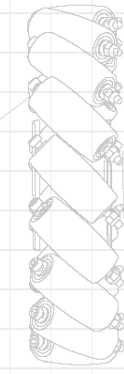


V1.0

Using a 32-bit motor driver chip and Field-Effect Transistors (FET), the RoboMaster C300 Brushless DC Motor Speed Controller enables precise control over motor torque.



Exclusively designed for the RoboMaster M300S P18 Brushless DC Motor and C300 Brushless DC Motor Speed Controller, the M300S Accessory Kit includes several cables and a terminal block.

RoboMaster System Specification Manual, RoboMaster System User Manual, Introduction of RoboMaster System Module



The M300S Accessory Kit includes several cables and a terminal block, ensuring complete protection against short circuit and other risks.



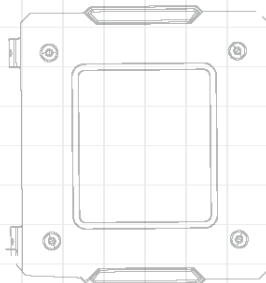
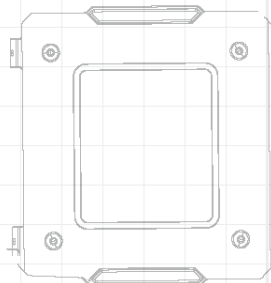
ROBOMASTER

ROBOMASTER 2020

ROBOTICS COMPETITION

PARTICIPANT MANUAL

Prepared by the RoboMaster Organizing Committee
Released on October, 2019



Statement

Participants are forbidden to be engaged or participate in practice suspected of public dispute, sensitive issue, offending the public or certain mass groups or other behaviors that damage the RoboMaster image; otherwise, once confirmed by the RoboMaster Organizing Committee (hereinafter referred to as "the RMOC"), the offending party will be disqualified for the RoboMaster Competitions permanently.

Reading Tips

Symbol Descriptions

 Prohibition	 Important	 Hits and Tips	 Reference
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Release Notes

Date	Version	Changes
2019.10.31	V1.0	First Release

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1. Introduction

Founded by SZ DJI Technology Co., Ltd. and designed for young engineers, RoboMaster is a global educational robotics program that includes events, campus clubs, and pop-culture spinoffs.

The RoboMaster Competition is China's first FPV (First-Person View)-shooter-based robotics competition. It is jointly sponsored by the Central Committee of the Communist Youth League, the National Federation of Students, and the Shenzhen Municipal People's Government. It requires participants to go beyond their textbooks to develop a diverse fleet of robots. Through a process of independent research and development, students gain invaluable industrial practice and strategic planning skills. This helps to combine their book knowledge with practice in this field. The most advanced and intelligent robots are built through intense competition and relentless improvement.

The RoboMaster Competition is a global competition that technology enthusiasts from all over the world can enjoy and take part in. With this competition, we hope that robotics and engineering can reach a greater audience and inspire future generations.

RoboMaster attempts to reform the traditional methods of training talent. In the process of developing robotics, participants are provided with a platform where they can interact with like-minded peers, hone and further improve their skills, and advance tirelessly towards their dreams.

2. Season Schedule



The following is the RoboMaster 2020 Season Schedule for reference only. The specific time is subject to the latest announcement by the RMOC.

RoboMaster Robotics Competition is set under RoboMaster Competition. The RoboMaster 2020 Robotics Competition (hereinafter referred to as “RM2020 Robotics Competition”) consists of online match schedule and offline match schedule. It is recommended that each team drafts out a 2020 Season Schedule to evaluate its personnel and funding needs. Teams are also advised to stick to a budget when making their robots at the beginning of the preparation stage.

Teams must complete the Technical Assessment task of corresponding stage before qualifying for further Assessment, China Regional Competition or International Regional Competition. Only outstanding teams of China Regional Competition, International Regional Competition or Wild Card Competition qualify for the Final Tournament.

Teams passing the Technical Assessment can gain the corresponding number of Product Discount (hereinafter referred to as “Product Discount”) provided by the RMOC. For details about technical assessment specifications, please refer to [Appendix 1 Technical Assessment](#). For the number of online product discount of each stage, please refer to [Appendix 2 Product Discount](#).

