - Basic Division Rules

7.3.1. Competition Procedure (morning and afternoon sessions; Build Time: 70 minutes)

Morning Session (Junior High and Senior High School Divisions)

Check-in	Material Inspection	Opening Ceremony & Rules Briefing	Competition (Build) Time (70 min)	Judging Preparation (5 min)	Judging
07:40~08:00	08:00~08:50	08:50~09:00	09:00~10:10	10:10~10:15	10:15~11:00

Afternoon Session (Elementary School Division)

Check-in	Material Inspection	Opening Ceremony & Rules Briefing	Competition (Build) Time (70 min)	Judging Preparation (5 min)	Judging
12:00~12:20	12:00~12:50	12:50~13:00	13:00~14:10	14:10~14:15	14:15~15:00

7.3.2. **Competition Design:**
Design eight Basic Stages and one Designated Mission Stage and connect them into one continuous sequence.

7.3.3. **Material Restrictions:**
Electric motors and motor-related materials may not be used in the contraption design.

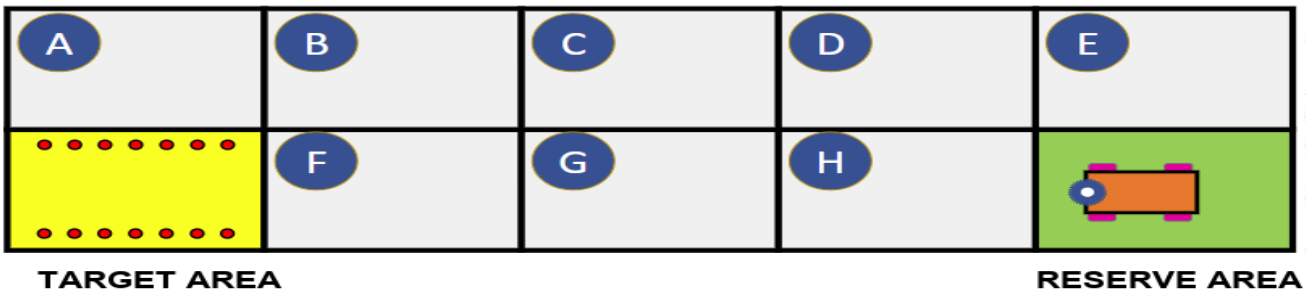
7.3.3.1. **Teams are encouraged to use Gigo building components for all Stage designs. If Everyday Materials (such as paper, wood, or foam) are used, they must be brought in as individual parts or in an unprocessed state and may only be cut, processed, and assembled into Stages at the Competition Venue. Materials may not be pre-processed, glued, or assembled before entering the Competition Venue. During Materials Inspection, any Everyday Materials that do not comply with these requirements may not be used in the Competition. (Definition of gluing: if a component has already been glued and cannot be disassembled during Materials Inspection, it may not be used in the Competition.)**

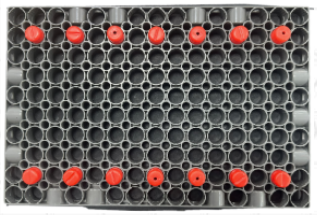
7.3.3.2. **During judging, if any material is found to be non-compliant, the corresponding Stage will not count toward the Number of Stages score.**

7.3.3.3. **A string may be tied to the reel in advance.**

7.3.4. **Contraption Area:**
Arrange 10 Jumbo Base Grids to form a 150 cm × 40 cm base and design the contraption within this area. Before operation begins, all Stages must remain within this area.

Stage



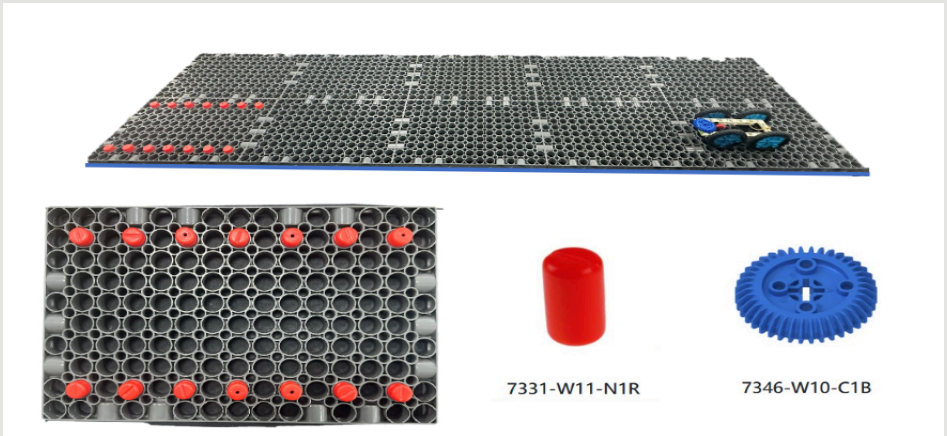


The contraption area is 150 cm × 40 cm. Participants must build a Target Area as shown. The installation height of the red rods may be determined by the Team. If the Target Area does not comply with the requirements, the Designated Mission Stage will not be scored.

Content

Basic Stage Content

1. **Design one standard Stage in each of Areas A-H, for a total of eight Stages. The order of Stages 1-8 may be determined by the team. Stage designs may vary, but no two Stages may be identical. The main structure of each Stage must remain within its designated area; there is no size limit for an individual Stage within that area.**
2. **Each Stage must display a Stage Label numbered 1-8.**

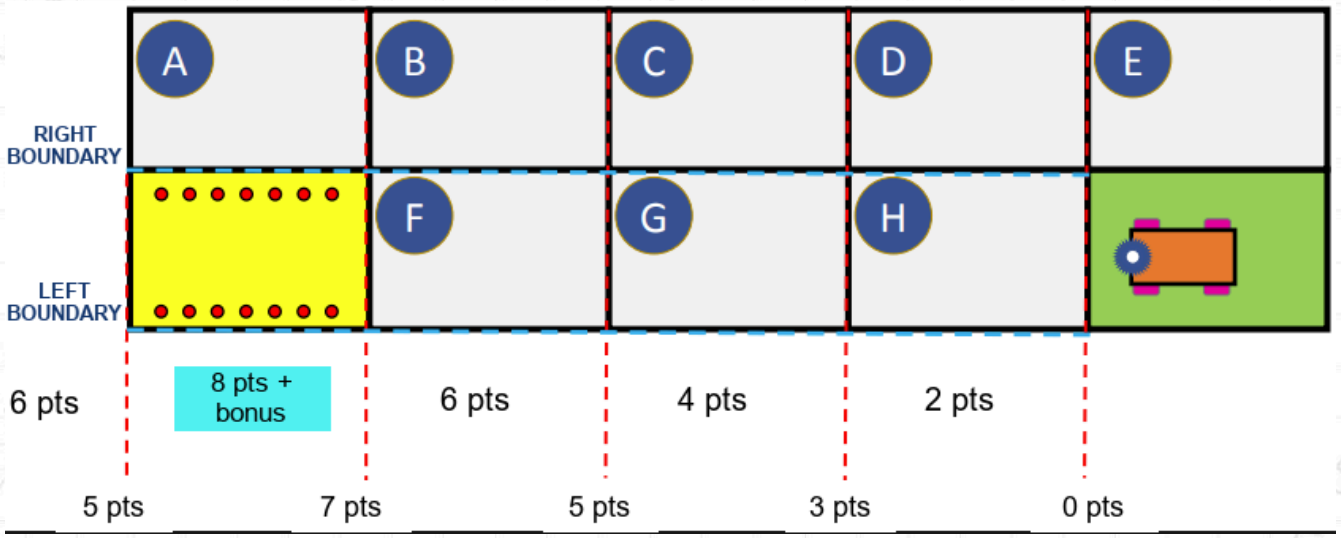


7.3.5. Scoring Items

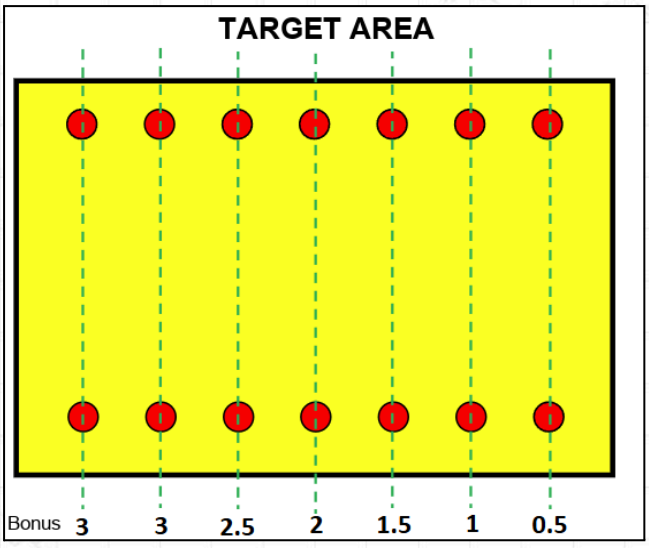
Scoring Criteria	
Continuity (20%)	A Manual Intervention or an object falling outside the 40 cm × 150 cm contraption area results in a 2-point deduction. (The Continuity score is weighted by the Number of Stages score.)
Number of Stages (16%)	1. **1. Design one Stage in each of Areas A-H. Each Stage must demonstrate a different scientific concept (see the Scientific Principles reference table) and display a Stage Label. Each compliant Stage is worth 2 points.** 2. **2. The order of the eight Stages may be determined by the team. Stage 1 must activate Stage 2 and continue sequentially through Stage 8, which must ultimately trigger the rubber-band-powered vehicle or launching device in the Preparation Area.** 3. **3. Each Stage must comply with all applicable requirements.** 4. **4. A Stage Label must be displayed on each Stage.**
Stage Missions (10%)	Two of the eight Stages must separately satisfy the following requirements: **1. A ball of any specification must rise vertically by 30 cm and then trigger the next action.** **2. A ball of any specification must travel through the air for a horizontal distance of 30 cm and then trigger the next action.** 1. **3. Fully meets the requirement:** 3 points; partially meets the requirement: 1 point; does not meet the requirement: 0 points. 2. **4. If the Stage is triggered by the preceding action, operates successfully, and triggers the next action: 2 points.**
Designated Mission Stage (54%)	Design a rubber-band-powered vehicle or launching device. The contraption must trigger the vehicle to start from the Preparation Area, travel through Areas H, G, and F, and move toward the Target Area. **1. The vehicle may be any size or form. One 40T gear must be installed horizontally on the vehicle as the Positioning Gear, and the entire vehicle must be placed within the Preparation Area before activation.** **2. The vehicle must be positioned horizontally. Its propulsion must be provided by a rubber band or by a launching device powered by a rubber band.** **3. Three activation attempts will be conducted. The final score is the sum of the points earned based on the Vertical Projection of the Positioning Gear in each attempt.**

	1) Automatic activation: 2 points. 2) If the horizontal distance from the 40T gear to the Target Area exceeds 90 cm: 2 points. 3) During travel, only the wheels may operate on the Jumbo Base Grid; if no other part of the vehicle touches any object: 3 points. 4) Points are awarded according to the Vertical Projection position of the 40T gear. Additional Notes: After the vehicle comes to rest, the 40T gear is used as the Positioning Gear and scoring is determined by its Vertical Projection. 1. **1. If the Vertical Projection is entirely within a Jumbo Base Grid area, the corresponding area score is awarded. If the projection extends beyond the left or right boundary, the score is the area score minus 1 point.** Example: If the Vertical Projection of the 40T gear is completely within Area F, 6 points are awarded. Example: If the Vertical Projection of the 40T gear extends beyond the right boundary into Area B, 5 points are awarded. 2. **2. If the Vertical Projection of the 40T gear lies on the boundary between two base-grid areas, the score corresponding to that boundary is awarded. If the projection also extends beyond the left or right boundary, the score is the boundary score minus 1 point.** Example: If the Vertical Projection of the 40T gear lies on the boundary between Areas G and H, 3 points are awarded. Example: If the Vertical Projection of the 40T gear lies on the boundary between Areas G and H but also extends beyond the left or right boundary, 2 points are awarded.
Tie-breaking Order	Continuity > Stage Missions > Designated Mission Stage > Tie-break Round
Tie-break Round	If award-winning teams remain tied after applying the tie-breaking criteria, a Tie-break Round will be conducted. 1. **1. Each tied team will perform the Designated Mission Stage once. The team earning the higher score will rank higher.** 2. **2. If the teams remain tied, each team will continue to perform one additional attempt at a time until the ranking is determined.**

Diagram of the Contraption and Scoring Areas:

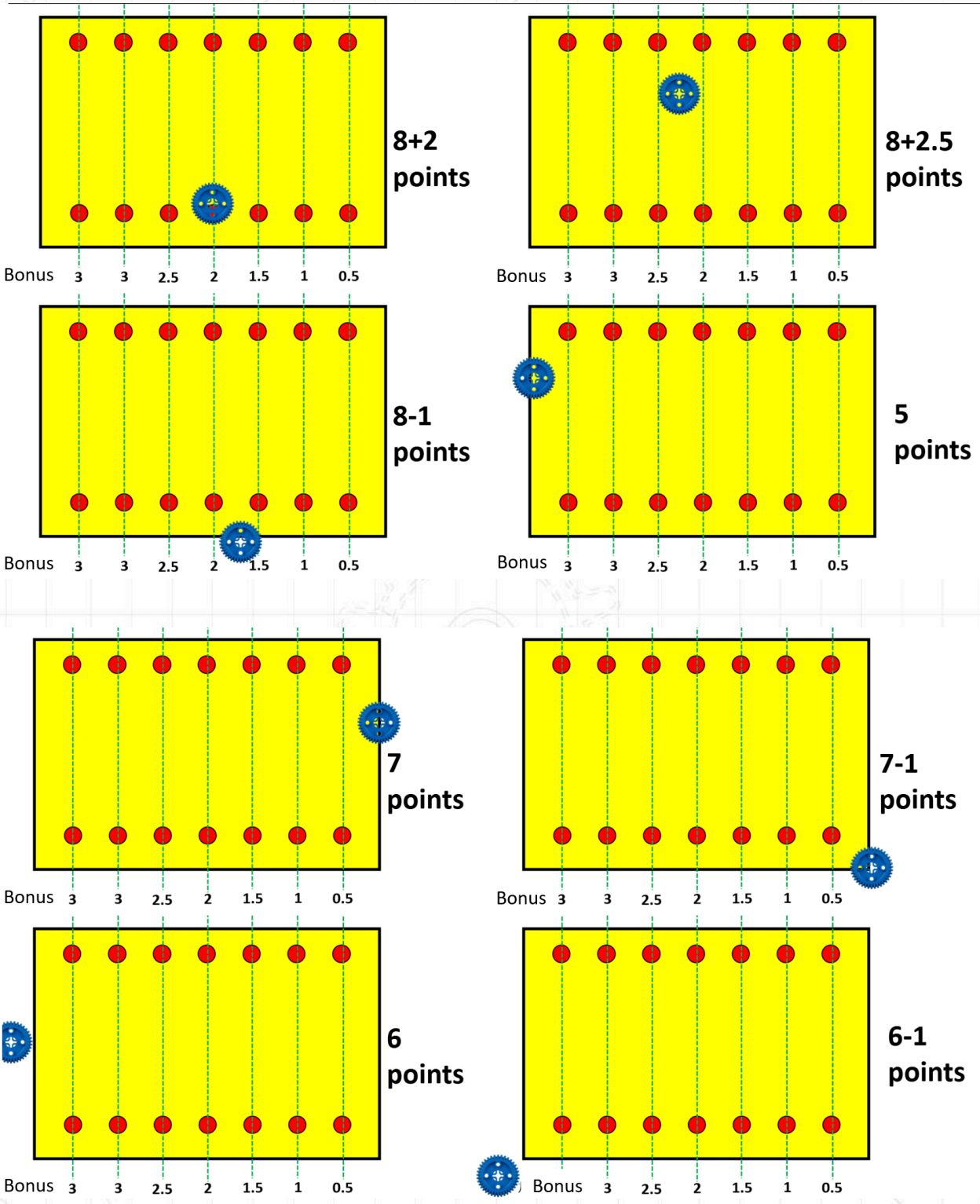


Target Area Bonus Scoring Diagram:



After the vehicle comes to rest, if the 40T gear is completely inside the Target Area, 8 points are awarded. Additional bonus points are then determined according to the Vertical Projection position of the blue gear, using the most favorable applicable score.

The diagrams below show scoring examples for the gear landing near the Target Area:



7.4. Elementary, Junior High, and Senior High School Divisions - Advanced Division Rules

7.4.1. Competition Procedure (full-day Competition; Build Time: 160 minutes)

Check-in	Material Inspection	Rules Briefing	Build Time (160 min)	Judging Preparation (10 min)	Judging
07:40~08:20	08:00~08:50	08:50~09:00	09:00~11:40	13:00~13:10	13:10~16:30

7.4.2. **Competition Design:**
Design 4 Scientific Stages, 3 Green Energy Stages, and 1 Creative Stage, for a total of 8 Stages, and create continuous activation between the Stages.

7.4.3. **Stage Content:**

7.4.3.1. **Competition Theme:**
The overall theme of the entry may be freely created by the Team.

7.4.3.2. **Creative Stage Theme:**
Eye in the Sky - Protecting Our Environment

“The eye in the sky is our gentle watch over the home we share.”

Weather and remote-sensing satellites in space are tireless “guardian eyes,” quietly watching Earth around the clock through darkness, wind, and rain. They cross national boundaries, penetrate severe storms in critical moments, reveal disaster conditions on the ground, and help rescue teams identify routes as quickly as possible. They also form a gentle line of defense for our planet, continuously recording changes in forests and oceans and helping identify environmental damage. This is more than a technology competition; it is a commitment to work with space technology so that the next generation can still look up to a blue sky and a beautiful home.

7.4.4. **Entry Layout Diagram:**
Teams may design and plan the Stage sequence.

◎ Stage Labels numbered 1-8 must be attached, and Creative Stage and Green Energy Stage labels must be identified accordingly.

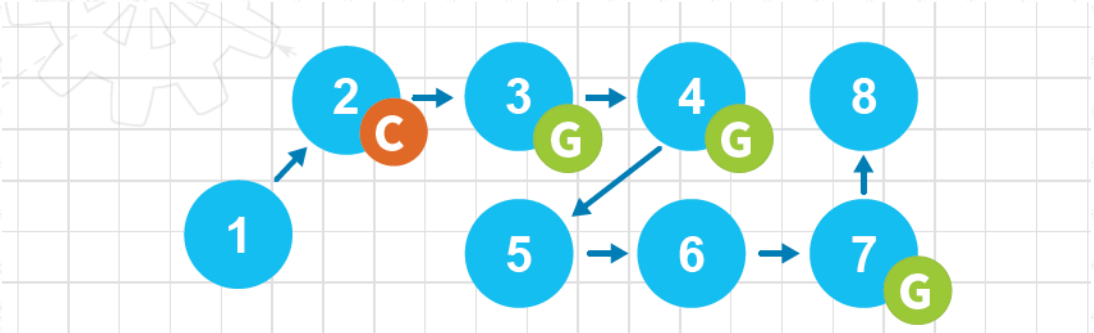
◎ Stages must activate sequentially according to the Stage Label numbers.

◎ Only Scientific Stages are evaluated for Scientific Concepts.

◎ Green Energy Stages may not be placed as Stage 1 or Stage 8.

◎ The Creative Stage and Green Energy Stages must be separate Stages and must display the appropriate Creative and Green labels. Violations will result in a deduction.

◎ The Creative Stage may be placed as the first or last Stage.