Table 2-1 Online Schedule

Schedule	Item	Property	Rights and Duties
12 p.m., October 15, 2019 - 12 p.m., November 15, 2019	Registration on Official Website	Teams from Mainland China; Teams from Hong Kong, Macao, Taiwan and Overseas	Log in the RoboMaster website and complete the registration as required
12 p.m., November 22, 2019 - 12 p.m., November 23, 2019	Technical Assessment - Rules Exam	Teams from Mainland China; Teams from Hong Kong, Macao, Taiwan and Overseas	<ul style="list-style-type: none"> ● Receive the corresponding product discount of the stage ● Qualify for submitting the Season Schedule
12 p.m., November 24, 2019 - 12 p.m., November 28, 2019	Technical Assessment -	Teams from Mainland China	<ul style="list-style-type: none"> ● Receive the corresponding product discount of the stage
12 p.m., December 16, 2019 - 12 p.m., December 19, 2019	Season Schedule	Teams from Hong Kong, Macao, Taiwan and overseas	

Schedule	Item	Property	Rights and Duties
			<ul style="list-style-type: none"> ● Make the Season Schedule open source and the top five open source teams will receive a set of the Standard referee system of the RM2019 version (VTM not included) ● Qualify for submitting the Mid-term Robot Assessment Video
12 p.m., January 13, 2020 - 12 p.m., January 16, 2020	Technical Assessment - Mid-term Robot Assessment Video	Teams from Mainland China	<ul style="list-style-type: none"> ● Receive the corresponding product discount of the stage
12 p.m., February 17, 2020 - 12 p.m., February 20, 2020		Teams from Hong Kong, Macao, Taiwan and overseas	<ul style="list-style-type: none"> ● Qualify for the Referee System Exam
12 p.m., February 15, 2020 - 12 p.m., February 16, 2020	Technical Assessment - Referee System Exam	Teams from Mainland China	<ul style="list-style-type: none"> ● Qualify for borrowing a set of the Standard, Hero, Engineer, and Sentry referee system ● Qualify for submitting the Technical Proposal
12 p.m., February 29, 2020 - 12 p.m., March 1, 2020		Teams from Hong Kong, Macao, Taiwan and overseas	
12 p.m., March 2, 2020 - 12 p.m., March 5, 2020	Technical Assessment - Technical Proposal	Teams from Mainland China	Qualify for submitting the Final Robot Assessment Video
12 p.m., March 30, 2020 - 12 p.m., April 2, 2020		Teams from Hong Kong, Macao, Taiwan and overseas	

Schedule	Item	Property	Rights and Duties
12 p.m., March 25, 2020 - 12 p.m., March 28, 2020	Technical Assessment - Final	Teams from Mainland China	Qualify for borrowing the full set of Referee System and participating in the China Regional Competition
12 p.m., June 1, 2020 - 12 p.m., June 4, 2020	Robot Assessment Video	Teams from Hong Kong, Macao, Taiwan and overseas	Qualify for borrowing the full set of Referee System and participating in the International Regional Competition
12 p.m., June 15, 2020 - 12 p.m., June 18, 2020	Technical Assessment – Regional Competition Season Summary	Teams from Mainland China	<ul style="list-style-type: none"> ● Issue certificate and cash prize of the China Regional Competition ● Receive the corresponding product discount of the stage
12 p.m., August 24, 2020 - 12 p.m., August 28, 2020	Technical Assessment – Final Tournament	Teams from Mainland China	Issue certificate and cash prize of the Final Tournament
	Season Summary	Teams from Hong Kong, Macao, Taiwan and overseas	Issue certificate and cash prize of the International Regional Competition

Table 2-2 Offline Schedule

Schedule	Item	Property	Rights and Duties
May 2020 – June 2020	China Regional Competition	Teams from Mainland China	Teams from Mainland China are free to choose the division or accept the arrangements made by the RMOC. The priority in choosing the division is based on the score of Technical Assessment
July 2020 – August 2020	Wild Card Competition	Teams from Mainland China	Teams that do not advance to the Final Tournament but rank top in the China Regional Competition