7.4.4.1. **Scoring Items**

Scoring Criteria	
Continuity (20 points)	A Manual Intervention or object drop results in a 2-point deduction. The Continuity score is weighted by the Number of Stages score.
Number of Stages (16 points)	Each Stage with the required Stage Label earns 2 points, for a total of 8 Stages. Additional Stages beyond eight, or Stages without a Stage Label, will not be scored.
Scientific Stages (16 points)	There are 4 Scientific Stages. Each Scientific Stage must declare and satisfy 2 Scientific Concepts, for a total of 8 Scientific Concepts.
Green Energy Stages (24 points)	There are 3 Green Energy Stages, and the type of Green Energy used may not be repeated.
Creative Stage (16 points)	Creative Stage Theme: Eye in the Sky - Protecting Our Environment
Overall Mechanism Design (8 points)	The overall entry theme may be freely created and designed by the Team.
Tie-breaking Order	Continuity > Number of Stages > Green Energy > Scientific Concepts > Creative Stage > Overall Mechanism Design

7.4.4.2. **Detailed Scoring Criteria**

Scoring Criteria	Weight	Content
1. Continuity	20%	1. **A 5-minute adjustment period will be provided before judging. The demonstration begins when the Judge gives the signal. Participants must sign to confirm after judging. If the Creative Stage contains multiple actions or mechanisms, all of them are included in Continuity scoring.** 2. **During judging, Participants must briefly explain the operating sequence of Stages 1-8 to the Judge. After the Judge confirms the sequence, operation begins from Stage 1 and continues through the final Stage.** 3. **During operation, any ball, moving object, decoration, building component, or other item that falls outside the 60 × 180 cm Contraption Area is considered a dropped object and incurs a 2-point deduction. If multiple identical objects fall out at the same time, it counts as one drop; for example, several dominoes falling outside together. If identical objects fall at different times, separate deductions apply.** 4. **Spilled powders or liquids do not incur a drop deduction. However, if they affect cleanliness or interfere with another Team's operation, the Rule Violation provisions apply.** 5. **If a mechanism stops operating within the area, Participants may restart it manually only after receiving the Judge's permission. A Manual Intervention incurs a 2-point deduction, and the restart must occur at the point where the operation failed.** 6. **If the Scientific Concept or Green Energy design represented by a Stage fails to operate successfully—for example, a marble is intended to be released by a Lever but falls early**

		due to vibration—a Manual Intervention deduction still applies even if the overall contraption continues operating. 7. **If the Creative Stage contains multiple actions or mechanisms, all must be included in Continuity scoring.** 8. The Continuity score is weighted by the Number of Stages score. Example: if the Number of Stages score is 14 points, with 2 Manual Interventions and 1 drop, the Continuity score is (20 - 4 - 2) × 14/16 = 12.25 points.
2. **Number of Stages**	16%	1. **Only Stages on the main path count toward the Number of Stages score; branch Stages are not scored. Teams must clearly identify Stages 1-8, including 4 Scientific Stages, 3 Green Energy Stages, and 1 Creative Stage.** 2. **The number of Stages scoring is based on the required labels. Stages must display numbered Stage Labels 1-8. A Creative Stage must also display a Creative label next to its number, and each Green Energy Stage must display a Green label. A missing required label results in a 2-point deduction for that Stage. See 7.7.2. Stage Labels and Green Energy Labels.**
3. **Scientific Stages**	16%	1. **Scientific Stages and Green Energy Stages are judged together. A 5-minute adjustment period will be provided before judging, and Participants must sign to confirm after judging.** 2. **Scientific Concepts may include scientific principles, laws, phenomena, and structures. Refer to 7.7.1. Scientific Concepts and Mechanical Structures Reference Table when designing the entry.** 3. **Each Scientific Stage must contain 2 Scientific Concepts. Scientific Concepts may not be repeated across the 4 Scientific Stages. A total of 8 Scientific Concepts are scored, at 2 points each, for a maximum of 16 points.** 4. **At Inspection, Teams will receive a blank Scientific Concepts form. Participants must select the Scientific Concepts as a self-assessment, and Competition Staff will collect the form from Teams at 10:00 a.m. If the form is not completed, this scoring criterion will receive no points.** 5. **If a Scientific Stage contains more than 2 Scientific Concepts, Participants must choose the 2 concepts to be presented and record them on the self-assessment form. Only 8 Scientific Concepts in total may be selected on the submitted form; repeated or additional concepts will not be scored.** 6. **Please refer to 7.5. Scientific Concept Notes.**
4. **Green Energy Stages**	24%	Scientific Stages and Green Energy Stages are judged together. A 5-minute adjustment period will be provided before judging, and Participants must sign to confirm after judging. The five Green Energy types in this Competition are Wind Energy, Water Energy, Solar

		Energy, Magnetic Energy, and Chemical Energy. There are 3 Green Energy Stages, each worth up to 8 points. A Green Energy Stage may not be Stage 1 or the final Stage, and the energy type may not be repeated. Scoring is as follows: 1. **Meets the Green Energy requirement: 3 points.** 2. **Operational Success (two opportunities):** • Successful on the first attempt and activates the next Stage: 5 points. • First attempt fails but second attempt succeeds: 3 points. • Both attempts fail: 0 points. The Green Energy Stage score is the sum of the concept-compliance score and operational-success score. (For detailed Green Energy requirements, see 7.6. Green Energy Notes.)
5. **Creative Stage**	16%	The entry theme is Eye in the Sky - Protecting Our Environment. Teams may choose one of the following four directions as the main focus for the Creative Stage: **1. Satellite Launch and Orbital Deployment: A rocket carries a satellite into space, separates, and the satellite enters its intended orbit and deploys its solar panels.** **2. Storm Penetration and Disaster Detection: A remote-sensing satellite uses microwave or infrared technology to see through heavy clouds and storms and observe disaster conditions on the ground.** **3. Rescue Guidance and Precision Positioning: A satellite rapidly calculates and plans the safest route to guide rescue personnel on the ground.** **4. Protecting a Green Earth and Monitoring Sustainable Change: Record changes in forests and oceans, protect our shared home, and help prevent environmental damage.** 1) **Uniqueness:** The mechanism has distinctive features and differs from other Teams' mechanisms (4 points). 2) **Complexity:** The mechanism demonstrates diverse actions and a higher level of design difficulty (4 points). 3) **Relevance to Theme:** The design aligns with the theme and is clearly explained (4 points). Presentation time: 3 minutes. 4) **Eco-friendly Use (4 points):** Recycled or environmentally friendly materials are incorporated into the mechanism and make a meaningful contribution to its function.

		5. **The Creative Stage is judged by the designated Judge. Presentation time: 3 minutes. Participants do not need to sign after judging.** 6. **If the Creative Stage contains multiple mechanisms, all of them are included in Continuity scoring.**
6. **Overall Mechanism Design**	8%	Participants must present the overall Design Concept and story of the entry in spoken English. Presentation time: 3 minutes. Participants do not need to sign after judging. 1. **Spoken English:** English communication ability (2 points). 2. **Design Concept and Story:** Overall mechanism design of the entry (6 points).
7. **Rule Violations**	**On-site Point Deduction System**	The following actions are Rule Violations: 1. **No mechanism may be operated using programming, remote control, graphical control, or similar system-control methods. If such use is found, 5 points will be deducted from the Total Score.** 2. **Violation of the entry dimension requirements:** 5-point deduction from the Total Score. 3. **If the Competition table or surrounding area is disorderly or unsafe (for example, scattered materials or a slippery floor) and the condition is not corrected after instruction, 5 points will be deducted from the Total Score.** 4. **Failure to follow Competition discipline that affects another Team's entry: 5-point deduction from the Total Score; serious cases may result in disqualification.** 5. **Violation of the power supply requirements:** 5-point deduction from the Total Score. 6. **Violation of the requirements for 3D-Printed Parts or Laser-cut Parts: 5-point deduction from the Total Score.**

Note: No promotional materials or other presentation items are required for the Creative presentation and story explanation, and additional costumes or props are not recommended. Scoring is based only on the mechanism design and the Participants' explanation.

7.5. Scientific Concepts - Notes

The Scientific Concepts used in this Competition must follow the basic principle of hands-on assembly or original design. Participants must understand the operating principles and content of their designs and be able to provide a brief explanation for the Judge to evaluate.

1. Points for a Scientific Concept are awarded only when the effect is produced through the assembly of building components or objects. If a commercially available product or finished item produces the effect and the Judge determines that the effect does not result from the Participants' own assembly or design, points for that Scientific Concept will not be awarded.

2. Participants must be able to briefly explain all eight Scientific Concepts to the Judge. Each action may receive credit for only one Scientific Concept. Teams are encouraged to design each mechanism so that the Scientific Concept being demonstrated is clear and distinct.

3. Only eight Scientific Concepts may be selected on the Scientific Concepts Sheet for Scoring. Participants should select the eight concepts they are most confident in. If more than eight are selected, Participants will be asked to remove the excess selections. The Organizer will collect the self-evaluation sheet at 10:00 a.m.; no changes may be made after submission.

4. Each Stage must identify two Scientific Concepts for Scoring. If a Stage contains more than two possible Scientific Concepts, Participants must select the two concepts to be evaluated. Judges will score only the concepts selected on the Scientific Concepts self-evaluation sheet, and the selected items may not be changed during Scoring.

Examples for determining Scientific Concepts:

1. 1. If a light source device is activated and the light illuminates a designed object to produce optical phenomena such as reflection, refraction, or diffraction, points may be awarded for the optics concept. If electrical power is simply used to turn on an LED light source, only the electricity concept may be credited.

2. 2. If a ball rolls down and strikes a bell or a designed object to produce regular or varied sounds, points may be awarded for acoustics. If electrical power is used to activate a buzzer, only the electricity concept may be credited. If a linkage is struck to switch on a commercially available music box, the music box itself is not an original design or build, so only the linkage concept may be credited.

3. 3. The definition of magnetic energy under the Scientific Concepts category is interpreted broadly, including magnetic repulsion. If attraction or repulsion between magnets causes an object to move, this may also be recognized as an application of magnetic energy.

7.6. Green Energy - Notes

1. The five approved Green Energy sources in this Competition are wind energy, water energy, solar energy, magnetic energy, and chemical energy. A Green Energy Stage earns 8 points when Green Energy is used within the Stage area to drive a mechanism and successfully Trigger the Next Stage. A Green Energy Stage may not be placed as Stage 1, and the three Green Energy Stages must use three different energy types. The maximum score for this Scoring Criterion is 24 points.

2. In previous competitions, Green Energy points were often awarded simply for using an energy source; however, many demonstrations did not meet the standard of an operating Stage. In this Competition, in addition to demonstrating energy conversion, the Green Energy must also successfully Trigger the Next Stage in order to earn the Green Energy score.

3. A Green Energy demonstration may not use a battery in combination with the Green Energy source.

Wind Energy
The preceding Stage must activate a wind-powered device. Wind energy must drive the designed Stage in this area, and operation of that Stage must then Trigger the Next Stage to complete the Wind Energy Stage.
Water Energy
The preceding Stage must activate a mechanism that causes water to flow through a difference in potential energy or pressure. Water energy must drive the designed Stage in this area, and operation of that Stage must then Trigger the Next Stage to complete the Water Energy Stage. Note: Hydraulic linkages and buoyancy are Scientific Concepts and do not count toward the Water Energy score.
Solar Energy
The preceding Stage must activate a light source (to simulate sunlight) or allow light to illuminate a solar panel. Solar energy must drive the Stage in this area, and operation of that Stage must then Trigger the Next Stage to complete the Solar Energy Stage. Note: If the solar energy only turns on an LED and cannot Trigger the Next Stage, the Green Energy Stage is considered unsuccessful. Note: If the current generated by the solar panel is too small to drive a motor, a battery may not be connected in series as supplemental power. In such a setup, the solar panel functions only as a circuit switch rather than the primary energy source, and the Green Energy Stage is considered unsuccessful.
Magnetic Energy
The preceding Stage must activate a magnetic-energy device. Magnetic energy must drive the designed Stage in this area, and operation of that Stage must then Trigger the Next Stage to complete the Magnetic Energy Stage. Note: Conversion of magnetic energy into electrical or kinetic energy may qualify, for example electromagnetic induction generating electricity or a Gauss launcher accelerating a ball to strike and activate the next mechanism. Note: Movement caused by magnetic attraction or repulsion may also be recognized as an application of magnetic energy.

Chemical Energy

The preceding Stage must activate a chemical-energy device. Chemical energy must drive the designed Stage in this area, and operation of that Stage must then Trigger the Next Stage to complete the Chemical Energy Stage.

Note: This criterion is generally difficult to achieve. For example, at least three fruit cells connected in series may be required even to power an LED, and still more energy would be needed to drive a motor or another mechanism. Connecting a separate battery as supplemental power means the fruit-cell device functions only as a switch and does not constitute actual use of chemical energy.

Note: Rechargeable batteries and similar batteries are not recognized as applications of chemical energy under Green Energy.

7.7. Appendix Materials

7.7.1. Scientific Concepts and Mechanical Structures Reference Table

Scientific Concepts and Mechanical Structures Reference					
Item	**Stage No. (To be completed by Participants)**	**Judge Score**	**Item**	**Stage No. (To be completed by Participants)**	**Judge Score**
Law of Inertia			Linkage		
Force and Acceleration or Gravitational Potential Energy			Truss		
Action and Reaction Forces			Chain Drive or Belt Drive		
Center of Gravity or Dominoes			Track		
Lever			Ratchet and Pawl		
Circular Motion / Centripetal Force			Acoustics		
Pascal's Principle			Electricity		
Principle of Communicating Vessels			Thermal Science		
Bernoulli's Principle			Magnetic Force		
Wheel and Axle			Elastic Force		
Simple Pendulum			Friction		
Static Electricity			Buoyancy		
Worm and Worm Gear			Cam		
Pulley System			Gear or Rack		

Note 1: Rows or items may not be added to or modified in this table.
Note 2: Scientific Concepts and Green Energy may not be counted twice. Only eight Scientific Concepts may be selected; any selections beyond eight must be removed by the Participants.
Note 3: Each Stage No. field may contain only one Stage number. Multiple Stage numbers are not permitted; any excess entries must be removed by the Participants.

7.7.2. Stage Labels and Green Energy Labels

Stage Labels and Green Energy labels must be clearly visible. Black-and-white printing is permitted.



8. Robot for Mission (R4M) Rules

R4M Competition Schedule		
Time	Activity	Notes
07:40~08:20	Check-in	1. After Check-in, participants must enter the Competition Venue directly and may not leave the venue after Check-in. 2. For teams checking in after 08:00, only Participants may enter the Competition Venue; Coaches and parents may not enter.
08:00~08:50	Materials Inspection	1. After 08:00, Coaches must leave the Competition Area and may not re-enter. 2. Judges will conduct Materials Inspection. Building blocks must not be connected to anything; chains are the only exception. All other building components must be assembled in advance. 3. After the materials pass inspection, an inspection label will be attached. Team members must remain seated by their table and may not touch any materials. 4. Personal bags may be brought into the venue but must be placed on the table during inspection for examination. 5. For proof of student status, please refer to Section 11.1.
08:50~09:00	Rules Briefing	Competition rules and important on-site notes will be explained.
09:00~11:00	Assembly and Practice	
09:30~11:20	Robot Inspection	1. Verify that no metal components are used on the Robot. 2. Weighing: Robots will not be weighed before the Competition. After the Competition, if teams have the same Competition Time or Score, weighing will be conducted for ranking purposes. For the Basic Division, the backup Robot is included in the total weight. 3. After inspection, all competition Robots, including Automated Platform D, will be kept under the Organizer's custody. 4. Work-area cleanliness: 5 points will be deducted from the Total Score if components are scattered or the Assembly Area is left disorderly.
Time	Activity	Notes

		5. Robot dimensions: refer to the applicable Basic Division and Advanced Division specifications. 6. When Participants leave after Robot Inspection, they must take all belongings with them, including laptops, building components, and unused electronic-control equipment.
11:20~12:30	Lunch Break	Please sort lunch boxes and other waste properly.
12:30~12:50	Participant Re-entry	Failure to enter by the designated time will be treated as withdrawal. Upon re-entry, Participants may bring only the laptop, tablet, or mobile phone used for the Competition; no other items may be brought into the Competition Area.
13:00~16:30	Competition	
16:30~	Award Ceremony	The start time may vary depending on judging progress.

8.1. Robot for Mission (R4M) - Basic Division Entry Specifications

8.1.1. Robot Dimensions: Robots A, B, and C are each limited to 30 cm in length × 20 cm in width; there is no height limit. A Robot may extend beyond these dimensions after deployment, provided the extension is operated by remote control or electronic control and is not produced by any other external force. If a Judge identifies an oversized Robot before the Match, the Team will be instructed to correct it during the 2-minute Pre-Match Preparation Time before entering the Competition Field. If the Robot cannot be corrected within the designated time, it may not be used in that Match. If the issue is not identified before the Match but another Team submits an Appeal after the Match, the Chief Judge will initiate an investigation. If the investigation confirms that the Robot does not comply with the size requirements, such as being unable to retract to the required dimensions, and the violation breaches these Competition Guidelines, creates an improper advantage, or affects another Team's scoring rights, all points earned by that Robot will be cancelled.

8.1.2. Number of Robots: Each Team must prepare three Robots (Robots A, B, and C). A Team with fewer than two Robots will be considered to have withdrawn. Each Team may also prepare one backup Robot for replacement. To repair or replace a Robot, Participants must first raise their hand and obtain the Judge's approval before removing the Robot from the Competition Field. Repair, replacement, and restart time are all included in the Competition Time, and the Robot must restart from the designated area as required. If a Robot is carrying a Mission Object when it malfunctions or fails to deliver the object, the Mission Object must be handled according to the instructions below. Without the Judge's approval, Participants may not touch, move, or remove a Robot from the Field or move a Mission Object by hand. The first violation results in a verbal warning; beginning with the second violation, 5 points will be deducted from the Total Score for each occurrence. Violations are cumulative.

※ Mission Object Handling: If the area directly beneath a Robot at the point of malfunction or failed delivery is a Scoring Area, the Participant must manually return that Mission Object to its original Temporary Holding Area. If the area directly beneath it is not a Scoring Area, the Mission Object must remain directly below the malfunction or failure location and may not be returned to the Temporary Holding Area by hand. For Mission Objects assigned to Robot C, Robot A or Robot B may push an object left on the Field back to its original Temporary Holding Area. Once the object has returned to the Temporary Holding Area, Robot C may attempt that delivery Mission again. Delivery Missions assigned to Robot C may be completed only by Robot C. If Robot A or Robot B delivers such an object directly into a Scoring Area, no points will be awarded. If a previously scored object is pushed out of its Scoring Area, those points will be cancelled.

8.1.3. Entry Materials: Teams must bring unassembled Gigo building components. Rubber bands or cotton strings may be used in mechanical structures or to increase friction, but may not be used to secure the Robot body structure. Metal materials may not be used as Robot structural components. If other materials or non-compliant materials are used and the violation is verified following an Appeal, points may be deducted or the Team may be disqualified from the Competition and Awards depending on the severity. Teams are responsible for safeguarding their own components. Note: Rubber bands and cotton strings do not have to be Gigo products.

8.1.4. 3D-Printed and Other Fabricated Parts: To ensure fairness, Robots must be assembled using Gigo building components. 3D-printed parts, laser-cut parts, CNC parts, PP sheets, and similar fabricated materials may not be used.

8.1.5. Control Equipment and Power: Participants may freely choose the control method used for their Robots, such as a 1409-D control box, smartphone, tablet, laptop, or other relevant equipment. All equipment must be prepared by the Team, no electrical power will be provided at the venue, and there is no restriction on software. In addition to the Bluetooth remote control provided by the Organizer, Participants may choose to use infrared remote control. Note: Infrared remote controls may operate on the same frequency and can interfere with one another. If malicious interference by another Team is verified following an Appeal by the Coach or Participants, the interfering Team will be disqualified.

8.1.6. Power and Control Box Requirements: No electrical power will be provided at the Competition Venue; Teams must prepare their own batteries. Robots A, B, and C must use Gigo control boxes designated by the Organizer. Robots A and B may use any remote-control method or remote-control brand, but their control boxes must comply with the preceding requirement. Robot C must use 1269-W85-A1 or the C-SMART CONTROLLER (1409-W85-A) and operate in accordance with the programming-control requirements. All batteries must comply with the safe-voltage requirements of the applicable control box. AA-size lithium-iron batteries, spacer batteries, and other non-compliant power sources are prohibited. The battery voltage must be clearly marked, and batteries must be insulated with no exposed conductive parts. Batteries must not create hazards such as rupture or leakage of liquid or gas. If battery use causes injury to Team members or other Participants, the Team will be disqualified and all resulting consequences are the responsibility of the person responsible and the Coach. ※ Lead-acid batteries and other large hazardous batteries are prohibited.

8.1.7. Motor Limits: Robots A and B may each use no more than 4 motors, and Robot C may use no more than 4 motors. All Competition Robots may be connected only by assembling building components. Cable ties, rubber bands, foam tape, double-sided tape, instant adhesive, or similar bonding materials may not be used for structural connections. Cable ties, rubber bands, and electrical tape may be used only for cable management. After the Competition, the Organizer may require Award-winning Teams to disassemble their entries on site for inspection. If a violation of these Competition Guidelines is found, the Team's award eligibility will be revoked and the next eligible Team will move up in ranking.

8.1.8. To ensure fairness, only the following motor models may be used: 7328-W85-A1-1, 7392-W85-B3, 7392-W85-B1, 7400-W85-A1, 7400-W85-A, 1247-W85-D1-1, 1247-W85-D2, 7447-W85-C, 7412-W85-A, and 1247-W85-D3. For details, see Section 8.12.1, "List of Competition Motors, Control Boxes, and Related Component Models." If Participants use one of the listed motors with a different type of Bluetooth control box, whether by modifying the motor-to-Bluetooth-box connection or by connecting the motor to another control device, they are responsible for ensuring reliable Robot connection and control. Any problem that occurs at the Competition must be corrected by the Participants so that the Robot can complete the Mission successfully.

The following control box models may be used: 1246-W85-A1 (C-Gigo SMART CONTROL BOX), 1247-W85-A4 (C-Gigo SMART CONTROL BOX - Wistron), 7408-W85-A2 (C-4-CHANNEL IR 3-MOTOR RECEIVER), 1269-W85-A1 (C-Gigo micro:bit CONTROL BOX), and 1409-W85-A (C-SMART CONTROLLER).

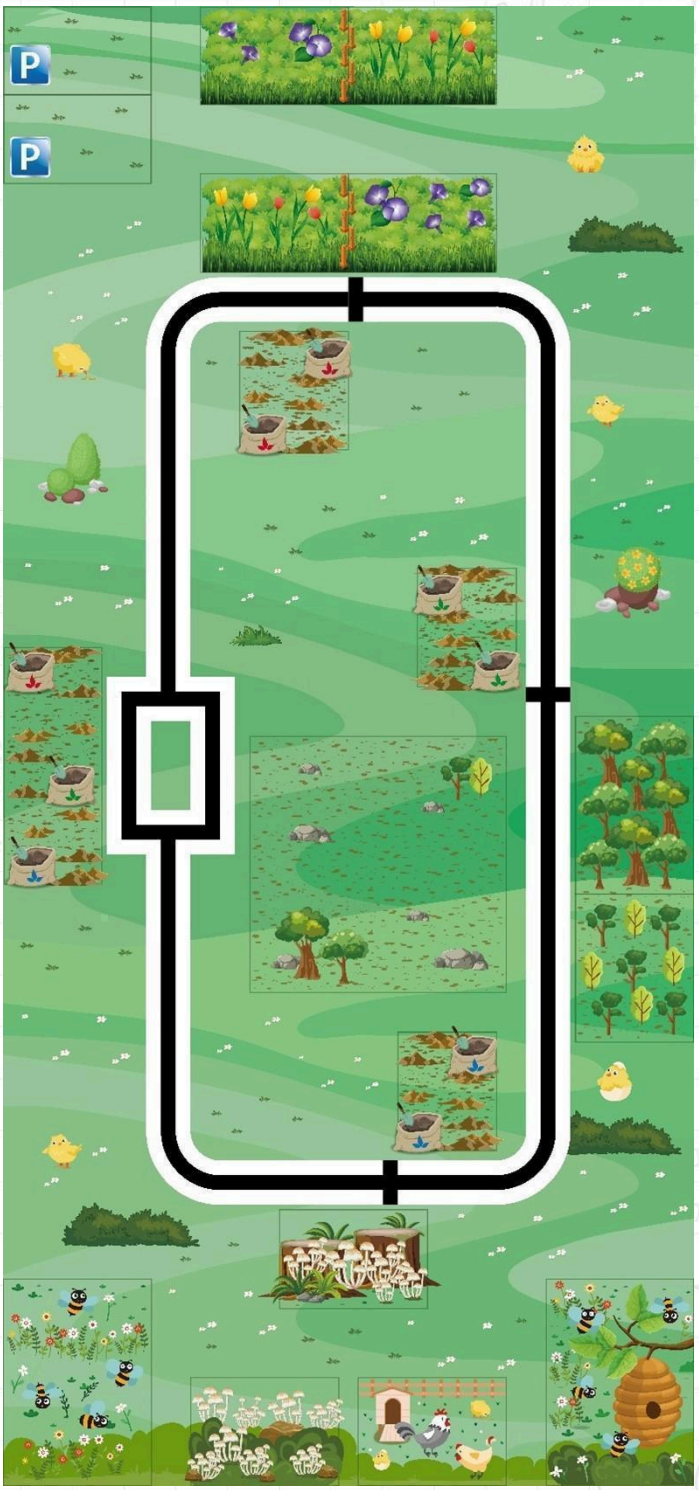
8.1.9. Materials Safety: Dangerous materials are strictly prohibited, including fire, corrosive chemicals, hazardous electrical components, biological materials, or any item that may cause discomfort or harm. If such materials are brought into the venue without authorization and the violation is verified, the Team will be disqualified immediately.

8.1.10. Robot Movement Boundary: Because the Basic Division Competition Field has no outer barrier, a violation occurs when all four wheels of a Robot move outside the printed Field area. If other components are used in place of wheels, the ground-contact supporting structures are treated as the wheels. The first violation results in a verbal warning; the second and each subsequent violation will be treated as Field damage and result in a 5-point deduction from the Total Score. Violations are cumulative.

8.2. Basic Division Theme: Smart Botanical Garden

8.3. Competition Scenario:

8.3.1. Field Specifications: The main Competition Field measures 140 × 300 cm (width × length) and is covered with matte oil-based PP photo paper. Only one Team may compete on each Field at a time. Robots A, B, and C must be placed in their designated Start Areas and positions.

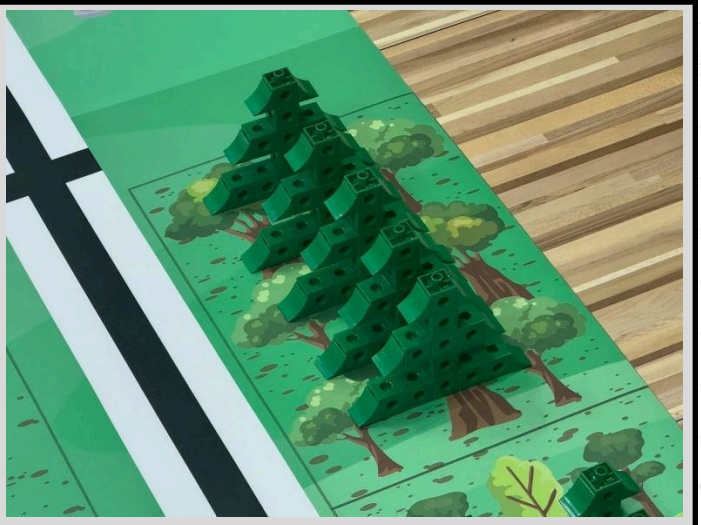


8.3.2. Mission Flow

Positioning Points and Diagrams for Mission Objects Before the Mission Begins



The figure above shows the Temporary Holding Area positioning points for tulips (left) and morning glories (right). Orientation is unrestricted, but the objects may not be inverted, laid down, connected, stacked, or nested. All objects must remain within the green outline.



The figure above shows the Temporary Holding Area positioning points for large trees. Orientation is unrestricted, but the objects may not be inverted, laid down, connected, stacked, or nested. All objects must remain within the green outline.



The figure above shows the Temporary Holding Area positioning points for small trees. Orientation is unrestricted, but the objects may not be inverted, laid down, connected, stacked, or nested. All objects must remain within the green outline.



The figure above shows the Temporary Holding Area positioning points for mushrooms. Orientation is unrestricted, but the objects may not be inverted, laid down, connected, stacked, or nested. All objects must remain within the green outline.



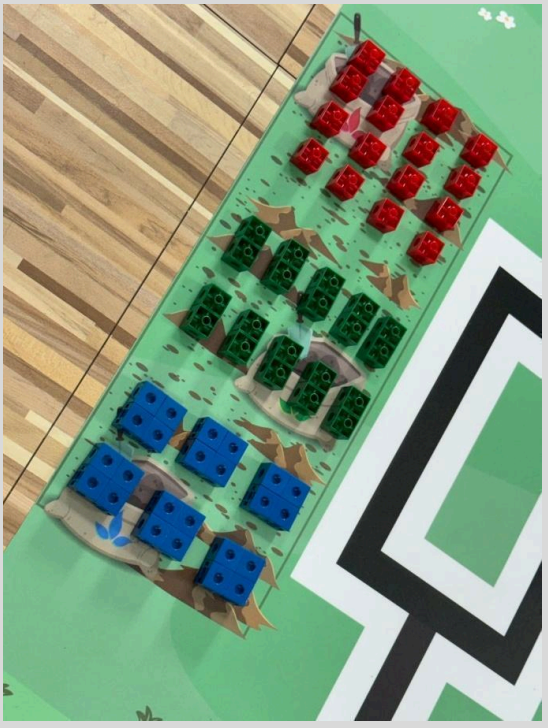
The figure above shows the Temporary Holding Area positioning points for bees. Orientation is unrestricted, but the objects may not be inverted, laid down, connected, stacked, or nested. All objects must remain within the green outline.



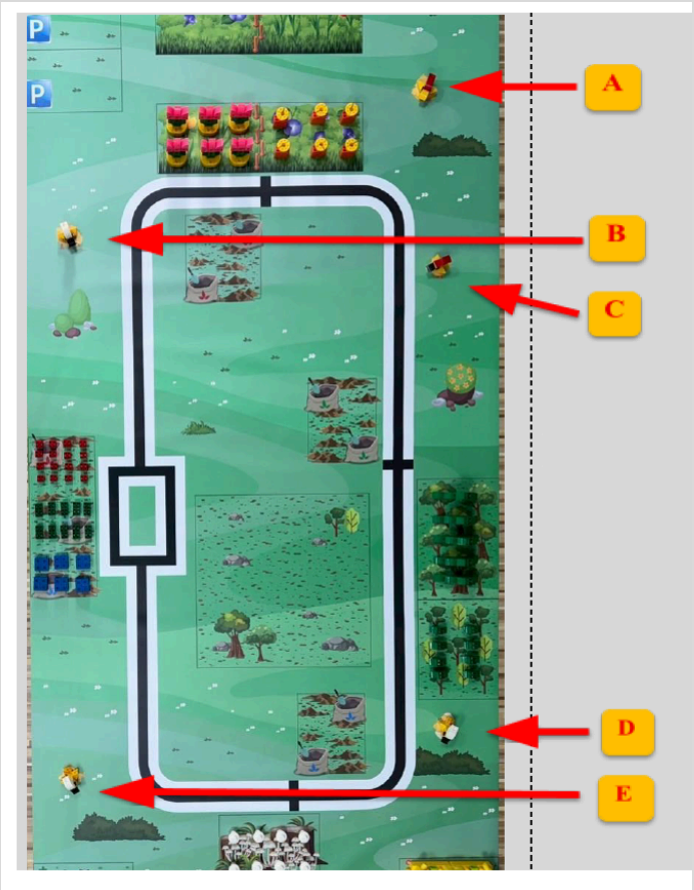
The figure above shows the hive placement position. The bottom of the hive should remain within the green outline.



The figure above shows the chicken-coop placement position. The chicken coop should remain within the green outline.



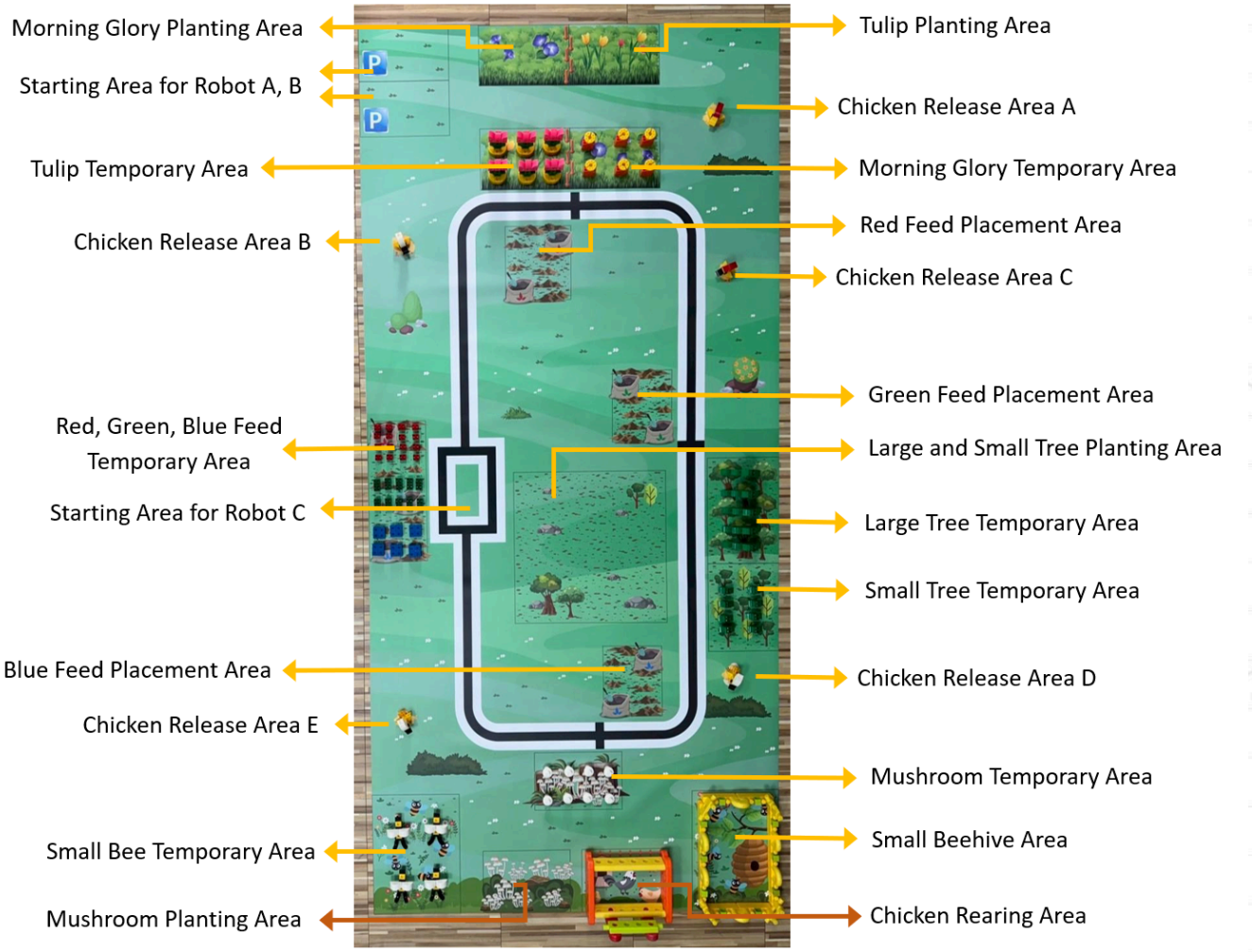
The figure above shows the Temporary Holding Area positioning points for red, green, and blue feed. Arrangement and orientation are unrestricted, but all feed must remain within the green outline.



The figure at top shows the Temporary Holding Area positioning points for chickens. Orientation is unrestricted, but chickens may not be inverted or laid flat. Each chicken must touch the chicken graphic printed on the Field. Area A is for the yellow-beak/red-head chicken, Area C is for the black-beak/red-head chicken, and Areas B, D, and E are for black-beak/white-head chickens.

Smart Botanical Garden Area Definitions

Before the Mission begins, Robot A, Robot B, and Robot C (which operates autonomously by program rather than remote control) must be placed in the Robot A Start Area, Robot B Start Area, and Robot C Start Area respectively, within the outer black boundary. Participants may start after the Judge announces the beginning of the Mission.



Mission Start

Scoring uses a Mission-based point system. Points are awarded only after a Mission has been completed, and the sum of points earned from all Missions is the Team's Total Score.

Mission 1: Robot A earns 10 points when the entire Robot successfully leaves its Start Area.

Robot B earns 10 points when the entire Robot successfully leaves its Start Area.

Robot C earns 10 points when the entire Robot successfully leaves its Start Area.

Mission 2: Robot C must be equipped with a C-LINE FOLLOWER SENSOR (1247-W85-B3) or C-INFRARED SENSOR (1409-W85-D); see Section 8.10.1 for specifications. Robot C must operate autonomously by program rather than by remote control.

Participants may write, modify, or upload the program on site during the Competition. Robot C must follow the black line and independently transport the red, green, and blue feed from the Temporary Holding Areas to the Red Feed Placement Area, Green Feed Placement Area, and Blue Feed Placement Area. Feed may not be manually placed on Robot C to initiate operation. To score, the Vertical Projection of the feed must be within the applicable outline or graphic. The maximum score is 600 points.

Mission Type	Mission Requirement
A	**Correct color area: 15 points per red feed item; 16 items total, subtotal 240 points.**
B	**Correct color area: 20 points per green feed item; 10 items total, subtotal 200 points.**
C	**Correct color area: 10 points per blue feed item; 6 items total, subtotal 60 points.**
D	**Incorrect color area: 5 points per feed item.**
E	**Deliver all 16 red, 10 green, and 6 blue feed items to their matching color areas: 100 bonus points; total 600 points.**

Note 1: After Robot C starts, Participants may correct programming errors so that Robot C can complete the Mission. Program writing, modification, loading, and execution time are all included in Competition Time.

Note 2: Robot C uses micro:bit software in this Competition. The permitted programming control boxes are the C-Gigo micro:bit CONTROL BOX (1269-W85-A) and C-SMART CONTROLLER (1409-W85-A). See Section 8.10.1 for control box specifications.

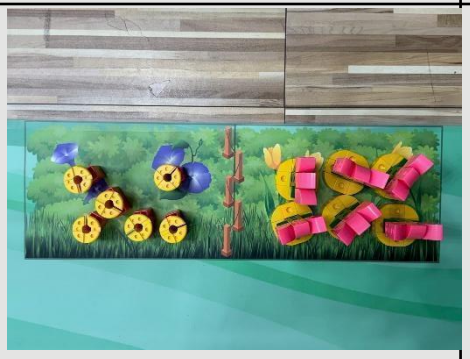
Note 3: Robot C may face any direction at the start.

Note 4: Participants must prepare their own programming equipment for Robot C, such as a laptop, tablet, and cables, as well as any Internet connection required for micro:bit programming.

Note 5: If Robot C fails while transporting feed or the feed does not reach a Scoring Area, the unscored feed may be returned manually to the Temporary Holding Area and Robot C may attempt the Mission again.

Mission 3: Use Robots A and B to transport tulips and morning glories from the Temporary Holding Areas to their Planting Areas. To score, the Vertical Projection must be within the applicable outline. The maximum score is 350 points.

Mission Type	Mission Requirement
A	Transport a tulip from the Temporary Holding Area to the Tulip Planting Area and leave it upright; 25 points each; if 6 are completed, subtotal 150 points.
B	Transport a morning glory from the Temporary Holding Area to the Morning Glory Planting Area and leave it upright; 25 points each; if 6 are completed, subtotal 150 points.
C	Transport a tulip from the Temporary Holding Area to the Tulip Planting Area and leave it inverted; 10 points.
D	Transport a morning glory from the Temporary Holding Area to the Morning Glory Planting Area and leave it inverted; 10 points.
E	Transport a tulip from the Temporary Holding Area to the Morning Glory Planting Area, upright or inverted; 5 points.
F	Transport a morning glory from the Temporary Holding Area to the Tulip Planting Area, upright or inverted; 5 points.
G	Deliver all 6 tulips upright to the Tulip Planting Area and all 6 morning glories upright to the Morning Glory Planting Area: 50 bonus points; total 350 points.



The figure above earns 350 points.



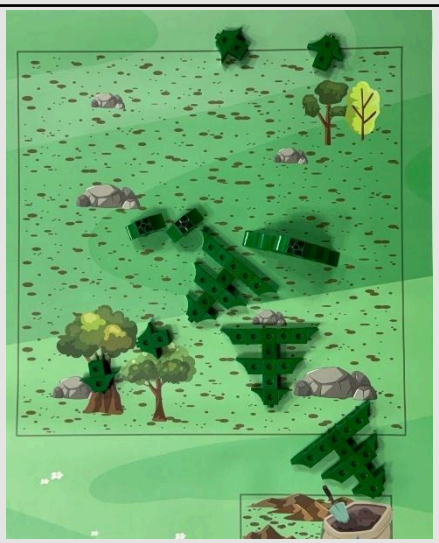
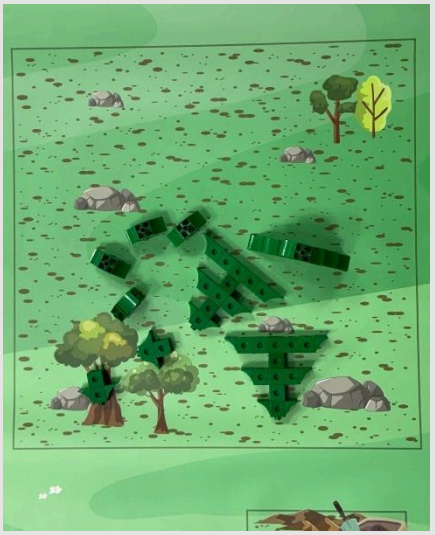
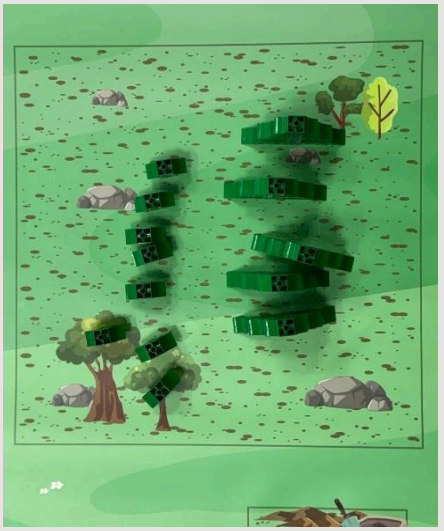
The figure above earns 120 points.



The figure above earns 125 points.

Mission 4: Use Robots A and B to transport the large trees and small trees from the Temporary Holding Areas to the Tree Planting Area. To score, the Vertical Projection must be within the applicable outline. The maximum score is 420 points.

Mission Type	Mission Requirement
A	**Transport a large tree from the Temporary Holding Area to the Tree Planting Area and leave it upright; 20 points each; if 5 are completed, subtotal 100 points.**
B	**Transport a small tree from the Temporary Holding Area to the Tree Planting Area and leave it upright: 30 points each. Completing all 8 earns a subtotal of 240 points.**
C	**Transport a large or small tree from the Temporary Holding Area to the Tree Planting Area and leave it inverted; 10 points.**
D	**Deliver all 5 large trees and all 8 small trees upright to the Tree Planting Area: 80 bonus points; total 420 points.**

		
The figure above earns 120 points.	**The figure above earns 160 points.**	**The figure above earns 420 points.**

Mission 5: Use Robots A and B to transport mushrooms from the Temporary Holding Area to the Mushroom Planting Area. To score, the Vertical Projection must be within the applicable outline. The maximum score is 440 points.

Mission Type	Mission Requirement
A	**Transport a mushroom from the Temporary Holding Area to the Mushroom Planting Area and leave it upright: 40 points each. Completing all 8 earns 320 points plus a 120-point bonus, for a total of 440 points.**
B	**Transport a mushroom from the Temporary Holding Area to the Mushroom Planting Area and leave it inverted; 10 points.**

		
The figure above earns 100 points.	**The figure above earns 140 points.**	**The figure above earns 440 points.**

Mission 6: Use Robots A and B to transport the bees from the Temporary Holding Area to the Hive Area. To score, the Vertical Projection must be within the hive. The maximum score is 320 points.

Mission Type	Mission Requirement
A	**Transport bees from the Temporary Holding Area to the Hive Area: 50 points each. Completing all 4 earns 200 points plus a 120-point bonus, for a total of 320 points. Before Competition Time ends, the hive must overlap at least one point of the green outline for any points to count. If the hive does not overlap the green outline before time expires, no points are awarded and one instance of Field damage is recorded.**

		
The figure above earns 150 points.	**The figure above earns 100 points.**	**The figure above earns 320 points.**

Mission 7: Use Robots A and B to transport the chickens from the release areas to the Chicken Raising Area. To score, the Vertical Projection must be within the Chicken Raising Area. The maximum score is 380 points.

Mission Type	Mission Requirement
A	**Transport the yellow-beak/red-head chicken from Temporary Holding Area A to the Chicken Raising Area: 60 points.**
B	**Transport the black-beak/red-head chicken from Temporary Holding Area C to the Chicken Raising Area: 50 points.**
C	**Transport a black-beak/white-head chicken from Temporary Holding Areas B, D, or E to the Chicken Raising Area: 40 points each.**
D	**Deliver 1 yellow-beak/red-head chicken, 1 black-beak/red-head chicken, and 3 black-beak/white-head chickens to the Chicken Raising Area: 150 bonus points; total 380 points. Before Competition Time ends, the Chicken Raising Area structure must overlap at least one point of the green outline for any points to count. If it does not overlap the green outline before time expires, no points are awarded and one instance of Field damage is recorded.**

		
The figure above earns 150 points.	**The figure above earns 100 points.**	**The figure above earns 380 points.**

8.4. Ranking Method

8.4.1. Score Calculation: At the end of the 2-minute Mission Time, the Team with the higher Score ranks higher. If the full score is achieved, the Team with the shorter Completion Time ranks higher.

8.4.2. Score Calculation (Total Weight): The combined weight of the Team's Robots is used; the lower total weight ranks higher.

8.4.3. Ranking Order: Teams are ranked first by Total Score. If scores are tied, the tie-break order below applies. If all listed criteria are still tied, ranking is determined by the Team's total Robot weight.

Tie-break Order	Tie-break Criterion
0	Total Score
1	Competition Completion Time
2	Number of Missions Scored
3	Number of Missions with Full Score
4	Mission 2 Score
5	Mission 5 Score
6	Mission 4 Score
7	Mission 7 Score
8	Mission 3 Score
9	Mission 6 Score
10	Mission 1 Score
11	Total Weight
Note: If the full score is achieved, Completion Time is compared first, followed by the tie-break table.	

8.4.4. Competition Time: Total Competition Time may not exceed 2 minutes. When time expires, all Missions stop immediately and no further action may continue.

8.4.5. Field Damage: If a Robot damages the Competition Field while performing a Mission, 5 points will be deducted from the Total Score for each occurrence at each damaged location.

8.4.6. Competition Order: After the Competition begins, Teams will enter the Competition Field according to the assigned Field and order announced by the Organizer.

8.4.7. Robot Return: After completing the Mission Challenge, Teams must return their competition Robots to the Placement Area. Robots may be collected only after the Competition has concluded.