Schedule	Item	Property	Rights and Duties
July 2020 – August 2020	International Regional Competition	Teams from Hong Kong, Macao, Taiwan and overseas	Teams that pass the Final Robot Assessment Video qualify for the International Regional Competition
July 2020 – August 2020	Final Tournament	Teams from Mainland China; Teams from Hong Kong, Macao, Taiwan and Overseas	Teams that rank top in the China Regional Competition or International Regional and teams that advance to the Wild Card Competition qualify for the Final Tournament

3. Participation

There are three types of team: teams from Mainland China, teams from Hong Kong, Macao, Taiwan and Overseas and Chinese and Foreign Joint Teams. The Chinese and Foreign Joint Teams determine their property and entry procedure according to the geographical location of the school.

3.1 Participants

The RoboMaster Competition encourages teamwork and encourages participating members to actively take on important roles within the team. The RMOC will select Outstanding Captains, Outstanding Supervisors and other awards in the Regional Competition and Final Tournament to recognize the players who have made positive contributions to the RoboMaster event. Please refer to the table below for the roles and responsibilities of the participants:

Table 3-1 Participants' Roles and Responsibilities

Roles	Role Instructions	Qty.	Status	Responsibilities
Supervisor	<ul style="list-style-type: none"> The main supervisor of the team is responsible for the formation and management of the team Responsible for guiding the team in making the robot Cannot simultaneously assume the roles of Advisor and Regular Member 	1-5	Faculties of the team's college or university who are qualified for teaching and scientific research and graduate before August 2020 (if necessary, you need to produce relevant evidence at the competition site)	<ul style="list-style-type: none"> Responsible for the safety of the personal property of all team members, and guide and manage the usage of team funds during the competition Guide the team in developing project plans, solving research and development problems, etc., help the team successfully conclude the match During the matches, the Supervisor must actively cooperate with the work of the RMOC, and urge the team Captain and Project Manager to report the progress of the project to the RMOC on a regular basis


Roles	Role Instructions	Qty.	Status	Responsibilities
Advisor	<ul style="list-style-type: none"> ● Provide guidance and support to the team on strategy, technology, management, etc. ● Cannot simultaneously assume the roles of Supervisor and Regular Member <hr/>  Advisor cannot serve as Pit Crew.	0-5	Full-time junior college students, undergraduates, postgraduates, and doctoral students in colleges and universities, as well as engineers, researchers and faculties working in enterprises, research institutions, or freelancers	Advisor can undertake tasks of manufacturing robots and other competition affairs
Regular Member	<ul style="list-style-type: none"> ● Including Captain, Vice Captain, PR Manager, Project Manager, Business Manager and General Member, see the table below for details ● Cannot simultaneously assume the roles of Advisor and Supervisor 	10-35	Full-time junior college students, undergraduates, postgraduates, and doctoral students in colleges and universities learning with proof of school enrollment before August 2020	See the table below for details
Reserve Member	The reserve members of the team are temporarily engaged in personal study and growth, and they can become regular members after the team's inspection and promotion	0-20		Assist the Regular Members with completing the matches, but do not qualify for any awards

Table 3-2 Regular Members' Roles and Responsibilities

Roles	Role Instructions	Qty.	Responsibilities
Captain	<ul style="list-style-type: none"> ● Core team member, the team's technical and tactical leader ● The major liaison of the RMOC ● Cannot simultaneously assume the roles of Project Manager and PR Manager 	1	<ul style="list-style-type: none"> ● Responsible for division of labor, overall planning and tactics arrangement and adjustment ● Attend Captains Meeting, represent the team to confirm match results and participate in appeal processes and any subsequent hearings ● Responsible for the legacy and development of the team after the competition
Vice Captain	<ul style="list-style-type: none"> ● Core team member ● Cannot simultaneously assume the role of Captain 	0-3	<ul style="list-style-type: none"> ● Along with the Captain, forms the core management team ● Assist the Captain with the management of the team
Project Manager	Overall manager of the project	1	In charge of controlling the overall progress of the project, comprehensively considering the overall management of R&D costs and work safety, and playing a decisive role in the overall project subjects (including progress, results and costs, etc.)
PR Manager	Person in charge of promoting the team	1	Responsible for integrating the team's PR resources, establishing a sound publicity system, planning and implementing promotional activities through multiple channels, and improving the influence of the team and RoboMaster events
Business Manager	<ul style="list-style-type: none"> ● Manages business canvassing ● Can be concurrently assumed by the PR Manager, Project Manager, etc. 	0-1	Responsible for integrating the team's internal and external resources, writing and improving investment plans, finding partners through various channels, providing technical support, arranging for fund sponsorship, etc.