8.5. On-site Competition Regulations

8.5.1. Item Inspection: After Check-in, Participants must enter the Competition Venue directly. Competition Staff will inspect toolboxes, personal bags, tools in use (including decorative items and props), dangerous items, and other materials. If cheating is alleged through an Appeal and verified, the Team will be disqualified.

8.5.2. Assembly Time: Assembly, including practice, is limited to 2 hours.

8.5.3. Mission Challenge: Teams must build their Robots on site on the Competition day and perform the Mission Challenge according to the Competition Schedule after construction is complete. Participants may not bring preassembled components into the venue. A violation will result in disqualification.

8.5.4. Field Practice: Practice Fields will be available during Assembly Time for Teams to practice and make adjustments. Because the number of Practice Fields is limited, Teams must follow Staff instructions and practice in queue order.

8.5.5. Access Restrictions: If a Team's Coach or parent enters the Competition Venue without permission during Competition Time or passes items to Participants, 5 points will be deducted from the Team's Total Score once the violation is verified.

8.5.6. Interference: During the Competition, Teams may not interfere with another Team's construction or judging in any manner, including running or making excessive noise. Failure to correct the behavior after warning will result in a 5-point deduction from the Total Score.

8.5.7. Communication and Electronic Devices: During Competition Time, Participants may not speak with, call, or send messages to persons outside the Competition Area, such as Coaches or parents. A verified violation will result in disqualification. In an emergency, Participants may seek assistance from the Competition Service Desk. Note: Mobile phones, tablets, and laptops may be brought in for use as controllers. To avoid Appeals, Participants should remove the SIM card or enable airplane mode.

8.5.8. Property: Intentional damage, theft, forcible taking, or fraudulent taking of another Team's property, once verified following an Appeal, will result in a 5-point deduction from the Team's Total Score.

8.5.9. Reference Materials: Teams may bring printed materials, images, and audio/video files for reference.

8.5.10. Video Record: To support post-Competition review and Appeals, all Divisions must cooperate with the Organizer in recording their competition performance for record-keeping.

8.5.11. Motor Inspection: Award-winning Teams must undergo motor inspection. If a motor does not comply with the Organizer-designated specifications, see Section 8.10.1, "Competition Motor Model List," the Team's award eligibility will be revoked and the next eligible Team will move up in ranking.

8.6. Robot for Mission (R4M) - Advanced Division Entry Specifications

8.6.1. Entry Dimensions: Robots A and B are each limited to 30 cm in length × 30 cm in width, with no height limit. A Robot may extend beyond these dimensions after deployment, provided the extension is operated by remote control or electronic control and is not produced by another external force. Robots A and B may have one backup Robot for replacement and may also prepare different interchangeable grippers without a quantity limit. Robot C is limited to 26 cm in length × 36 cm in width, with no height limit. Image Recognition Area E is limited to 30 cm in length × 20 cm in width. Automated Platform D must be built on no more than three 30 cm × 60 cm Jumbo Base Grids. There is no limit on the airspace above the platform, extension area, or height; however, before the Competition, the platform extension setup may not extend beyond the green area shown in Figure 3 of Mission 2. Automated Platform D must be fixed on the three 30 cm × 60 cm Jumbo Base Grids and may be secured to the Automated Platform D Setup Area using only eight 3 cm red rods; no other connectors may be used.

8.6.2. Number of Robots: Each Team must prepare three Robots (Robots A, B, and C) and Image Recognition Area E. A Team with fewer than two Robots and without Image Recognition Area E will be considered to have withdrawn. Automated Platform D is optional. A Robot may be removed from the Competition Field for repair only with the Judge's approval. Repair and replacement time are included in Competition Time, and the Robot must restart from the designated area. If a Participant manually handles a Robot or removes it from the Field without the Judge's approval, the first violation results in a verbal warning; the second and each subsequent violation will be treated as Field damage and result in a 5-point deduction from the Total Score. Violations are cumulative.

8.6.3. Entry Materials: Teams must bring unassembled Gigo building components. Metal materials may not be used as Robot structural components. If other materials or non-compliant materials are used and the violation is verified following an Appeal, points may be deducted or the Team may be disqualified from the Competition and Awards depending on the severity. Teams are responsible for safeguarding their own components.

8.6.4. 3D-Printed and Other Fabricated Parts: To ensure fairness, Robots must be assembled using Gigo building components. 3D-printed parts, laser-cut parts, CNC parts, PP sheets, and similar fabricated materials may not be used.

8.6.5. Control Equipment and Power: Participants may freely choose the control method used for their Robots, such as a 1409-D control box, smartphone, tablet, laptop, game controller, or other relevant equipment. All equipment must be prepared by the Team, no electrical power will be provided at the venue, and there is no restriction on software. In addition to the Bluetooth remote control provided by the Organizer, Participants may choose to use infrared remote control. Note: Infrared remote controls may operate on the same frequency and can interfere with one another. If malicious interference by another Team is verified following an Appeal, the interfering Team will be disqualified.

8.6.6. Power Requirements: The Competition Venue will not provide electrical power. All Participants must prepare their own batteries. The rated total voltage of any single main board or control box must be 9 V or less. Note that this voltage limit applies to the individual main board or control box, not to the total voltage of the entire Robot circuit. Battery voltage must be clearly marked. Examples: up to six 1.5 V zinc-carbon batteries, two 3.7 V 18650 batteries, or one 9 V rectangular battery. Robot C must use one of the following control boxes: C-Gigo micro:bit CONTROL BOX (1269-W85-A1), C-Gigo AI CONTROL BOX

(1206-W85-A), or C-SMART CONTROLLER (1409-W85-A). The voltage must comply with the control box safety requirements. AA-size lithium-iron batteries, spacer batteries, and similar non-compliant power sources are prohibited. Batteries must show their voltage rating and be insulated with no exposed conductive parts. Batteries must not create hazards such as rupture or leakage of liquid or gas. If battery use causes injury to Team members or other Participants, the Team will be disqualified and all resulting consequences are the responsibility of the person responsible and the Coach. Automated Platform D may operate by remote control, programmed control, or AI-based automatic recognition, but each individual main board must meet the same voltage requirement. The same requirement applies to each main board or control box used in Image Recognition Area E.
※ Lead-acid batteries and other large hazardous batteries are prohibited.

8.6.7. Motor Limits: Robots A and B may each use no more than 6 motors; Robot C may use no more than 5 motors; and Automated Platform D may use no more than 12 motors in total. All Competition Robots may be assembled and connected only with building components. Cable ties, rubber bands, foam tape, double-sided tape, instant adhesive, and similar bonding materials are strictly prohibited for connecting or securing robot structures. Cable ties and rubber bands may be used only for cable management. After the Competition, Award-winning Teams will be required to disassemble their entries on site for inspection. If a violation of these Competition Guidelines is found, the Team's award eligibility will be revoked and the next eligible Team will move up in ranking.

8.6.8. To ensure fairness, only the following motor models may be used: 7328-W85-A1-1, 7392-W85-B3, 7392-W85-B1, 7400-W85-A1, 7400-W85-A, 1247-W85-D1-1, 1247-W85-D2, 7447-W85-C, 7412-W85-A, 1247-W85-D3, and 7447-W85-C1. For details, see Section 8.10.1, "Competition Motor Model List." If Participants use one of the listed motors with a different type of Bluetooth control box, whether by modifying the motor-to-Bluetooth-box connection or by connecting the motor to another control device, they are responsible for ensuring reliable Robot connection and control. Any problem that occurs at the Competition must be corrected by the Participants so that the Robot can complete the Mission successfully. ※ The R4M Advanced Division material requirements in these Competition Guidelines shall prevail. For easier reference and determination, also see the appendix "R4M Advanced Division Material Determination Table."

8.6.9. Materials Safety: Dangerous materials are strictly prohibited, including fire, corrosive chemicals, hazardous electrical components, biological materials, or any item that may cause discomfort or harm. If such materials are brought into the venue without authorization and the violation is verified, the Team will be disqualified immediately.

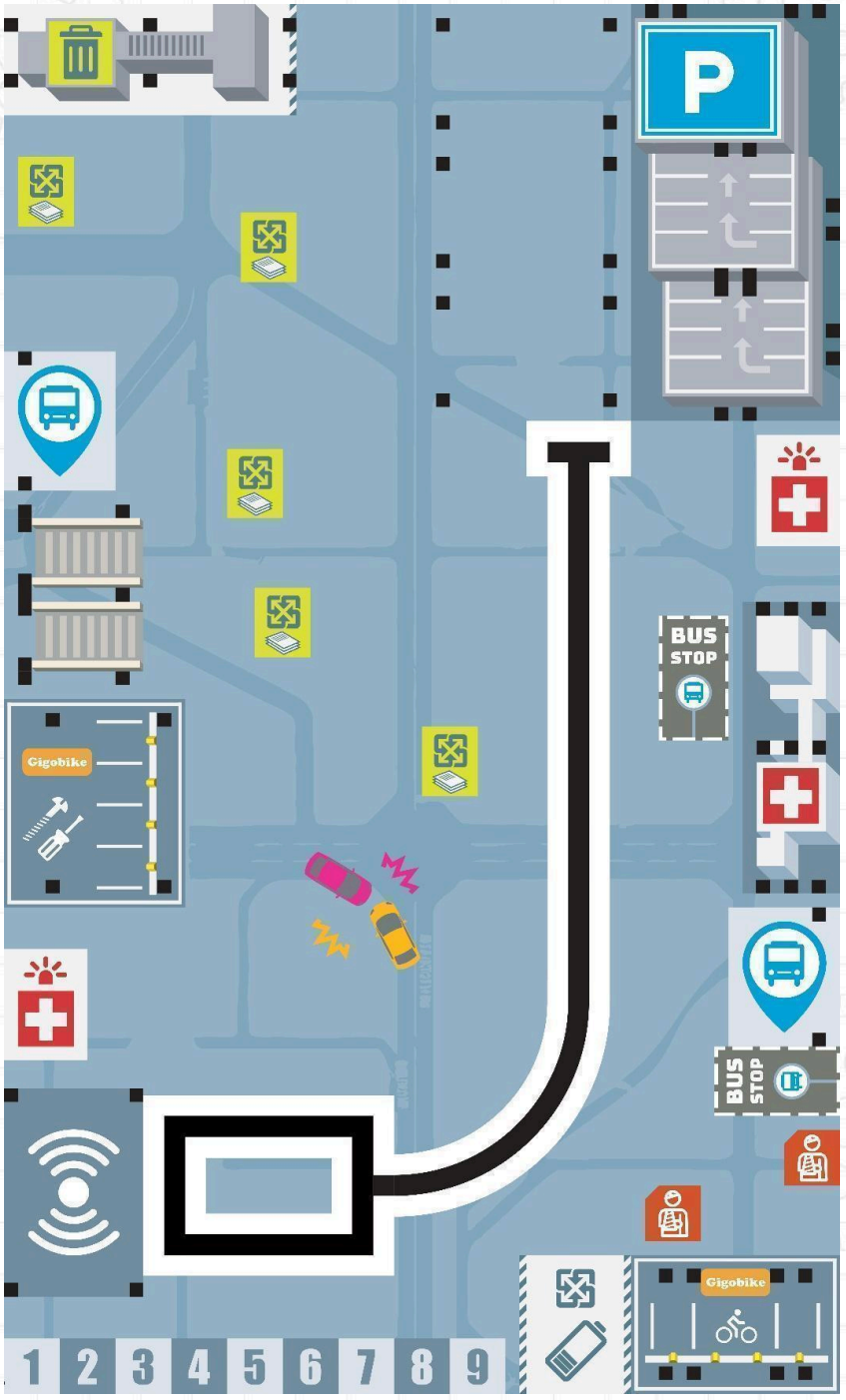
8.6.10. R4M Advanced Division | Control, Power Supply, and Motor Specifications

Item	Control Method	Controller Requirements
Robots A & B	Remote control permitted	For remote-controlled operation, there are no restrictions on the brand or model of the controller or remote controller. However, all equipment must comply with the competition's voltage, material, and safety requirements.
Robot C	**Autonomous program control only; remote control is not permitted.**	Must use one of the designated Gigo controllers: **1206-W85-A, 1269-W85-A1, or 1409-W85-A**.
Automated Platform D – Vehicle Entry to the Parking Tower	**Fully autonomous operation with AI recognition; remote control is not permitted.**	The software, AI system, controller, and camera must comply with the official competition specifications.
Automated Platform D – Other Mission Sections	Program control, AI control, or remote control permitted	If remote control is used, there are no restrictions on the brand or model of the controller or remote controller.
Image Recognition Area E	AI image recognition	The main board, controller, and AI equipment must comply with the specifications stated in the Competition Guide.

8.7. Advanced Division Theme: AI Gigo City

8.8. Competition Scenario:

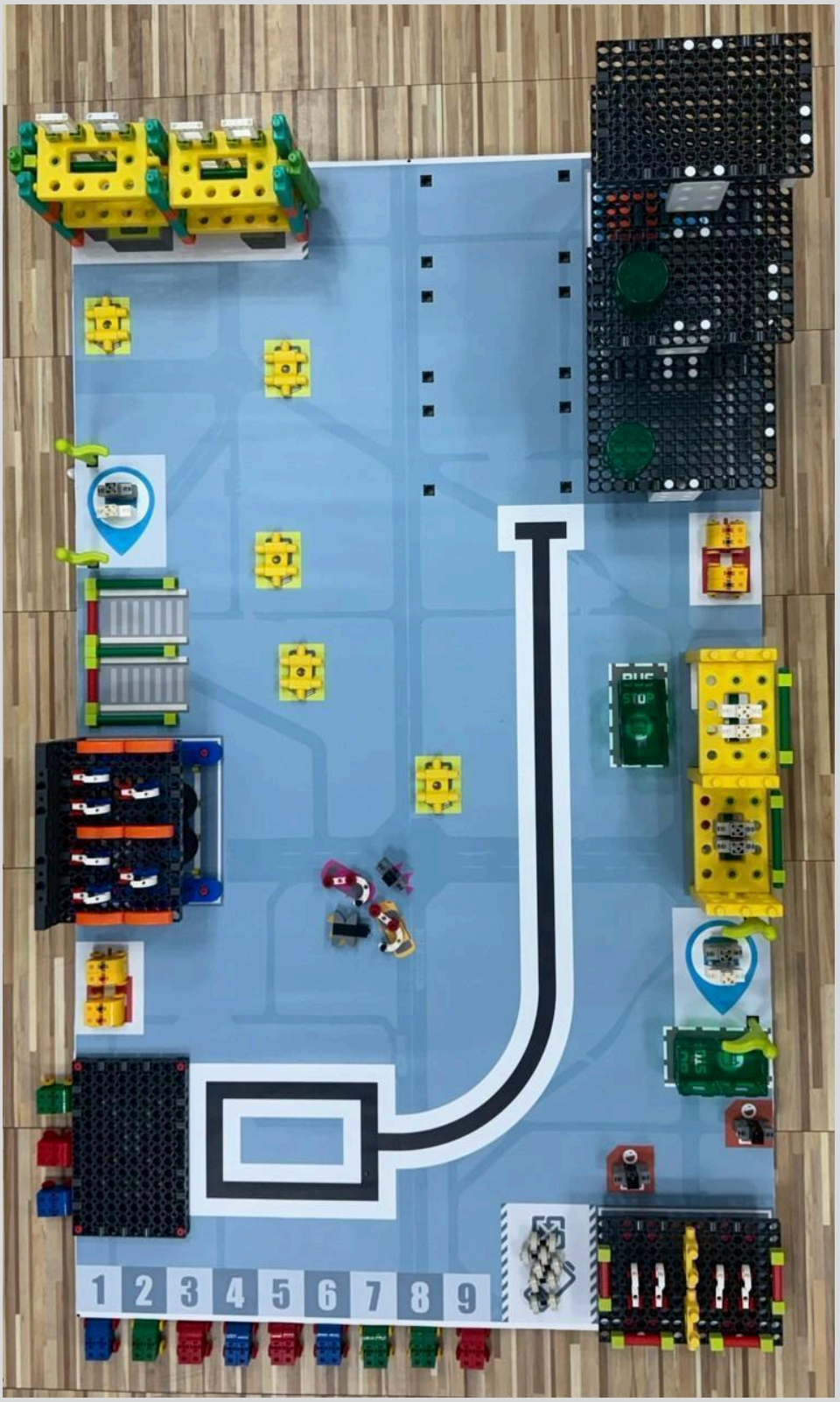
8.8.1. Field Specifications: The main Competition Field measures 120 × 200 cm (width × length) and is covered with matte oil-based PP photo paper. Only one Team may compete on each Field at a time. Robots A, B, and C, Automated Platform D, and Image Recognition Area E must be placed in the designated start areas and positions in AI Gigo City.



Competition Field Diagram

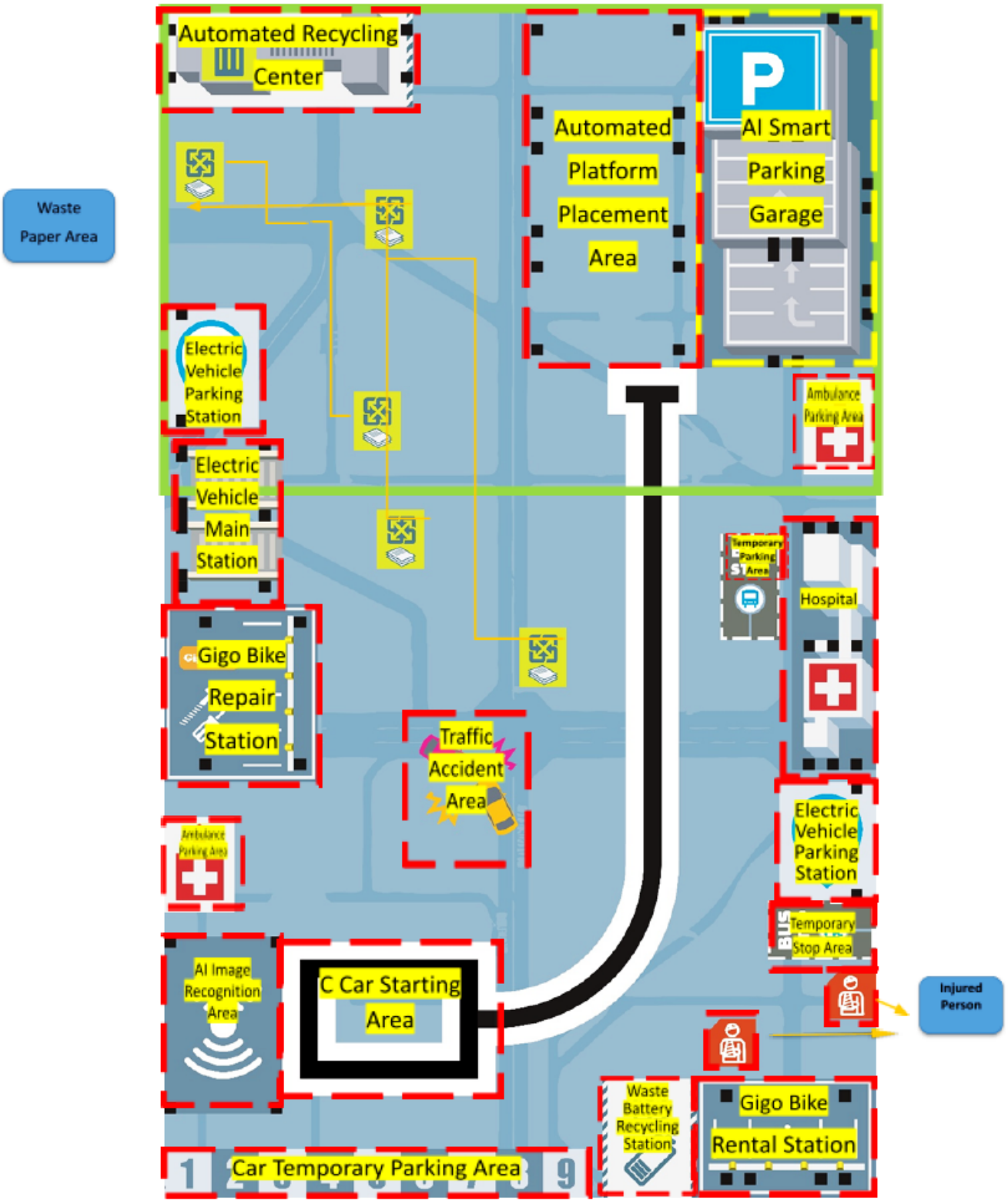
8.8.2. Mission Flow

Positioning Points and Diagrams for City Mission Objects Before the Mission Begins



AI Gigo City Area Definitions

Before the Mission begins, Robot C (autonomous programmed operation only, not remote control), Automated Platform D (the parking-tower portion must operate automatically or use the micro:bit CreateAI motion-sensing mode with the 1409-D control box; remote control is not permitted for this portion, while other areas are unrestricted), and Image Recognition Area E must be placed in the designated start areas and positions in AI Gigo City. Robots A and B may start from any location on the Field. Participants may begin after the Judge announces the start of the Mission.



Mission Start

Scoring uses a Mission-based point system. Points are awarded only after a Mission has been completed, and the sum of points earned from all Missions is the Team's Total Score.

Mission 1: Robot A earns an additional 10 points after completing at least one Mission. This bonus is awarded once only and is not repeated.

Robot B earns an additional 10 points after completing at least one Mission. This bonus is awarded once only and is not repeated.

Robot C earns an additional 10 points after leaving its Start Area. This bonus is awarded once only and is not repeated.

Automated Platform D (Other Mission Sections) earns an additional 20 points when operated by remote control and completing at least one scoring action. This bonus is awarded once only and is not repeated.

Automated Platform D (Parking-Tower Entry Section) earns an additional 40 points when a car is successfully moved into the parking tower using fully automated programmed control, AI-based automatic recognition, or the micro:bit CreateAI motion-sensing mode of 1409-D. This bonus is awarded once only and is not repeated.

Mission 2: Use Robot C to transport Cars 1-9 in sequence to the Automated Platform D Area. Automated Platform D (Parking-Tower Entry Section) then transports cars from its own platform or from Robot C into the AI Smart Parking Garage. Points are awarded according to the table below. The maximum score is 1,500 points.

Robot C: Must be equipped with a C-LINE FOLLOWER SENSOR (1247-W85-B3) or C-INFRARED SENSOR (1409-W85-D). See Section 8.10.1 for specifications. Robot C must operate autonomously by program rather than by remote control. Participants may write, modify, or upload the program on site during the Competition.

Automated Platform D (Parking-Tower Entry Section): Must operate using fully automated programmed control or AI-based automatic recognition. The micro:bit CreateAI motion-sensing mode of the 1409-D control box may also be used to assist with the Mission. Remote-control operation does not earn points.

Automated Platform D (Other Mission Sections): May operate using fully automated programmed control, AI-based automatic recognition, or remote control.

Image Recognition Area E: An image-recognition system must be set up in this area. After recognition, it must send a signal to Robot C and Automated Platform D (Parking-Tower Entry Section) to execute the Mission.

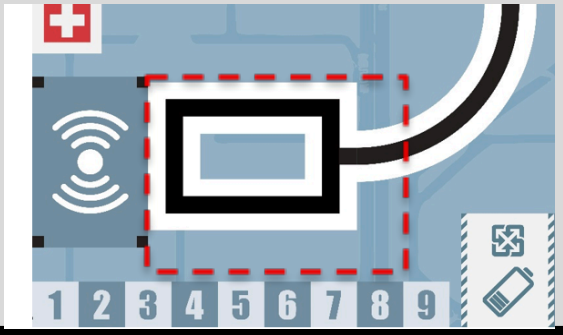
Teams must use the C-SMART CONTROLLER (1409-W85-A); see Section 8.10.1 for specifications. The image-recognition system must also use one of the following designated AI camera kits: #1409-B SMART AI LENS KIT or #1409-C Pixetto AI KIT.





Robot C

The starting position of Robot C must be within the 26 × 36 cm red dashed Vertical Projection area shown below. Robot C may begin the Mission only after Image Recognition Area E completes recognition and sends the start signal to Robot C.



Automated Platform D

As shown in Figures 1 and 2, three 20 × 30 Jumbo Base Grids will be placed in the Automated Platform Area before the Competition. The Team's Automated Platform may be installed on the three Jumbo Base Grids provided by the Organizer using no more than eight 3 cm red rods. Before the Competition, the platform extension setup may not extend beyond the green area shown in Figure 3. After the Competition begins, Automated Platform D (Other Mission Sections) may extend beyond the green area using programmed control, AI-based automatic recognition, remote control, or another permitted method. Any extended mechanism must remain physically connected to the platform, and wires or similar materials may not be used merely as a connection medium, such as tying a line from the platform to a freely moving mechanism. Automated Platform D (Parking-Tower Entry Section) must operate using fully automated programmed control or AI-based automatic recognition.

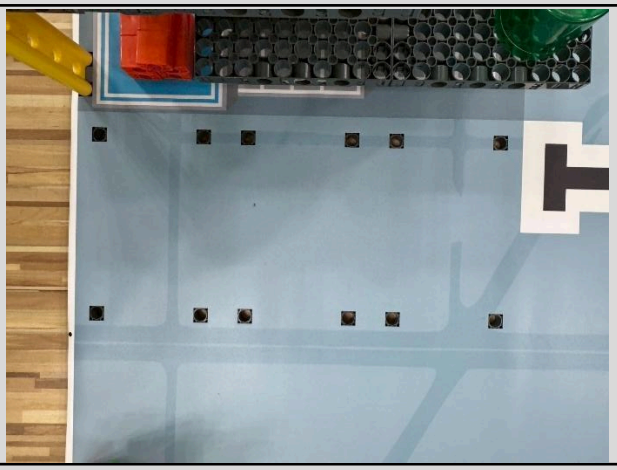


Figure 1

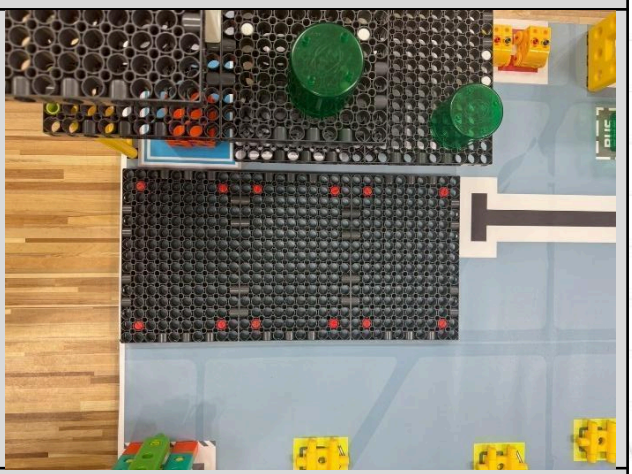


Figure 2

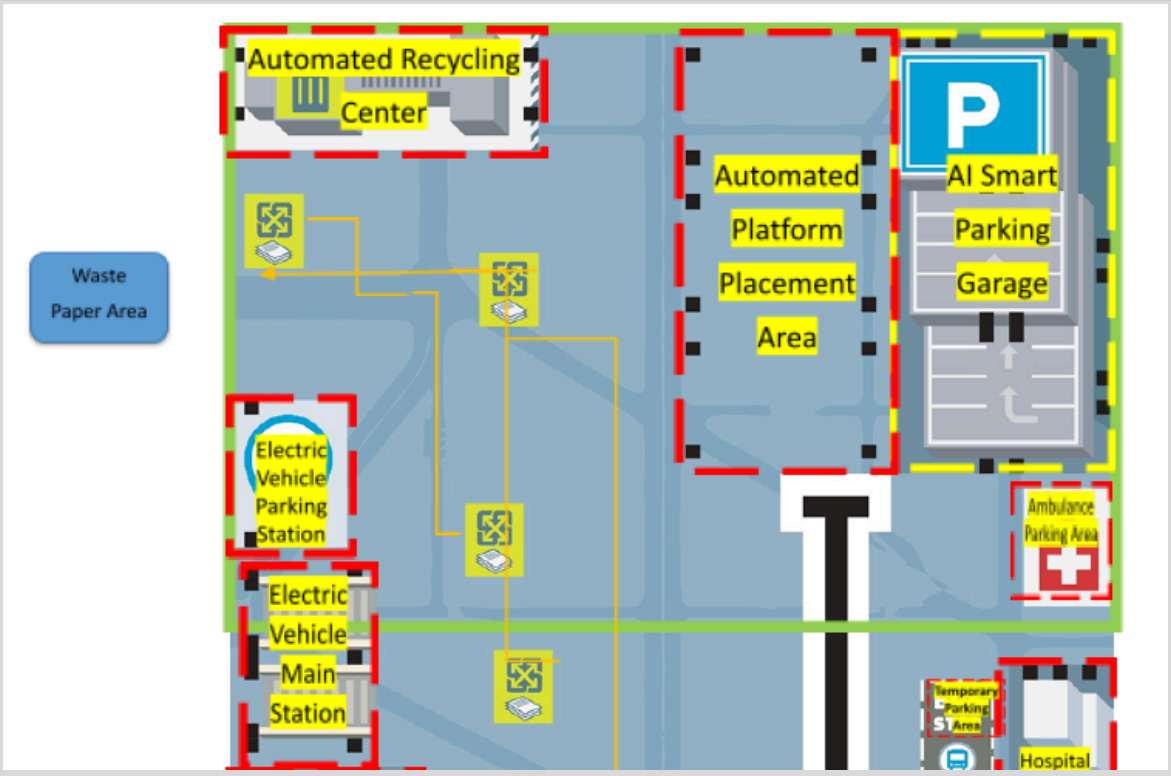
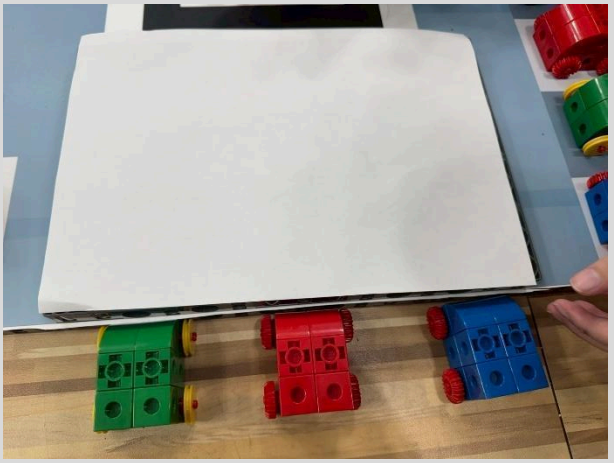


Figure 3

Image Recognition Area E

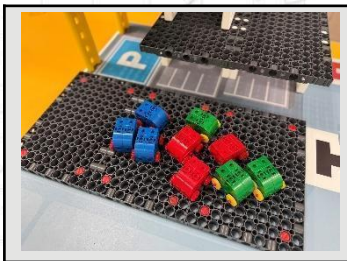
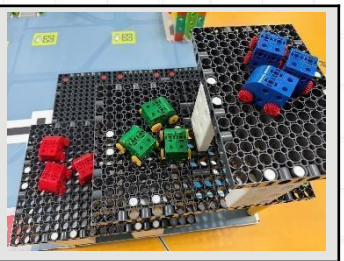
The image-recognition area is shown at lower left. Its size is limited to one Jumbo Base Grid. Three cars in red, green, and blue will be provided outside the Field below the recognition area for Participants to bring into the area for recognition during the Mission. Participants may alternatively prepare their own red, green, and blue color cards for recognition. A white sheet of paper no larger than A4 may be placed in the recognition area as a background to improve recognition, as shown at lower right.





Mission Requirement	Quantity	Points
Item 1	1 car is transported to the Automated Platform by Robot C	30 points
Item 2	2 cars are transported to the Automated Platform by Robot C	60 points
Item 3	3 cars are transported to the Automated Platform by Robot C	90 points
Item 4	4 cars are transported to the Automated Platform by Robot C	120 points
Item 5	5 cars are transported to the Automated Platform by Robot C	150 points
Item 6	6 cars are transported to the Automated Platform by Robot C	180 points
Item 7	7 cars are transported to the Automated Platform by Robot C	210 points
Item 8	8 cars are transported to the Automated Platform by Robot C	240 points
Item 9	9 cars are transported to the Automated Platform by Robot C	270 points
Item 10	1 car is transported by Automated Platform D (Parking-Tower Entry Section) to a non-matching area of the AI Smart Parking Garage	30 points
Item 11	2 cars are transported by Automated Platform D (Parking-Tower Entry Section) to a non-matching area of the AI Smart Parking Garage	60 points
Item 12	3 cars are transported by Automated Platform D (Parking-Tower Entry Section) to a non-matching area of the AI Smart Parking Garage	90 points
Item 13	4 cars are transported by Automated Platform D (Parking-Tower Entry Section) to a non-matching area of the AI Smart Parking Garage	120 points
Item 14	5 cars are transported by Automated Platform D (Parking-Tower Entry Section) to a non-matching area of the AI Smart Parking Garage	150 points
Item 15	6 cars are transported by Automated Platform D (Parking-Tower Entry Section) to a non-matching area of the AI Smart Parking Garage	180 points
Item 16	7 cars are transported by Automated Platform D (Parking-Tower Entry Section) to a non-matching area of the AI Smart Parking Garage	210 points
Item 17	8 cars are transported by Automated Platform D (Parking-Tower Entry Section) to a non-matching area of the AI Smart Parking Garage	240 points
Item 18	9 cars are transported by Automated Platform D (Parking-Tower Entry Section) to a non-matching area of the AI Smart Parking Garage	270 points
Item 19	1 red car transported by Automated Platform D (Parking-Tower Entry Section) to the second floor of the AI Smart Parking Garage	100 points
Item 20	2 red cars transported by Automated Platform D (Parking-Tower Entry Section) to the second floor of the AI Smart Parking Garage	200 points
Item 21	3 red cars transported by Automated Platform D (Parking-Tower Entry Section) to the second floor of the AI Smart Parking Garage	300 + 50 points
Item 22	1 green car transported by Automated Platform D (Parking-Tower Entry Section) to the third floor of the AI Smart Parking Garage	150 points
Item 23	2 green cars transported by Automated Platform D (Parking-Tower Entry Section) to the third floor of the AI Smart Parking Garage	300 points
Item 24	3 green cars transported by Automated Platform D (Parking-Tower Entry Section) to the third floor of the AI Smart Parking Garage	450 + 50 points

Item 25	1 blue car transported by Automated Platform D (Parking-Tower Entry Section) to the fourth floor of the AI Smart Parking Garage	200 points
Item 26	2 blue cars transported by Automated Platform D (Parking-Tower Entry Section) to the fourth floor of the AI Smart Parking Garage	400 points
Item 27	3 blue cars transported by Automated Platform D (Parking-Tower Entry Section) to the fourth floor of the AI Smart Parking Garage	600 + 50 points
The second floor is the red-car parking area; the third floor is the green-car parking area; the fourth floor is the blue-car parking area.		

		
The figure above shows Item 9. **Earns 270 points.**	**The figure above shows Items 20 + 22 + 25 + 14.** **Earns 700 points.**	**The figure above shows Items 21 + 24 + 27.** **Earns 1500 points.**

Note 1: After Robot C starts, Participants may correct programming errors so that Robot C can complete the Mission. Program writing, modification, loading, and execution time are all included in Competition Time.

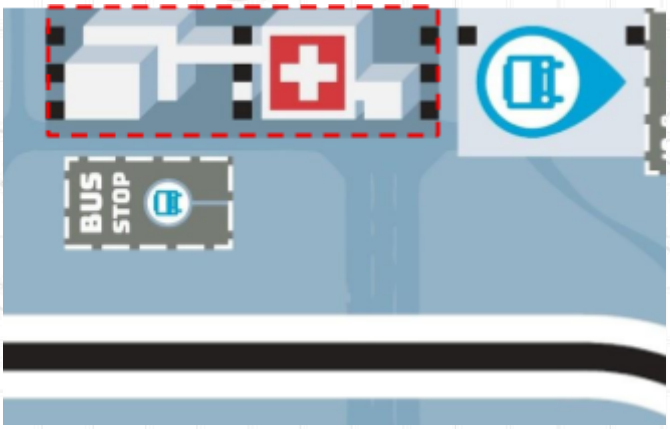
Note 2: Robot C may use WebAI × Gigo or micro:bit software. The permitted programming control boxes are the C-Gigo AI CONTROL BOX (1206-W85-A), C-Gigo micro:bit CONTROL BOX (1269-W85-A1), or C-SMART CONTROLLER (1409-W85-A). See Section 8.10.1 for control box specifications.

Note 3: Participants must provide any Internet connection required by the programming equipment used for their Robots during the Competition.

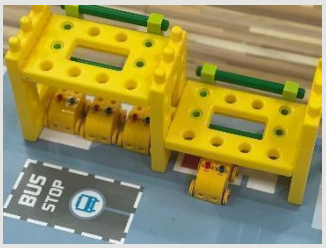
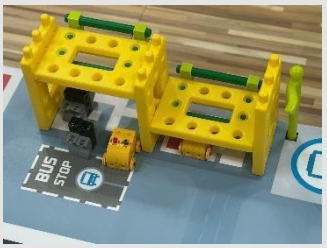
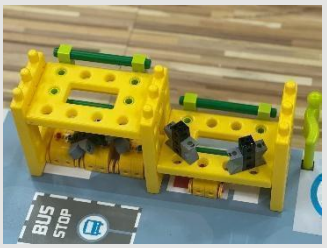
Note 4: The order of Cars 1-9 will be determined by drawing lots in the first Preparation Area before each Team enters the Competition Field.

Note 5: Any conveyor belt, arm, slide, or other structure extending into the airspace from the Automated Platform may not extend beyond the green outline shown in the figure unless the extension is actuated by remote control or automation. Each violation results in a 50-point deduction from the Total Score. Deductions are cumulative.

Mission 3: Use Robot A, Robot B, or Automated Platform D to transport patients and ambulances to the Hospital, within the red dashed Vertical Projection area shown below. Points are awarded according to the table below. The maximum score is 300 points.



Mission Requirement	Quantity	Points
Item 1	1 ambulance	10 points
Item 2	2 ambulances	20 points
Item 3	3 ambulances	30 points
Item 4	4 ambulances	40 points
Item 5	1 ambulance and 1 patient on the first floor	20 points
Item 6	2 ambulances and 2 patients on the first floor	40 points
Item 7	3 ambulances and 3 patients on the first floor	60 points
Item 8	4 ambulances and 4 patients on the first floor	80 points
Item 9	1 ambulance and 1 patient on the second floor	60 points
Item 10	2 ambulances and 2 patients on the second floor	120 points
Item 11	3 ambulances and 3 patients on the second floor	180 points
Item 12	4 ambulances and 4 patients on the second floor	240 + 60 points

			
The figure above shows Item 3. Earns 30 points.	**The figure above shows Item 5. Earns 20 points.**	**The figure above shows Items 6 + 10. Earns 120 points.**	**The figure above shows Item 12. Earns the full score of 300 points.**

Mission and Scoring Rules

Competition Scores are calculated according to the Mission Requirements completed by the Team. A completed Mission configuration may not be counted more than once. When a single resource, such as an ambulance, can satisfy multiple configurations, only one configuration may be selected for scoring.

1. Basic Item Scores

Basic points are awarded for each ambulance successfully delivered to the designated location. See Items 1-4 in the table below.

2. Combination Scoring

When a Mission involves both ambulances and patients, points are calculated according to the delivery combination. Participants may choose different item combinations as part of their strategy to maximize their Score.

If only one resource, such as one ambulance, is available and it simultaneously satisfies multiple Mission objectives, such as delivering patients to different floors, only the single highest-scoring configuration will be counted.

3. Scoring Example

Assume a Team successfully delivers one ambulance, one patient to the first floor, and another patient to the second floor.

Possible Combination 1:

Combine the ambulance with the “one patient on the first floor” requirement. This satisfies Item 5 and earns 20 points.

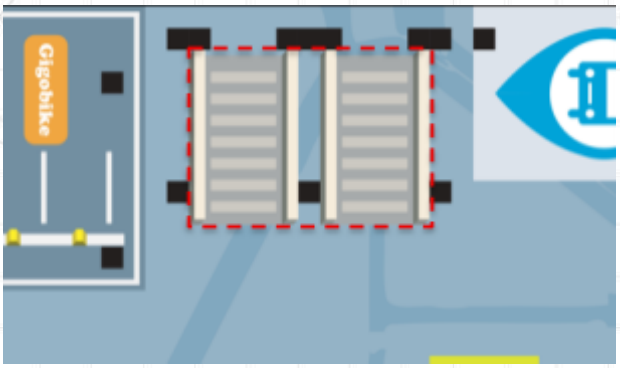
Possible Combination 2:

Combine the ambulance with the “one patient on the second floor” requirement. This satisfies Item 9 and earns 60 points.

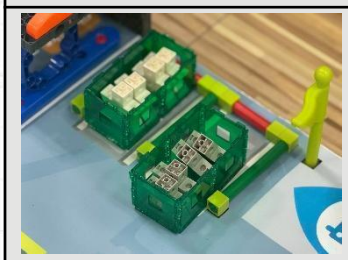
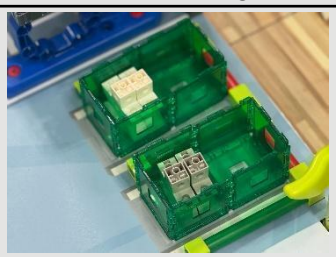
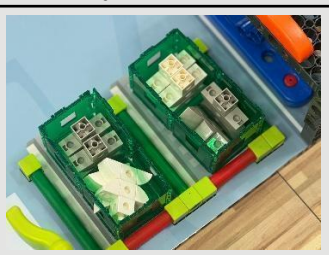
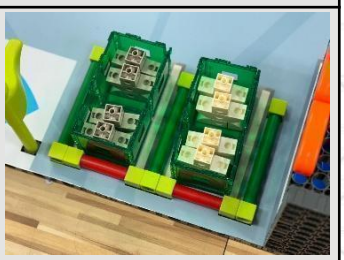
Under the rule that a single resource may be assigned to only one configuration, the Team uses the highest-scoring combination. The final score is therefore 60 points.

Mission 4: Use Robot A, Robot B, or Automated Platform D to transport passengers and electric vehicles to the EV Terminal (electric vehicle main station), within the red dashed Vertical Projection area shown below. Each electric vehicle may carry up to 4 passengers. For every passenger above the limit of 4, 20 points will be deducted. Points are awarded according to the table below. The maximum score is 300 points.

In addition, if the Vertical Projection of an electric vehicle extends outside the gray area, the vehicle does not score. However, any passengers that remain within the gray area are still counted for scoring.

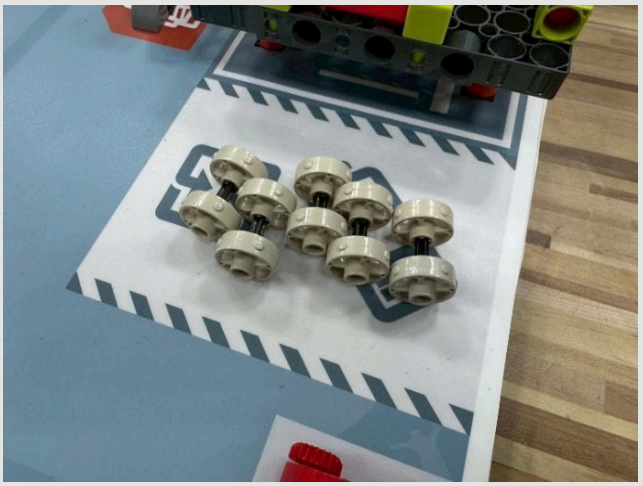


Mission Requirement	Quantity	Points
Item 1	1 electric vehicle	20 points
Item 2	2 electric vehicles	40 points
Item 3	1 electric vehicle and 1 passenger	40 points
Item 4	1 electric vehicle and 2 passengers	60 points
Item 5	1 electric vehicle and 3 passengers	80 points
Item 6	1 electric vehicle and 4 passengers	100 points
Item 7	2 electric vehicles and 1 passenger	60 points
Item 8	2 electric vehicles and 2 passengers	80 points
Item 9	2 electric vehicles and 3 passengers	100 points
Item 10	2 electric vehicles and 4 passengers	120 points
Item 11	2 electric vehicles and 5 passengers	140 points
Item 12	2 electric vehicles and 6 passengers	160 points
Item 13	2 electric vehicles and 7 passengers	180 points
Item 14	2 electric vehicles and 8 passengers	200 points
Item 15	2 electric vehicles and 8 passengers, with passengers separated by color	200 + 60 points

			
The figure above shows Item 6. Earns 100 points.	**The figure above shows Item 10. Earns 120 points.**	**The figure above shows Item 14. Earns 200 points.**	**The figure above shows Item 15. Earns the full score of 300 points.**

Mission 5: Use Robot A, Robot B, or Automated Platform D to transport waste batteries to the Automated Recycling Center, within the Vertical Projection of the building-block frame. Points are awarded according to the table below. The maximum score is 150 points.