Roles	Role Instructions	Qty.	Responsibilities
General Member	Assumes none of the above roles	3-32	-





- Pit Crew: Participating regular members who have registered for this Season and have been entered into the registration system, can walk into the Preparation Area and the Competition Area except for Advisors.
- Captain: The participating team member wearing the 'Captain' armband.

3.2 Participating Team

Below shows the definition, rights and entry procedures for each type of team.


Table 3-3 Types of Participating Teams

Teams from Mainland China	
Definition	Pass the registration review and Technical Assessment within the specified period in order to meet the relevant competition entry requirements and is a team which is geographically located in mainland China.
Entry Rights	Qualified for the competition through official competition qualifications and can qualify for the competition upgrading/promotion. It belongs to the implemented scope of the competition's award regulations.
Entry Procedures	<ol style="list-style-type: none"> The event procedure is carried out in accordance with the standards for teams from Mainland China. <ul style="list-style-type: none">  The event procedure includes policies on matters such as material gifts, purchases, and participation support. Participate in the China Regional Competitions, those who perform satisfactorily will advance to the Wild Card Competition and the Final Tournament.
Teams from Hong Kong, Macao, Taiwan and overseas	
Definition	Through the registration review and Technical Assessment within the specified time, the participating teams from Hong Kong, Macao, Taiwan and overseas regions meet the relevant entry requirements.
Entry Rights	Qualified for the competition through official competition qualifications and can qualify for the competition upgrading/promotion. It belongs to the implemented scope of the competition's award regulations.

Teams from Mainland China	
	 As regards Hong Kong, Macao and Taiwan and overseas teams, due to their different education systems, team members with high school education are allowed to participate in the competition, but the proportion must not exceed 20% of the total number of team players.
Entry Procedures	<ol style="list-style-type: none"> 1. The event procedure is carried out in accordance with the standards for teams from Hong Kong, Macao, Taiwan and overseas. 2. Participate in the International Regional Competition, those who perform satisfactorily will advance to the Final Tournament.
Chinese and Foreign Joint Teams	
Definition	Through the registration review and Technical Assessment within the specified period, the participating teams from Mainland China, Hong Kong, Macao, Taiwan and overseas jointly-run universities that meet the relevant entry requirements.
Entry Rights	Qualified for the competition through official competition qualifications and can qualify for the competition upgrading/promotion. It belongs to the implemented scope of the competition's award regulations.
Entry Procedures	<ol style="list-style-type: none"> 1. If the school's geographical location is in Mainland China, its team is subject to the event procedure in accordance with the standards for teams from Mainland China. 2. If the mainland school forms a team with teams whose universities are located in Hong Kong, Macao, Taiwan and overseas, the team is subject to the event procedure in accordance with the standards for teams from Hong Kong, Macao, Taiwan and overseas. As to how the intercollegiate team must meet the competition qualifications, see the RoboMaster 2020 Robotics Competition Rules Manual R1.

3.3 Seeded Teams

3.3.1 Regional Competition

 The organizing team is determined as a seeded team.

RM2020 Robotics Competition sets the team rankings. The RMOC will handle the scores by teams participating in the RoboMaster Robotics Competition in accordance with the previous competitions (see [Table 3-4](#)), and the scores from the Technical Assessment system for the season (see [Table 3-5](#)), and the total points shall (see [Table 3-6](#)) be calculated (accurate to three decimal place) and ranked by a

certain weight. When the season Technical Assessment system score is derived from each round, please refer to [Appendix 1 Technical Assessment](#).

The number of seeded teams in each division is determined by the actual number of entries in said division and the overall grouping situation. The seeded team list is determined by the top teams in the team rankings.