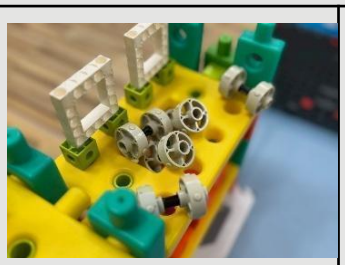
Mission Requirement	Quantity	Points
Item 1	1 waste battery	30 points
Item 2	2 waste batteries	60 points
Item 3	3 waste batteries	90 points
Item 4	4 waste batteries	120 points
Item 5	5 waste batteries	120 + 30 points



The figure above shows the Temporary Holding Area for waste batteries.

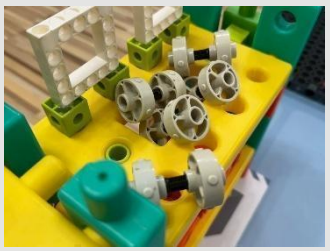


The figure above shows the waste-battery position at the Automated Recycling Center.



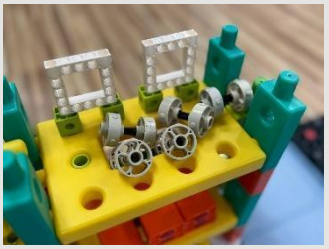
The figure above shows Item 3.

Earns 90 points.



The figure above shows Item 4.

Earns 120 points.



The figure above shows Item 5.

Earns 150 points.

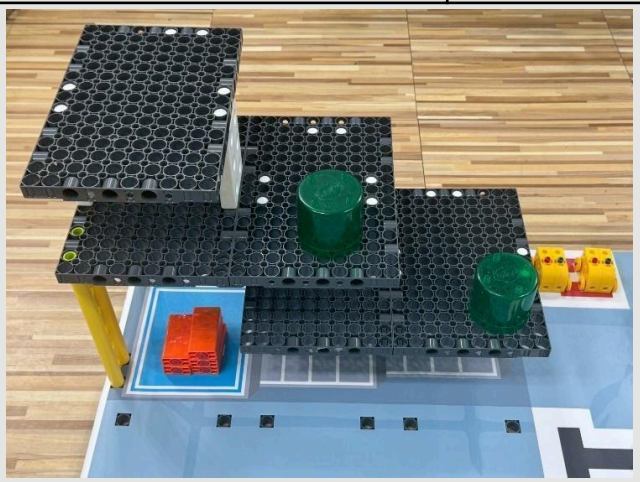


The figure above shows Item 5.

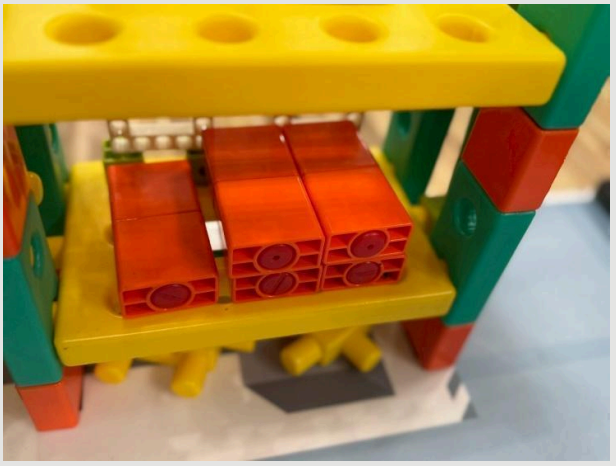
Earns the full score of 150 points.

Mission 6: Use Robot A, Robot B, or Automated Platform D to transport Beverage Cartons to the Automated Recycling Center, within the Vertical Projection of the building-block frame. Points are awarded according to the table below. The maximum score is 230 points.

Mission Requirement	Quantity	Points
Item 1	1 beverage carton	40 points
Item 2	2 beverage cartons	80 points
Item 3	3 beverage cartons	120 points
Item 4	4 beverage cartons	160 points
Item 5	5 beverage cartons	200 + 30 points



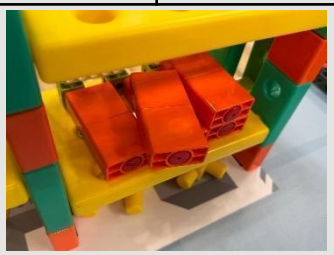
The figure above shows the Temporary Holding Area for beverage cartons.



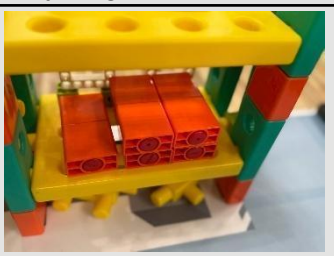
The figure above shows the foil-carton position at the Automated Recycling Center.



The figure above shows Item 1 and earns 40 points.



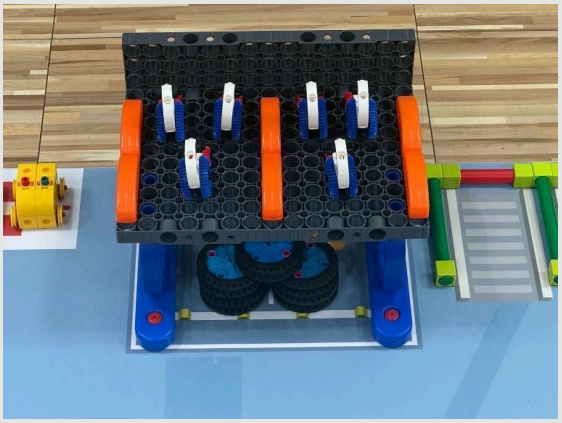
The figure above shows Item 4 and earns 160 points.



The figure above shows Item 5 and earns 230 points.

Mission 7: Use Robot A, Robot B, or Automated Platform D to transport waste tires to the Automated Recycling Center, within the Vertical Projection of the building-block frame. Points are awarded according to the table below. The maximum score is 300 points.

Mission Requirement	Quantity	Points
Item 1	1 waste tire	50 points
Item 2	2 waste tires	100 points
Item 3	3 waste tires	150 points
Item 4	4 waste tires	200 points
Item 5	5 waste tires	250 + 50 points



The figure above shows the Temporary Holding Area for waste tires.



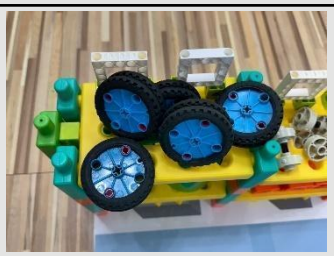
The figure above shows the waste-tire position at the Automated Recycling Center.



The figure above shows Item 1.
Earns 50 points.



The figure above shows Item 2.
Earns 100 points.



The figure above shows Item 3.
Earns 150 points.



The figure above shows Item 5.
Earns 300 points.

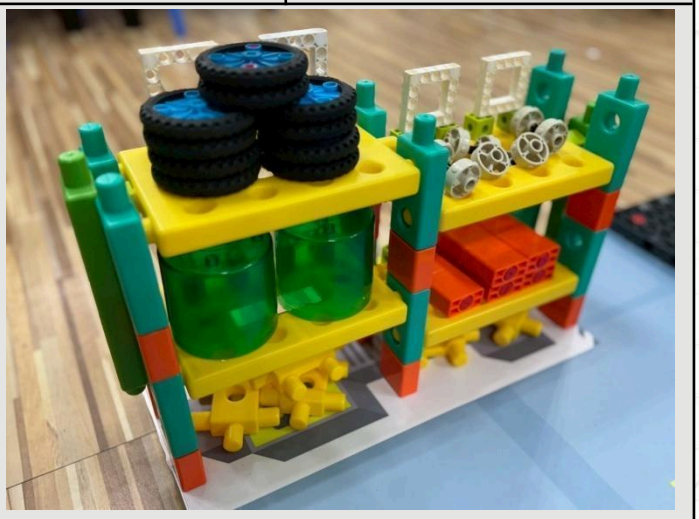
Mission 8: Use Robot A, Robot B, or Automated Platform D to transport PET bottles to the Automated Recycling Center. To score, the bottles must be within the Vertical Projection of the building-block frame; upright, inverted, or sideways placement is permitted. Points are awarded according to the table below. The maximum score is 250 points.

Note: Before the Competition, one PET bottle must be placed within the Vertical Projection of the right-side Jumbo Base Grid on the second floor, and the other within the Vertical Projection of the right-side Jumbo Base Grid on the third floor. The bottles may be upright, inverted, or placed on their sides.

Mission Requirement	Quantity	Points
Item 1	1 PET bottle	100 points
Item 2	2 PET bottles	200 + 50 points



The figure above shows the Temporary Holding Area for PET bottles.



The figure above shows the PET-bottle position at the Automated Recycling Center.



The figure above shows Item 1.
Earns 100 points.



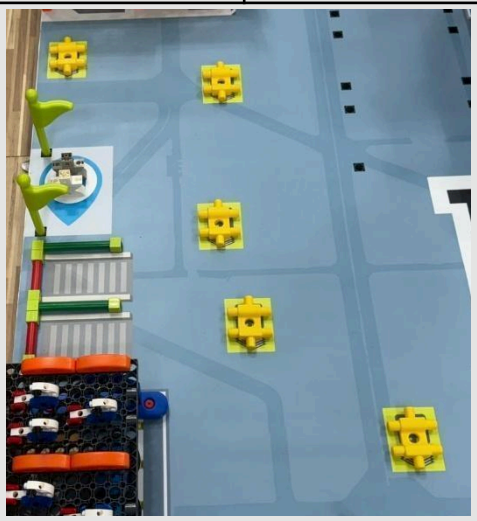
The figure above shows Item 2.
Earns 250 points.



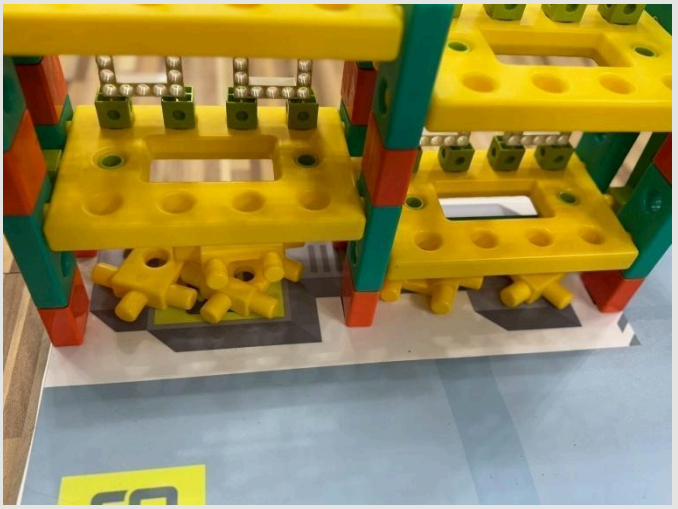
The figure above shows Item 2.
Earns 250 points.

Mission 9: Use Robot A, Robot B, or Automated Platform D to transport recyclable paper to the Automated Recycling Center, within the Vertical Projection of the building-block frame. Points are awarded according to the table below. The maximum score is 70 points.

Mission Requirement	Quantity	Points
Item 1	1 recyclable paper	10 points
Item 2	2 recyclable papers	20 points
Item 3	3 recyclable papers	30 points
Item 4	4 recyclable papers	40 points
Item 5	5 recyclable papers	50 + 20 points



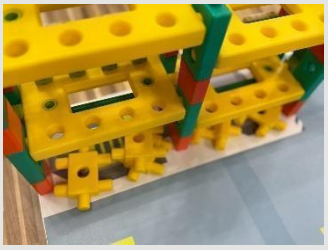
The figure above shows the Temporary Holding Area for recyclable paper.



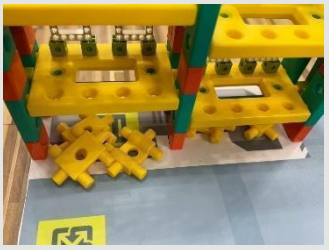
The figure above shows the recyclable-paper position at the Automated Recycling Center.



No scoring item is completed in the figure above. Earns 0 points.



No scoring item is completed in the figure above. Earns 0 points.

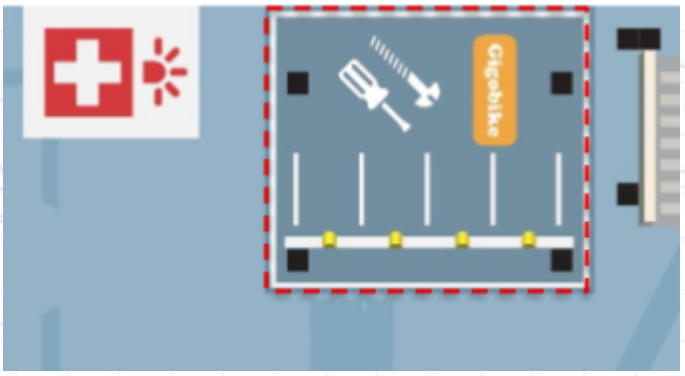


The figure above shows Item 2. Earns 20 points.

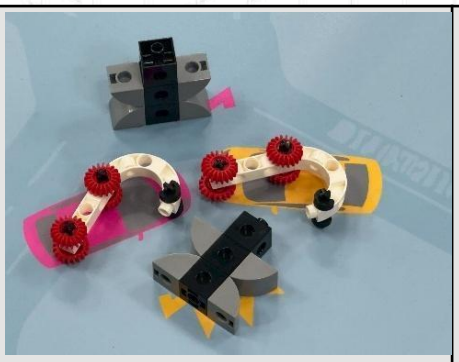
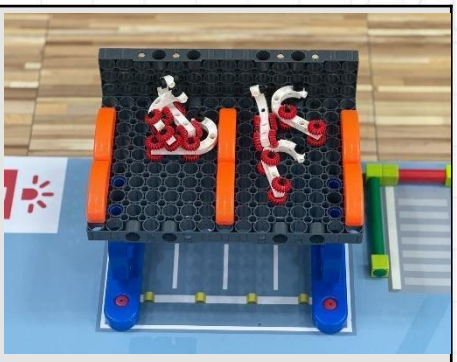
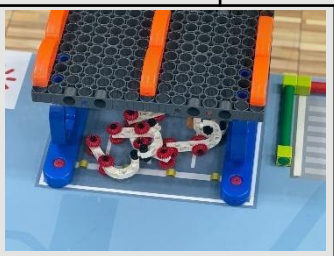


The figure above shows Item 5. Earns 70 points.

Mission 10: Use Robot A, Robot B, or Automated Platform D to transport malfunctioning Gigo bikes to the Gigo Bike Repair Station. For the first floor, the applicable area is the red dashed Vertical Projection area shown below; for the second floor, it is the Vertical Projection of the Jumbo Base Grid. Points are awarded according to the table below. The maximum score is 270 points.

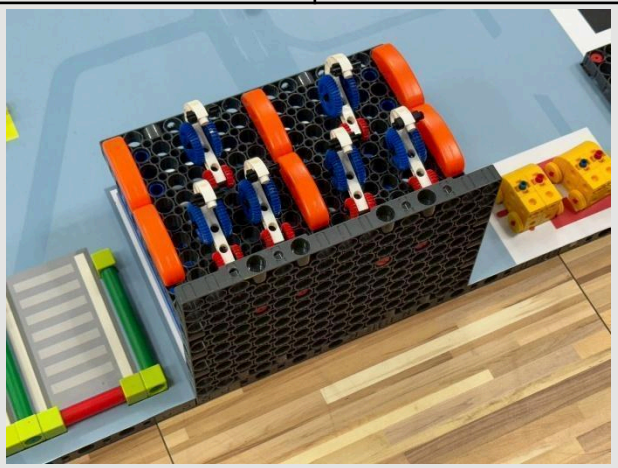


Mission Requirement	Quantity	Points
Item 1	1 malfunctioning Gigo bike on the first floor	20 points
Item 2	2 malfunctioning Gigo bikes on the first floor	40 points
Item 3	3 malfunctioning Gigo bikes on the first floor	60 points
Item 4	4 malfunctioning Gigo bikes on the first floor	80 points
Item 5	5 malfunctioning Gigo bikes on the first floor	100 points
Item 6	6 malfunctioning Gigo bikes on the first floor	120 points
Item 7	1 malfunctioning Gigo bike on the second floor	40 points
Item 8	2 malfunctioning Gigo bikes on the second floor	80 points
Item 9	3 malfunctioning Gigo bikes on the second floor	120 points
Item 10	4 malfunctioning Gigo bikes on the second floor	160 points
Item 11	5 malfunctioning Gigo bikes on the second floor	200 points
Item 12	6 malfunctioning Gigo bikes on the second floor	240 + 30 points

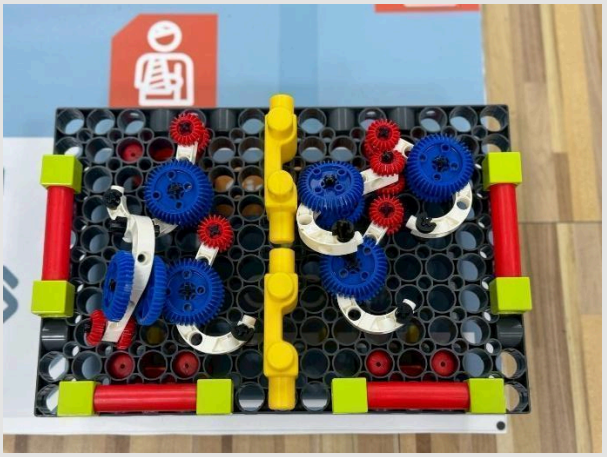
		
The figure above shows the Temporary Holding Area for malfunctioning Gigo bikes.		**The figure above shows a malfunctioning Gigo bike at the Gigo Bike Repair Station.**
		
The figure above shows Item 3. Earns 60 points.	**The figure above shows Item 3. Earns 60 points.**	**The figure above shows Item 6. Earns 120 points.**
		
The figure above shows Item 12. Earns 270 points.		

Mission 11: Use Robot A, Robot B, or Automated Platform D to transport functional Gigo bikes to the Gigo Bike Rental Station, within the Vertical Projection of the Jumbo Base Grid. Points are awarded according to the table below. The maximum score is 210 points.

Mission Requirement	Quantity	Points
Item 1	1 Gigo bike	30 points
Item 2	2 Gigo bikes	60 points
Item 3	3 Gigo bikes	90 points
Item 4	4 Gigo bikes	120 points
Item 5	5 Gigo bikes	150 points
Item 6	6 Gigo bikes	180 + 30 points



The figure above shows the Temporary Holding Area for Gigo bikes.



The figure above shows the Gigo bike position at the Gigo Bike Rental Station.



The figure above shows Item 2. Earns 60 points.



The figure above shows Item 2. Earns 60 points.



The figure above shows Item 4. Earns 120 points.



The figure above shows Item 6. Earns 210 points.

8.8.3. Ranking Method

8.8.3.1. Score Calculation: At the end of the 3-minute Mission Time, the Team with the higher Score ranks higher. If the full score is achieved, the Team with the shorter Completion Time ranks higher.

8.8.3.2. Score Calculation (Total Weight): The combined weight of the Team's Robots is used; the lower total weight ranks higher.

8.8.3.3. Ranking Order: Teams are ranked first by Total Score. If scores are tied, the tie-break order below applies. If all listed criteria are still tied, ranking is determined by the Team's total Robot weight.

Tie-break Order	Tie-break Criterion
0	Total Score
1	Competition Completion Time
2	Mission 2 Score
3	Number of Missions Scored
4	Number of Missions with Full Score
5	Mission 3 Score
6	Mission 4 Score
7	Mission 8 Score
8	Mission 7 Score
9	Mission 10 Score
10	Mission 11 Score
11	Mission 6 Score
12	Mission 5 Score
13	Mission 9 Score
14	Mission 1 Score
15	Total Weight
Note: If the full score is achieved, Completion Time is compared first, followed by the tie-break table.	

8.8.3.4. Competition Time: Total Competition Time may not exceed 3 minutes. When time expires, all Missions stop immediately and no further action may continue.

8.8.3.5. Field Damage: If a Robot damages the Competition Field while performing a Mission, 5 points will be deducted from the Total Score for each occurrence at each damaged location.

8.8.3.6. Competition Order: After the Competition begins, Teams will enter the Competition Field according to the assigned Field and order announced by the Organizer.

8.8.3.7. Robot Return: After completing the Mission Challenge, Teams must return their competition Robots to the Placement Area. Robots may be collected only after the Competition has concluded.

8.9. On-site Competition Regulations

8.9.1. Item Inspection: After Check-in, Participants must enter the Competition Venue directly. Competition Staff will inspect toolboxes, personal bags, tools in use (including decorative items and props), dangerous items, and other materials. If cheating is alleged through an Appeal and verified, the Team will be disqualified.

8.9.2. Assembly Time: Assembly, including practice, is limited to 2 hours.

8.9.3. Mission Challenge: Teams must build their Robots on site on the Competition day and perform the Mission Challenge according to the Competition Schedule after construction is complete. Participants may not bring preassembled components into the venue. A violation will result in disqualification.

8.9.4. Field Practice: Practice Fields will be available during Assembly Time for Teams to practice and make adjustments. Because the number of Practice Fields is limited, Teams must follow Staff instructions and practice in queue order.

8.9.5. Access Restrictions: If a Team's Coach or parent enters the Competition Venue without permission during Competition Time or passes items to Participants, 5 points will be deducted from the Team's Total Score once the violation is verified.

8.9.6. Interference: During the Competition, Teams may not interfere with another Team's construction or judging in any manner, including running or making excessive noise. Failure to correct the behavior after warning will result in a 5-point deduction from the Total Score.

8.9.7. Communication and Electronic Devices: During Competition Time, Participants may not speak with, call, or send messages to persons outside the Competition Area, such as Coaches or parents. A verified violation will result in disqualification. In an emergency, Participants may seek assistance from the Competition Service Desk. Note: Mobile phones, tablets, and laptops may be brought in for use as controllers. To avoid Appeals, Participants should remove the SIM card or enable airplane mode.

8.9.8. Property: Intentional damage, theft, forcible taking, or fraudulent taking of another Team's property, once verified following an Appeal, will result in a 5-point deduction from the Team's Total Score.

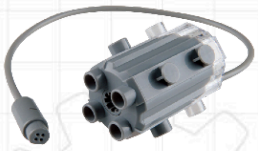
8.9.9. Reference Materials: Teams may bring printed materials, images, and audio/video files for reference.

8.9.10. Video Record: To support post-Competition review and Appeals, all Divisions must cooperate with the Organizer in recording their competition performance for record-keeping.

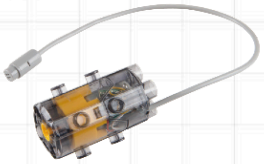
8.9.11. Motor Inspection: Award-winning teams are required to undergo a motor inspection. All motors used by participating teams must be official Gigo products—any Gigo brand motor model is permitted. If an inspection reveals the use of non-Gigo motors, the team will be disqualified from receiving the award, and the next ranked team will step up accordingly. Please refer to Section 8.10.1 Appendix, "Competition Motor List" for details.

8.10. Appendix Materials

8.10.1. List of Competition Motors, Control Boxes, and Related Component Models.



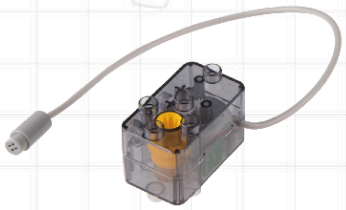
1	7392-W85-B3
NAME	C-32X PLANETARY GEARBOX(DDM)
MATERIAL	PC/ABS



2	7412-W85-A
NAME	C-50X PLANETARY GEARBOX (DDM)
MATERIAL	PC/POM



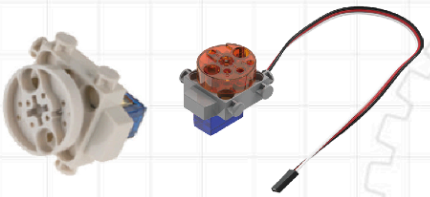
3	1204RR-W85-A1
NAME	C-Gigo MAKER CONTROL BOX
MATERIAL	PC



4	7400-W85-A1
NAME	C-40X MOTOR WITH WIRE CONNECTOR (DDM)
MATERIAL	PC



5	7400-W85-A
NAME	C-40X MOTOR WITH WIRE CONNECTOR
MATERIAL	PC/POM



6	1247-W85-D1-1
NAME	C-180° SERVO MOTOR
MATERIAL	PC/ABS



7	1247-W85-D2-2
NAME	C-CONTINUOUS ROTATION SERVO MOTOR
MATERIAL	PC/ABS



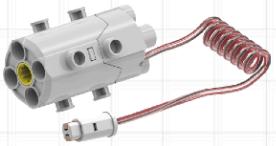
8	1247-W85-D3-1
NAME	C-180° SERVO MOTOR(METAL GEAR)
MATERIAL	PC/ABS



9	1246-W85-C
NAME	C-FORCE SENSOR
MATERIAL	PC/ABS



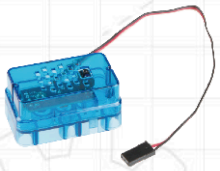
10	1269-W85-A1
NAME	C-Gigo micro:bit CONTROL BOX
MATERIAL	PC/ABS



11	7447-W85-C1
NAME	C-50X PLANETARY GEARBOX II (New)
MATERIAL	PC/POM



12	1246-W85-A1
NAME	C-Gigo SMART CONTROL BOX
MATERIAL	PC/ABS



13	1247-W85-B3
NAME	C-LINE FOLLOWER SENSOR
MATERIAL	PC



14	1409-W85-A
NAME	C-SMART CONTROLLER
MATERIAL	ABS



15	1409-W85-B
NAME	C-ULTRASONIC SENSOR
MATERIAL	ABS



16	1409-W85-D
NAME	C-INFRARED SENSOR
MATERIAL	ABS



17	1409-W85-E
NAME	C-TOGGLE SENSOR
MATERIAL	ABS



18	1409-W85-F
NAME	C-COLOR SENSOR
MATERIAL	ABS



19	1409-W85-L
NAME	C-WEARABLE MOTION CONTROLLER
MATERIAL	ABS



20	7090-W85-A
NAME	C-2.4G 26X/95X MOTOR WITH SWITCH (10M)
MATERIAL	ABS



21	7090-W85-C
NAME	C-50X PLANETARY GEARBOX (DUAL-FLATHEAD)
MATERIAL	ABS



22	7416-W85-B
NAME	C-ULTRASONIC SENSOR
MATERIAL	ABS



23	1246-W85-B
NAME	C-ILLUMINANCE SENSOR
MATERIAL	PC/ABS



24	7412-W85-A-1
NAME	C-50X PLANETARY GEARBOX
MATERIAL	PC



25	1247-W85-B1
NAME	C-IR SENSOR
MATERIAL	PC



26	1247-W85-B2
NAME	C-LIGHT SENSOR
MATERIAL	PC



27	7090-W85-B
NAME	C-2.4G REMOTE CONTROLLER (10M)
MATERIAL	ABS

9. GreenMech Junior- Science (GMJR-S) Rules

9.1. Competition Theme: Battle to Protect the Ecosystem

Invasive alien species are a serious challenge for countries around the world. When species native to one region are introduced into another, they may cause economic losses, ecological damage, or risks to human health. The Gigo Team has found invasive species in many areas, some of which can cause severe ecological damage. Governments spend substantial resources each year trying to remove them, yet complete eradication is rarely achieved; at best, the species may be contained within a limited area. Young challengers, help the Gigo Team take on the difficult mission of eliminating invasive alien species!

Challenge 1: Logistics Supply and Challenge 2: Eliminate Invasive Species

9.2. Competition Procedure

2027 GreenMech Junior - Science Schedule		
Time	Activity	Notes
08:00-09:00 (Subject to the overall Competition Schedule)	Check-in and Materials Verification	Please check the team seating map on the Official Website in advance and proceed directly to your team table for Check-in on the Competition day. Verify all materials against the Materials List. Any missing items must be reported before Build Time begins. No additional materials or replacements will be provided after Build Time starts. For proof of student status, please refer to Section 11.1, Proof of Student Status.
08:50-09:00 (10 minutes)	Opening Ceremony and Rules Reminder	
09:10-09:35 (25 minutes)	Build and Challenge 1 Testing Time	Only materials provided on-site by the Organizer may be used. See Section 9.3 for details. Building and testing are conducted during the same period.
09:35-10:15 (40 minutes)	Challenge 1: Logistics Supply Competition Time	During Challenge 1, the Challenge 1 entry and wrench must be placed on top of the materials box. All other items must be stored inside the box, and no additional parts may be used to modify or build the entry. The entry will be weighed before the Challenge begins.
10:15-10:35 (20 minutes)	Build and Challenge 2 Testing Time	Only materials provided on-site by the Organizer may be used. See Section 9.3 for details.
10:35-11:15	Challenge 2: Eliminate Invasive Species Competition	During Challenge 2, the competition entry and wrench must be placed on top of the

(40 minutes)	Time	materials box. All other items must be stored inside the box, and no additional parts may be used to modify or build the entry. The entry will be weighed before the Challenge begins.
11:15-11:50 (35 minutes)	Score Calculation and Verification	
11:50- (Subject to the overall Competition Schedule)	Award Ceremony	

9.2.1. If a team is unable to enter during the designated Check-in period due to force majeure, the team may still enter upon arrival at the Competition Venue. However, no extension of time may be requested, and the team may participate only in the remaining portions of the Competition that have not yet ended.

9.3. Entry Specifications

9.3.1. Competition Materials: All competition parts, practice hunting bullet bricks, and rubber bands must be provided by the teams. Rubber bands of any size may be used, provided they are made of natural or synthetic rubber. Elastic cords or any other type of elastic material are not permitted.Except for chains, all competition parts must be completely disassembled and unassembled during the pre-competition material inspection.The maximum quantity of each type of part permitted in a single competition entry shall comply with the quantities specified in the #1261 *SCIENTIFIC TOUR* Instruction Manual (see the illustration below). For example, if the instruction manual includes two rubber tires, a competition entry may use no more than two rubber tires.Each team is solely responsible for the safekeeping and proper use of all competition materials at all times.

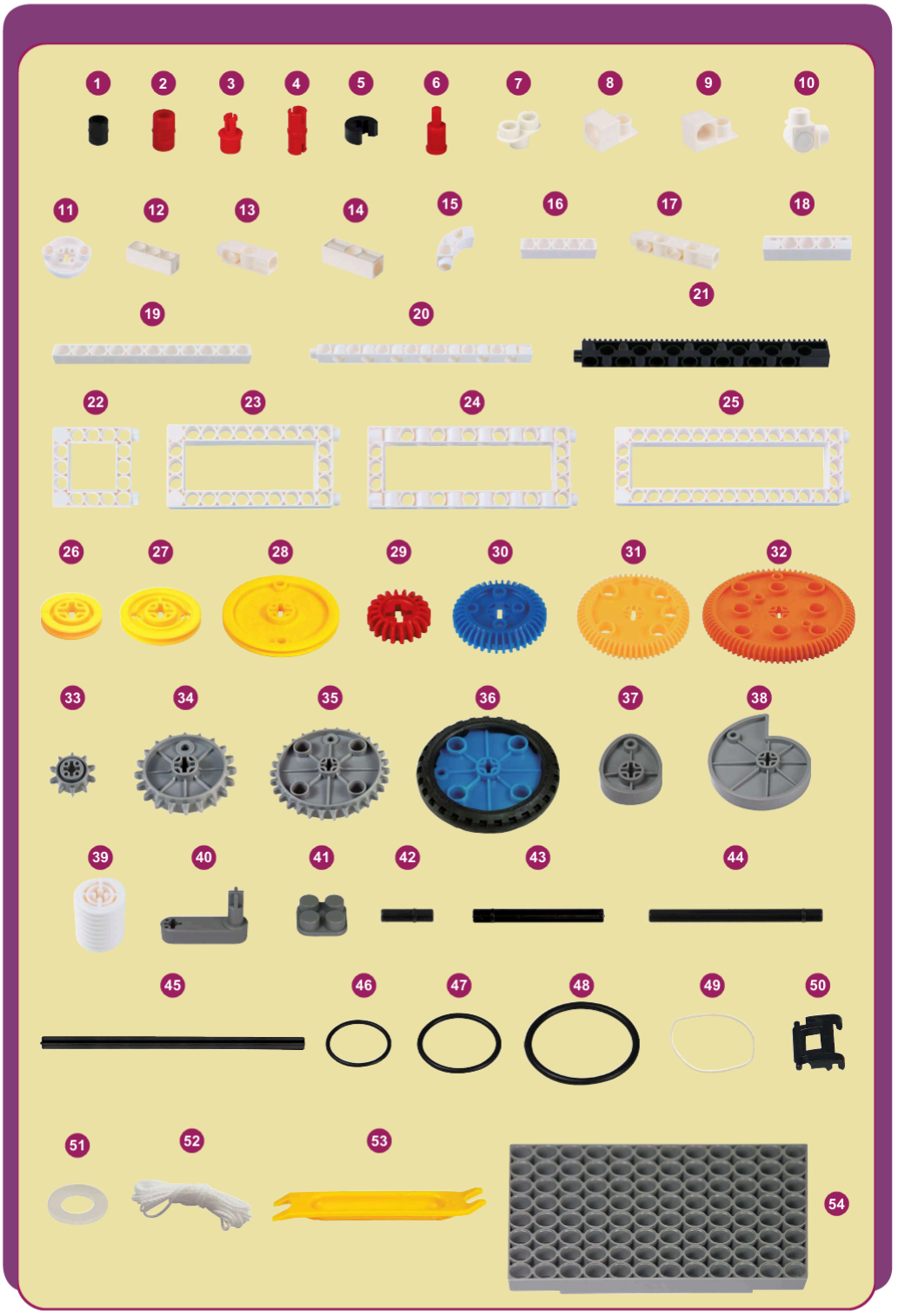
FUN LAB

Knowledge comes from experience alone

#1261

#1261 科學探索組 零件表

#1261 Scientific Tour Parts



清單：查找 - 檢查 - 核對 Checklist: Find – Inspect – Check off

✓	號碼 NO.	零件名稱	Description	數量QTY.	品號 Item No.
○	1	B- 短結合鍵	B-SHORT PEG	15	7344-W10-C2D
○	2	C- 長結合鍵	C-LONG PEG	15	7061-W10-C1R
○	3	C- 自轉軸鍵	C-AXLE	5	7026-W10-H1R
○	4	C-20mm 軸扣鍵	C-20mm AXLE CONNECTOR	10	7413-W10-T1R
○	5	C- 軸固定鍵	C-AXLE FIXING	5	3620-W10-A1D
○	6	C- 凸輪連結鍵	C-CAM CONNECTOR	4	7413-W10-S1R
○	7	C- 二合一結合鍵	C-TWO-IN-ONE CONVERTER	4	7061-W10-G1W
○	8	C- 單向轉接鍵	C-FRONT CONVERTER	4	7061-W10-Y1W
○	9	C- 雙向轉接鍵	C-LATERAL CONVERTER	4	7061-W10-X1W
○	10	C- 關節鍵	C-HINGE	4	7061-W85-F1W
○	11	C- 軸轉接器	C-ROD CONNECTOR	2	7026-W10-L2W
○	12	C-3 孔長條	C-3 HOLE ROD	4	7026-W10-Q2W
○	13	C-3 孔超長條	C-3 HOLE DUAL ROD	4	7413-W10-Y1W
○	14	C-3 孔長條側有孔	C-3 HOLE ROD FRONT CLOSED	4	7026-W10-X1W
○	15	C-3 孔 1/4 弧長條	C-BENDED ROD	8	7061-W10-V1W
○	16	C-5 孔長條	C-5 HOLE ROD	4	7413-W10-K2W
○	17	C-5 孔超長條	C-5 HOLE DUAL ROD	4	7413-W10-X1W
○	18	C-5 孔長條側有孔	C-5 HOLE ROD FRONT CLOSED	4	7413-W10-R1W
○	19	C-11 孔長條	C-11 HOLE ROD	6	7413-W10-P1W
○	20	C-15 孔超長條	C-15 HOLE DUAL ROD	6	7413-W10-Z1W
○	21	C-15 孔超長齒條	C-150mm RACK	2	7061-W10-T2D
○	22	C-5×5 孔正方框	C-5X5 FRAME	4	7413-W10-Q1W
○	23	C-5×10 孔長方框	C-5X10 FRAME	4	7413-W10-I1W
○	24	C-5×13 孔超長方框	C-5x13 DUAL FRAME	1	7061-W10-U1W
○	25	C-5×15 孔長方框	C-5X15 FRAME	4	7413-W10-J1W
○	26	C-OD23mm 滑輪	C-OD23mm PULLEY	2	7344-W10-N3Y
○	27	C-OD33mm 滑輪	C-OD33mm PULLEY	2	7344-W10-N2Y
○	28	C-OD53mm 滑輪	C-OD53mm PULLEY	2	7344-W10-N1Y
○	29	C-20T 齒輪	C-20T GEAR	6	7026-W10-D2R
○	30	C-40T 齒輪	C-40T GEAR	6	7346-W10-C1B
○	31	C-60T 齒輪	C-60T GEAR	4	7026-W10-W5Y
○	32	C-80T 齒輪	C-80T GEAR	2	7328-W10-G2O
○	33	C-10T 鍊輪	C-10T CHAIN GEAR	2	3569-W10-D2S1
○	34	C-20T 鍊輪	C-20T CHAIN GEAR	2	3569-W10-D1S1
○	35	C-30T 鍊輪	C-30T CHAIN GEAR	2	3569-W10-C1S1
○	36	C-OD70×12mm 橡膠輪	C-RACING TIRE	2	1115-W85-F2B
○	37	C- 蛋形凸輪	C-EGG CAM	1	7063-W10-A1S1
○	38	C- 蝸形凸輪	C-SNAIL CAM	1	7063-W10-A2S1
○	39	C- 渦桿	C-WORM GEAR	1	7344-W10-A1W
○	40	C- 曲軸	C-CRANK	2	7063-W10-B3S1
○	41	C- 底盤結合器	C-BASE GRID CONNECTOR	2	7026-W10-I1SK
○	42	C-30mm Ⅱ軸	C-30mm AXLE II	4	7413-W10-N1D
○	43	C-70mm Ⅱ軸	C-70mm AXLE II	4	7061-W10-Q2D
○	44	C-100mm Ⅱ軸	C-100mm AXLE II	4	7413-W10-L2D
○	45	C-150mm Ⅰ軸	C-150mm AXLE I	2	7026-W10-P1D
○	46	C-OD26mm 橡膠圈	C-OD26 O-RING	2	R12-08S
○	47	C-OD36mm 橡膠圈	C-OD36 O-RING	2	R12-07S
○	48	C-OD56mm 橡膠圈	C-OD56 O-RING	2	R12-09S
○	49	C-100mm 橡皮筋	C-100mm RUBBER BAND	2	R10-05
○	50	C- 鍊條	C-CHAIN	55	3569-W10-B1D
○	51	C- 墊片	C-WASHER	5	R12#3620
○	52	C-2000mm 特多龍線	C-2000mm STRING	1	R39-W85-200
○	53	B- 扳手	B-PEG REMOVER	1	7061-W10-B1Y
○	54	C-8×12 底盤	C-BASE GRID	2	7125-W10-A1SK

9.4. Competition Format

9.4.1. Challenge 1: Logistics Supply

9.4.1.1. Build Restrictions:

1) Each team must build one four-wheeled vehicle powered by rubber-band elasticity and equipped with a switch. The switch may be built into the vehicle or made as a separate device. After the rubber band is tensioned, the participant must be able to release the vehicle and then use the switch to start it moving forward. Attempts that do not follow this method will not be scored.

2) The rubber-band-powered vehicle must fit within a 30 cm × 30 cm Vertical Projection.

9.4.1.2. Competition Rules:

1) This Challenge uses the Field shown in Figures 9-1 and 9-2 (120 × 300 cm, printed on matte-laminated water-based photo paper).



Figure 9-1 Competition Field Layout

Receiving Area	The two red lines are 3 m apart Figure 9-1 Competition Field Map	Dispatch Area

Figure 9-2 Competition Field Dimensions

2) Each team has 90 seconds. Only one hunting projectile may be loaded onto the supply vehicle at a time (see Figure 9-3). Each projectile consists of one B-CUBE and one B-6 HOLE CUBE; color is unrestricted.

There is no restriction on how the projectile is loaded, but it must remain in its original assembled form when removed in order to count for scoring.

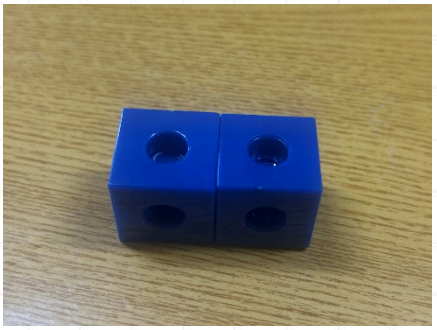


Figure 9-3 Hunting Projectile

3) The Organizer will provide 20 hunting projectiles. The two participants must stand in the Sending Area and Receiving Area respectively and operate the vehicle to transport the projectiles. Both the outbound and return trips must be powered by rubber-band elasticity. The vehicle must be released before crossing the red line shown in Figure 9-2. Any attempt that violates this rule is invalid and must be repeated; the timer will continue running. When the vehicle reaches the Receiving Area, all four wheels must be touching the ground for the transport attempt to be considered successful.
4) For a transport attempt to be successful, the supply vehicle must travel completely across the Competition Field. If it does not complete the crossing, the participant must retrieve it and try again. If the projectile falls off during transport, that projectile does not score; the participant must retrieve both the vehicle and projectile and restart the attempt. The timer continues running throughout.
5) A successfully transported projectile must match Figure 9-3 and may not include any additional parts. Challenge 1 scores are converted as shown below.

Number of Successfully Transported Projectiles	1st-5th	6th-10th	11th-15th	16th-20th
Score	20 points each	30 points each	40 points each	50 points each

6) If participants discover a problem with the vehicle before operation, they will have 30 seconds for minor repairs in or around the Preparation Area. After 30 seconds, the 90-second Competition Time begins whether or not the repair is complete.
7) All entries and spare items (rubber bands) to be used in the Competition will be weighed before the Competition and may be used only if included in the weighing. If the combined scores of the two Challenges are tied, total weight will be used as a ranking criterion.

9.4.2. Challenge 2: Eliminate Invasive Species

9.4.2.1. Build Restrictions:

1) Each team must build a launcher powered by rubber-band elasticity that can launch the hunting projectile. Attempts that do not use this method will not be scored.

2) There are no restrictions on the construction method or size of the entry for this Challenge.

9.4.2.2. Competition Rules:

1) The number of projectiles each team may use in this Challenge is equal to the number successfully transported in Challenge 1.

2) The target Field for this Challenge is shown in Figures 9-1 and 9-4.

Green Iguana 50 points Invasive Species E		White-vented Myna 10 points Invasive Species A		Spot-legged Tree Frog 30 points Invasive Species C								Preparation Area
	Golden Apple Snail 20 points Invasive Species B		Red Imported Fire Ant 40 points Invasive Species D		Spot-legged Tree Frog 30 points Invasive Species C					White-vented Myna 10 points Invasive Species A		
Red Imported Fire Ant 40 points Invasive Species D		Green Iguana 50 points Invasive Species E		Golden Apple Snail 20 points Invasive Species B								

Figure 9-4 Field Layout (each grid: 20 × 40 cm)



Note: White-vented Myna: 10 points; Golden Apple Snail: 20 points; Spot-legged Tree Frog: 30 points; Red Imported Fire Ant: 40 points; Green Iguana: 50 points.

3) Participants must launch from within the Preparation Area, to the right of the red line in the dark-green area of Figure 9-4. In the ready position, the entire launcher must remain inside the Preparation Area. Only one projectile may be launched at a time, and the projectile must separate from the launcher behind the red line to count as a valid shot. If this rule is violated, the projectile will not score. The Judge will immediately notify the team, but the projectile will not be moved so as not to delay the Competition. If the invalid projectile changes the position of any projectile already on the Field, the affected projectile will not be returned to its previous position.

4) The shooting time limit is 90 seconds. The Challenge ends immediately when the team has launched all available projectiles, and scoring is based on the projectiles' final resting positions at that moment. If a later projectile hits an earlier one, both are scored according to their final positions. Any projectiles not launched before time expires do not score.

5) Each grid may score a maximum of three times. A projectile that does not land in a Target Area or lands outside the Competition Field scores 0 points. If a projectile lands on a line or spans more than one area, the participants may choose which area will be used for scoring. If all targets for the same invasive species are eliminated, the team earns an additional 50 points for that species.

6) If participants discover a problem with the entry before operation, they will have 30 seconds for minor repairs in or around the Preparation Area. After 30 seconds, the 90-second Competition Time begins whether or not the repair is complete.