Table 3-4 Past Results and Points

Past Results	Points
Regional Competition Third Prize	1
Regional Competition Second Prize	2
National Third Prize	3
Final Tournament Top 32	4
Final Tournament Top 16	5
Final Tournament Top 8	6
Third Runner-up	7
Second Runner-up	8
First Runner-up	9
Champion	10

Table 3-5 RM2020 Robotics Competition Technical Assessment System Scores and Points

Scores	Points (round up)
$X < 45$	0
$45 \leq X \leq 100$	$(x-45) / 5.5$

Table 3-6 Point Weight

Item	Weight
The scores from the previous year	50%
The scores from the previous two year	30%
RM2020 Technical Assessment system scores	20%

For example, a team won a spot on the Final Tournament Top 16 in the 2018 season and the Final Tournament Top 8 in the 2019 season; when the current season's Technical Assessment system scores 85, the team's total score for the 2020 season shall be 5.595.

3.3.2 Final Tournament

Please refer to the latest version of RoboMaster 2020 Robotics Competition Participant Manual.

3.4 Platform for Communication and Q&A

The RMOC provides many Q&A channels as shown below. For more contact information, please refer to [RoboMaster Organizing Committee Official Contact Details and FAQ Rules](#).

Table 3-7 Platform for communication and Q&A

Channel	Notes	Office Hours
Official Forum: bbs.robomaster.com	Question with a post title prefix [RM2020 Rule Query] can be posted on the "RoboMaster Robotics Competition" of the "Events" section. The RMOC will check and reply every Thursday and Friday	Office hour: 10:30-12:30, 14:00-19:30 on weekdays
Email: robomaster@dji.com	Send an email with a subject prefix [RM2020 Rule Query] and the RMOC will check and reply every Thursday and Friday	
Tel: 0755-36383255	-	
QQ: 2355418059	When sending a friend request, please write down "Specific competition + college name + role + name".	
WeChat: rmsaiwu		

4. Award System

4.1 Final Tournament



The name of the award will be adjusted later, subject to the actual certificate issued.

The awards of the Final Tournament are as follows:

Table 4-1 Final Tournament Awards

Award	Ranking	Quantity	Reward
National First Prize	Champion: 1st place	1	<ul style="list-style-type: none"> ● Champion Trophy ● Champion Medal ● First Prize Honorary Certificate ● Cash prize of USD \$ 45,000 (pre-tax)
	First Runner-up: 2nd place	1	<ul style="list-style-type: none"> ● First Runner-up Trophy ● First Runner-up Medal ● First Prize Honorary Certificate ● Cash prize of USD \$ 30,000 (pre-tax)
	Second Runner-up: 3rd place	1	<ul style="list-style-type: none"> ● Second Runner-up Trophy ● Second Runner-up Medal ● First Prize Honorary Certificate ● Cash prize of USD \$ 15,000 (pre-tax)
	4th place	1	<ul style="list-style-type: none"> ● First Prize Honorary Certificate ● Cash prize of USD \$ 7,500 (pre-tax)
	5th to 16th place	12	<ul style="list-style-type: none"> ● First Prize Honorary Certificate ● Cash prize of USD \$ 4,500 (pre-tax)
National Second Prize	17th to 32nd place	16	<ul style="list-style-type: none"> ● Second Prize Honorary Certificate ● Cash prize of USD \$ 1,500 (pre-tax)
National Third Prize	Teams which won the Regional Competition First Prize did not advance to the Final Tournament	Multiple	Third Prize Honorary Certificate

4.2 Regional Competition



Since the International Regional Competition also belong to Regional Competition, the award settings stated in this section apply to both competitions.