7) All entries and spare items (rubber bands) to be used in the Competition will be weighed before the Competition and may be used only if included in the weighing. If the combined scores of the two Challenges are tied, total weight will be used as a ranking criterion.

9.5. Ranking Method

9.5.1. This Competition uses a points system. If teams are tied, rankings will be determined in the order shown below.

Tie-breaking Order	Criterion
1	Combined Score of Both Challenges
2	Challenge 2 Score
3	Challenge 1 Score
4	Combined Weight of Entries for Both Challenges (lighter is better)

10. GreenMech Junior- Programmer (GMJR-P) Rules

10.1. Competition Theme: Forest Guardians - A Sustainable Journey to Protect Terrestrial Ecosystems

10.2. Competition Procedure

GreenMech Junior - Programmer Schedule		
Time	Activity	Notes
13:30-13:50 (Subject to the overall Competition Schedule)	Check-in and Equipment Inspection	Teams may bring up to three robot units. During inspection, all existing program memory must be cleared. Instruction Cards and Map Cards must be separate, and all building components must be completely unassembled.
13:50-14:00 (10 minutes)	Rules Reminder	
14:00-15:40 (100 minutes)	Official Competition	1. Fifteen minutes before competing, each team will draw the relevant locations for Mission 5 and will then have 15 minutes to prepare in its designated Preparation Area. 2. After the 15-minute practice period, all Map Cards must be separated. They may be assembled on the Competition Field only after the Competition Time begins. 3. Mission Challenge Time is 6 minutes. Participants may assemble Map Cards and Instruction Cards, place a robot on the Competition Field to score, and consult reference materials. The timer does not stop.
15:40-16:10 (30 minutes)	Score Calculation	
16:10- (Subject to the overall Competition Schedule)	Award Ceremony	

Individual Team Procedure	Time	Location	Notes
Team Draw	15 minutes before practice	Preparation Area	Draw the target-object placement locations for Mission 5
Team Practice	15 minutes	Preparation Area	Building-block assembly and programming are permitted.
Team Competition	6 minutes	Competition Field	Assemble the Map Cards at the same time (they may not be pre-assembled), place a robot on the Competition Field to score, and continue programming as needed.

10.2.1. If a team is unable to enter during the designated Check-in period due to force majeure, the team may still enter upon arrival at the Competition Venue. However, no extension of time may be requested, and the team may participate only in the remaining portions of the Competition that have not yet ended.

10.3. Materials Requirements

10.3.1. The Organizer will provide the Competition Field and the building blocks required for the Competition. All other required Map Cards, Instruction Cards, robots, and building blocks must be prepared by the team and must be completely unassembled. Teams may not pre-assemble components or open and modify any part of the robot body. If a non-compliant condition cannot be corrected during Equipment Inspection, the team will be disqualified.

10.4. Competition Format

10.4.1. Robot Specifications

1) Participants may prepare 1 to 3 robots. Each robot must fit within 15 cm × 15 cm. Any mechanism that expands or moves during a Mission must also remain within the 15 cm × 15 cm limit. A Size Check Box will be placed in front of each Competition Field. Before entering the Competition Field, each robot must be placed in the Size Check Box for verification. A robot that does not pass the size check may not begin the match.
2) If an error is discovered while a program is running, participants may ask the Judge for permission to retrieve the robot. The robot may be retrieved only after the Judge gives the signal. The timer does not stop.
3) During a Mission Challenge, only one robot may be on the Competition Field at a time. While one robot is operating on the Field, an off-field robot may be prepared for program loading.
4) Whenever a robot finishes running a program or reloads a program, it must restart from the Start Area.
5) During the Competition, after participants place a Map Card, they must immediately return the original scoring blocks on top of it to their designated positions. If the condition is not corrected after the Judge instructs the team to do so, the Judge will require the on-field robot to be retrieved. The robot may restart from the Start Area only after the scoring blocks have been placed correctly. The timer does not stop.
6) **To address the development of AI technology while preserving the Competition's core purpose of encouraging logical thinking and hands-on practice, electronic devices are prohibited in this Competition beginning in 2027. This includes tablets, laptops, smartwatches, and similar devices. Using any such electronic device during the Competition, whether or not it is related to the Competition, will result in disqualification from both the Competition and awards.**

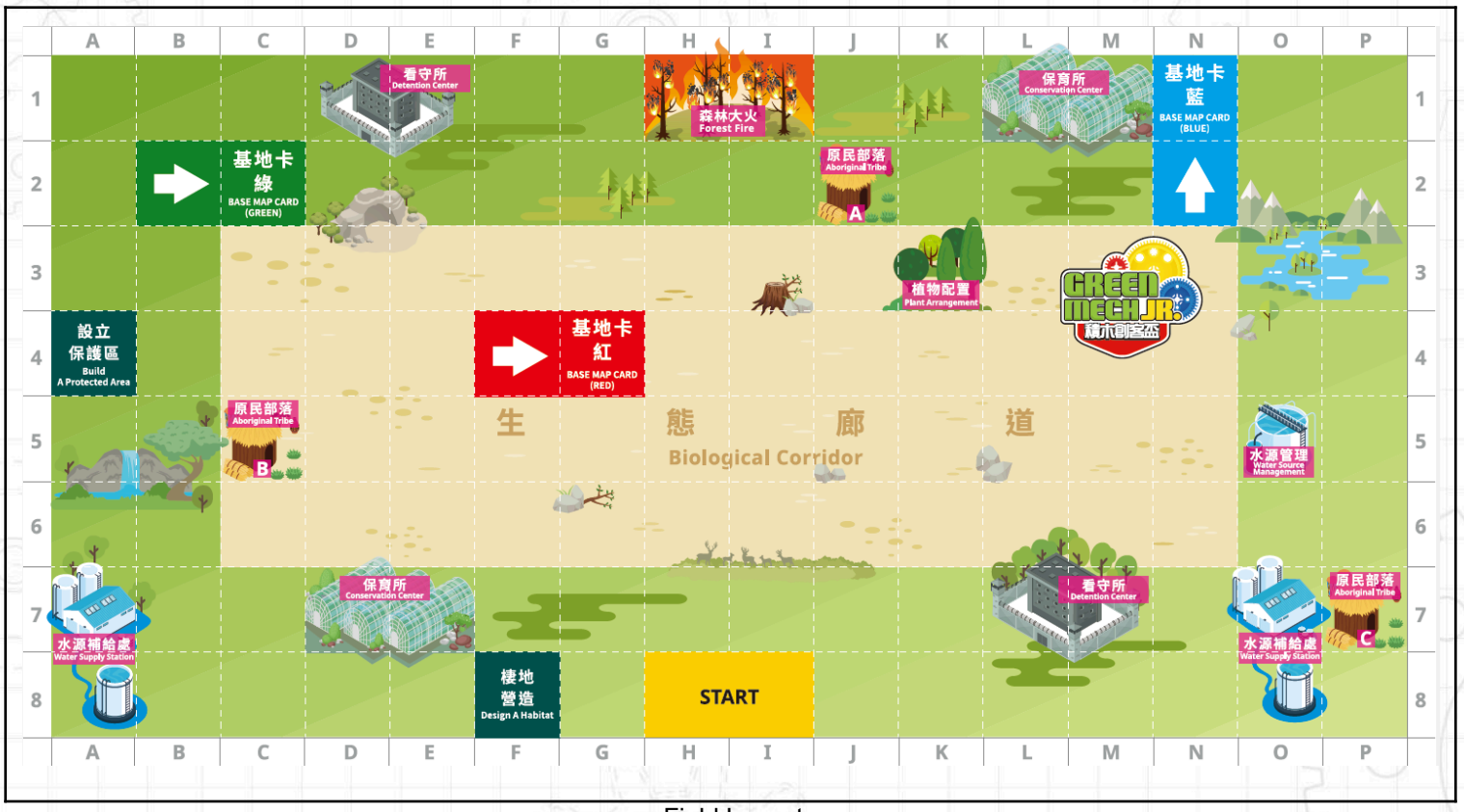
10.4.2. Mission Description

10.4.2.1. Mission Background:

As passionate Forest Guardians, the Gigo Team takes on the important responsibility of protecting our forests. In Forest Guardians, participants will explore the rich diversity of terrestrial ecosystems and embark on an adventure to protect nature and conserve wildlife. Along the way, they will protect precious endemic species while seeking a balance between sustainable ecosystems and human economic development.

10.4.2.2. Field Specifications:

The Competition Field measures 240 × 120 cm (L × W) and is printed on matte oil-based PP photo paper. Each grid on the Field measures 15 × 15 cm. Mission Challenge Time is 6 minutes. Participants may assemble Map Cards and Instruction Cards and place a robot on the Competition Field to score; the timer does not stop.



Field Layout

			Detention Center			Forest Fire			Conservation Center		Base Map -Blue ⬆			
	➔ Base Map - Green						Indig. Village A							
								Plant Arrange ment						
Build a protected area					➔ Base Map -Red									
		Indig. Village B			Eco.			Corridor				Water Source Manage ment		
Water Supply Station			Conservation Center							Detention Center		Water Supply Station	Indig. Village C	
				Design A Habitat		Start								

Field Layout

10.4.2.3. Competition Missions: Every Mission begins from the START Area. Teams may plan their own robot routes and freely choose which scoring items to attempt during the Competition Time in order to complete the Forest Guardians Missions. Fifteen minutes before the Official Competition, each team will draw the locations of the invasive-species and native-species blocks for Mission 5 and then complete 15 minutes of practice and preparation in the Preparation Area. After practice ends, teams will have an additional 2 minutes to move from the Practice Area to the Competition Field and complete pre-match preparations. Official Competition Time is 6 minutes, and each team must complete every stage within the time specified by the Organizer.

1) **Mission 1: Habitat Restoration Master**

1. Description: The map contains four Habitat Restoration Areas: Establish Protected Area, Plant Arrangement, Habitat Creation, and Water Resource Management. The goal is to meet the needs of species in different habitats and restore those habitats. The robot scores by reaching each area and completing the designated action.
2. Scoring: At each of the four Habitat Restoration Areas, the robot must complete one full rotation. Each completed designated action earns 5 points. Completing all four areas earns an additional 5 points, for a maximum of 25 points.

2) **Mission 2: Promote Ecotourism**

1. Description: The map contains Areas A, B, and C, each representing an Indigenous village. The robot visits these communities to learn about traditional Indigenous culture. The robot scores by entering Areas A, B, and C and completing the designated actions.
2. Scoring: In Areas A, B, and C, the robot must emit red, yellow, and blue light respectively and complete the designated action for each area. Completing one area earns 5 points; two areas earn 12 points; all three areas earn 20 points.

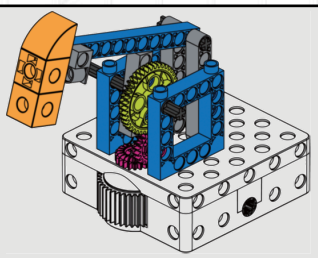
3) **Mission 3: Track Down Illegal Poachers**

1. Description: There are three Base Map Card locations on the map. By completing the designated actions, the robot represents locating illegal traps, tracking poachers' footprints, and disrupting a poaching group. The Mission concludes by raising a victory flag to symbolize protecting wildlife. Note: The designated actions for the red and blue Base Map Cards must be completed before the green Base Map Card is unlocked.
2. Scoring:

a. Red and Blue Base Map Cards: Create a flashing red-light or blue-light emergency effect (2 points) and have the robot perform at least two consecutive vertical hammering motions (5 points).

b. Green Base Map Card: Turn on a green light (2 points) and use a self-built mechanism on the Base Map Card to raise the flag. Any upward vertical movement of the flag qualifies for scoring, as illustrated (5 points).

※ For the Green Base Mpa Card Mission only, teams may bring scissors, cotton string, double-sided tape, and similar tools to prepare the flag. These tools may not be used for any other Mission.

	
Hammering mechanism example for reference; teams may create their own design.	The flag for the self-built lifting mechanism is shown above (front and back). The Organizer provides only the flag (5 × 4 cm).

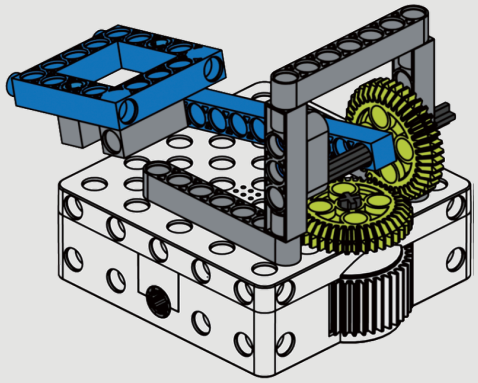
4) **Mission 4: Fight Forest Fires**

1. Description: To complete the Fight Forest Fires Mission, the robot must obtain water from a Water supply Station, travel to the Forest Fire Area, and release the water to extinguish the fire. The water is represented by a 4 × 4 cm building block.
2. Scoring:

a. After obtaining a water block, the robot must release it into the Forest Fire Area. Delivery is successful when the Vertical Projection of the water block enters the Forest Fire Area. Each successful delivery earns 10 points and may be repeated during the Competition Time. Supplementary note: A score is awarded as long as a Base Map Card is used to activate a mechanism or motor and the Vertical Projection of the water block enters the Scoring Area.

b. A water block may be manually loaded onto the robot only after the robot enters a Water Supply Station. Loading a water block anywhere else results in a 5-point deduction from the Total Score for each occurrence.

c. If a water block falls during transport, no points are deducted, but the robot must obtain a new water block from a Water Supply Station. Whenever a water block falls or scores, it is returned to the Water Supply Station.

	
Water-transport mechanism example for reference; teams may create their own design.	Water block illustration

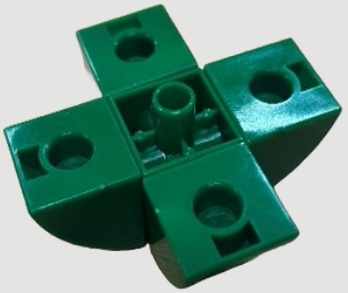
3. Deduction: If a robot enters the Forest Fire Area without carrying a water block, 10 points will be deducted from the Total Score each time. This deduction may occur repeatedly, but the robot may continue the Mission.

5) **Mission 5: Eliminate Invasive Species**

1. Description: The map contains an Ecological Corridor with invasive species represented by red blocks and native species represented by green blocks. The robot must sort the invasive species into the Detention Center and the native species into the Conservation Center, demonstrating identification and removal of invasive species to protect the local ecosystem.
2. Scoring: There are initially six invasive-species blocks and six native-species blocks. Before competing, each team will draw either the Successful Conservation event or the Invasive Outbreak event. The drawn event adds four corresponding scoring blocks.

※ Example: If a team draws the Successful Conservation event, there will be six invasive-species scoring blocks and the number of native-species scoring blocks will increase to ten. Invasive species are represented by red blocks, and native species are represented by green blocks.Each block correctly pushed into its designated location earns 5 points. Each block sorted into the wrong designated location incurs a 2-point deduction.

3. Competition Draw: Before each team competes, it will draw the locations of the invasive-species and native-species blocks for the Mission event in the Ecological Corridor (16 positions selected from 44).

	
Invasive Species - Illustration (Red)	Native Species - Illustration (Green)

10.5. Ranking Method

10.5.1. Score Calculation: Rankings are based on the total score earned across the Mission Challenges.

10.5.2. If teams have the same total score, the tie-breaking order below will apply.

10.5.3. Tie-breaking

10.5.4. If a tie still prevents the Gold, Silver, or Bronze Award rankings from being determined, a Tie-break Round using Mission 5 will be conducted. The Tie-break Round includes 3 minutes of preparation and 2 minutes of Competition Time.

Tie-breaking Order	Criterion
1	Total Competition Score
2	Mission 5 Score
3	Mission 4 Score
4	Mission 3 Score
5	Mission 1 Score
6	Mission 2 Score
7	Competition Completion Time
8	If teams remain tied and an award ranking cannot be determined, each tied team will draw separately and compete in a Tie-break Round using Mission 5 (Eliminate Invasive Species). Preparation Time is 3 minutes and Competition Time is 2 minutes.

11. Appendix Forms

11.1. 2027 World GreenMech Contest - Proof of Student Status

Certificate of Student Enrollment				
Team Name				
Competition Category	• GreenMech (GM) • Robot for Mission (R4M) • GreenMech Junior (GMJR)			
Division	• Basic • Advanced • Science • Programmer			
Participant Division	• Elementary School (incl. Kindergarten) • Junior High School • Senior High School			
Photo	(Front-facing and clear)	(Front-facing and clear)	(Front-facing and clear)	(Front-facing and clear)
Student Name				
Current School				
Current Grade				
Date of Birth (Y/M/D)				
This is to certify that the student listed above is currently enrolled at this school and that the information provided above is correct.				
Coordinator:	Director of Academic Affairs:	Principal:		

11.2. Chief Judge Reminder and Appeal 1 Form

2027 World GreenMech Contest
2027世界機關王大賽世界賽暨臺灣賽

GM Basic/Advanced Reminders & Appeal Form

GM機關整合賽 (基礎組/進階組)小叮嚀暨申訴單

Chief Judge's Reminders 評審長小叮嚀

Chief Judge's Reminders are subject to adjustment based on the current year's contest context. Detailed updates will be supplemented prior to the World Contest.

「評審長小叮嚀」係依每屆賽事現況調整之規範，本章節詳細內容將於世界賽開賽前增補完成。

※If you have any questions during the judge's scoring process, please ask the judge immediately. If you still have doubts, please fill out the Appeal Form below, and the Chief Judge will handle it immediately. If there are no doubts, please check the box for "No Appeal matters" and sign.

※對於評審判定分數過程中有任何疑問，請立刻向裁判請教，如果仍有疑義請填寫下方申訴單，評審長將立即處理，如果沒有疑義請在無申訴事項□中打ˇ，並簽名。

Team Number /隊伍編號:	Team Name/隊名:
Description of Appeal matters/申訴事項說明: □No Appeal matters/無申訴事項: Participant (one representative) Signature/參賽者(一位代表)簽名：	

2027 World GreenMech Contest
2027世界機關王大賽世界賽暨臺灣賽

R4M Basic/Advanced Reminders & Appeal Form
R4M機器人任務賽 (基礎組/進階組)小叮嚀暨申訴單

Chief Referee's Reminders 裁判長小叮嚀

Chief Refereee's Reminders are subject to adjustment based on the current year's contest context. Detailed updates will be supplemented prior to the World Contest.

「裁判長小叮嚀」係依每屆賽事現況調整之規範，本章節詳細內容將於世界賽開賽前增補完成。

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※對於裁判判定分數過程中有任何疑問，請立刻向裁判請教，如果仍有疑義請填寫下方申訴單，裁判長將立即處理，如果沒有疑義請在無申訴事項□中打ˇ，並簽名。

Team Number /隊伍編號:	Team Name/隊名:
Description of Appeal matters/申訴事項說明: ☐No Appeal matters/無申訴事項: Participant (one representative) Signature/參賽者(一位代表)簽名：	

2027 World GreenMech Contest
2027世界機關王大賽世界賽暨臺灣賽

GMJr. Science/Programmer Reminders & Appeal Form
GMJr.積木創客盃（科學/程式小創客）小叮嚀暨申訴單

Chief Referee's Reminders 裁判長小叮嚀

Chief Refereee's Reminders are subject to adjustment based on the current year's contest context. Detailed updates will be supplemented prior to the World Contest.

「裁判長小叮嚀」係依每屆賽事現況調整之規範，本章節詳細內容將於世界賽開賽前增補完成。

※If you have any questions during the judge's scoring process, please ask the judge immediately. If you still have doubts, please fill out the Appeal Form below, and the Chief Judge will handle it immediately. If there are no doubts, please check the box for "No Appeal matters" and sign.

※對於裁判判定分數過程中有任何疑問，請立刻向裁判請教，如果仍有疑義請填寫下方申訴單，裁判長將立即處理，如果沒有疑義請在無申訴事項□中打「ˇ」，並簽名。

Team Number /隊伍編號:	Team Name/隊名:
Description of Appeal matters/申訴事項說明: ☐No Appeal matters/無申訴事項: Participant (one representative) Signature/參賽者(一位代表)簽名：	

11.3. Appeal 2 Form

2027 World GreenMech Contest
2027世界機關王大賽世界賽暨臺灣賽

Appeal Form (2) / 申訴表(2)

1. If a suspected rule violation by another Team or another circumstance that may affect competition fairness is identified, a formal Appeal shall be submitted through the Appeal 2 procedure. / 如發現其他隊伍疑似違反比賽規則，或有其他可能影響賽事公平之情形，應依「申訴」程序提出正式申訴。
2. Appeal 2 forms may only be obtained and completed at the Competition Secretariat. The appellant shall clearly record the facts, time or round, Team or person involved, and the relevant rule basis, sign the form, and return it to the Competition Secretariat. / 此申訴表僅得於大會秘書處領取及填寫。申訴人應於表單中清楚記載具體事實、發生時間或場次、涉及隊伍或對象，以及相關規則依據，並完成簽名後交回大會秘書處。
3. After receiving an Appeal 2 form, the Competition Secretariat will assign an Appeal sequence number according to the actual order in which completed forms are returned and will forward the Appeal to the Chief Judge as soon as possible. / 大會秘書處收到申訴表後，將依實際繳回表單之先後順序編列申訴序號，並儘快將申訴文件轉交裁判長。
4. The Chief Judge will, in principle, handle Appeals in the order of the sequence numbers assigned by the Competition Secretariat. Matters involving competition safety, an ongoing competition, or another major circumstance requiring immediate action may be prioritized as necessary. / 裁判長原則上依大會秘書處編列之申訴序號依序處理；如遇涉及賽事安全、當下比賽進行或其他須立即處理之重大情形，得視實際狀況優先處理。
5. After submitting an Appeal, the appellant shall wait for the result at the location designated by the Competition Secretariat and may not independently enter the Competition Area to seek out a Judge or otherwise interfere with competition operations. / 申訴人於提出申訴後，應依大會秘書處指示於指定地點等候處理結果，不得自行進入比賽場地尋找裁判或影響賽事進行。

Category: □ GreenMech □R4M □ GMJr.	Division: □ Basic □Advanced □ Science □ Programmer
Age: □ ES □ JH □ SH	Team Number: / Team Name:
Description of Appeal matters/申訴事項說明: (specific facts, the time or match in which the incident occurred, and the Team(s) or individual(s) involved)	
Appeal Handling Details/處理過程 :	Appeal Resolution Status/申訴處理結果與狀態:
Appellant's Signature/申訴人簽名:	Appeal Committee/申訴委員會 :