The awards of the Regional Competition are as follows:

Table 4-2 Regional Competition Awards

Award	Ranking	Quantity	Reward
Regional Competition First Prize	Regional Competition Champion: Regional Competition 1st place	1 per division	<ul style="list-style-type: none"> ● Champion Trophy ● Regional Competition First Prize Honorary Certificate ● Cash prize of USD \$ 4,500 (pre-tax)
	Regional Competition First Runner-up: Regional Competition 2nd place	1 per division	<ul style="list-style-type: none"> ● First Runner-up Trophy ● Regional Competition First Prize Honorary Certificate ● Cash prize of USD \$ 4,500 (pre-tax)
	Regional Competition Second Runner-up: Regional Competition 3rd place	1 per division	<ul style="list-style-type: none"> ● Second Runner-up Trophy ● Regional Competition First Prize Honorary Certificate ● Cash prize of USD \$ 4,500 (pre-tax)
	Regional Competition 4th place	1 per division	<ul style="list-style-type: none"> ● Regional Competition First Prize Honorary Certificate ● Cash prize of USD \$ 4,500 (pre-tax)
	Regional Competition 5th to 8th place	4 per division	<ul style="list-style-type: none"> ● Regional Competition First Prize Honorary Certificate ● Cash prize of USD \$ 2,500 (pre-tax)
	A certain number of top ranking teams (the number is determined according to a certain proportion and the proportion is based on the total number of the participating teams in each division)	Multiple	<ul style="list-style-type: none"> ● Regional Competition First Prize Honorary Certificate ● Cash prize of USD \$ 1,500 (pre-tax)

Award	Ranking	Quantity	Reward
Regional Competition Second Prize	Participating teams that do not obtain the Regional Competition First Prize	Multiple	Regional Competition Second Prize Honorary Certificate

4.3 Open Source Award



- There is no fixed number of open source awards, and the RMOC will rank them according to the quality of the submitted projects. For example, if all open source projects are not particularly outstanding, the first prize of the Open Source Award shall have no winners; if there are multiple outstanding players, multiple winners of the first prize of the Open Source Award can be selected.
- The team that won the Champion, First Runner-up and Second Runner-up in the Final Tournament must follow the specification to open source robots that are specified by the RMOC, otherwise it will affect the issuing of the Final Tournament cash prize. The RMOC will disburse Open Source Awards depending on the actual open source situation.

The awards of the Open Source are as follows. For selection, please refer to [Appendix 3 About Award Selection](#).

Table 4-3 Open Source Awards

Award	Quantity	Reward	Notes
Open Source Grand Prize	Multiple	<ul style="list-style-type: none"> ● Honorary Certificate ● USD \$ 15,000 (pre-tax) 	In the RM2020 season (September 20, 2019 to August 31, 2020), the core technologies operation management approaches were publicly shared in the RoboMaster BBS and on the official website to promote the development of the RoboMaster Competitions and the culture and spirit of engineers
Open Source First Prize	Multiple	<ul style="list-style-type: none"> ● Honorary Certificate ● USD \$ 7,500 (pre-tax) 	
Open Source Second Prize	Multiple	<ul style="list-style-type: none"> ● Honorary Certificate ● USD \$ 4,500 (pre-tax) 	
Open Source Third Prize	Multiple	<ul style="list-style-type: none"> ● Honorary Certificate ● USD \$ 1,500 (pre-tax) 	
Open Source Outstanding Prize	Multiple	<ul style="list-style-type: none"> ● Honorary Certificate ● Class A: USD \$ 750 (pre-tax) ● Class B: USD \$ 450 (pre-tax) ● Class C: USD \$ 300 (pre-tax) 	

4.4 Outstanding Contribution Awards



Outstanding Supervisor award recipient, Outstanding Captain award recipients, and Outstanding Project Manager award recipients are required to submit a personal work summary and experience sharing within one month after the award is announced and are obligated to participate in the exchange meetings and surveys conducted by the RMOC.

The awards of the Outstanding Contribution are as follows. For selection, please refer to [Appendix 3 About Award Selection](#).

Table 4-4 Outstanding Contribution Awards

Award	Quantity	Reward
Outstanding Supervisor	No more than 8 people	<ul style="list-style-type: none"> ● Honorary Certificate ● Cash prize of USD \$ 1,500 (pre-tax)
Outstanding Captain	No more than 8 people	<ul style="list-style-type: none"> ● Honorary Certificate ● Cash prize of USD \$ 750 (pre-tax)
Outstanding Project Manager	No more than 8 people	<ul style="list-style-type: none"> ● Honorary Certificate ● Cash prize of USD \$ 750 (pre-tax)
Outstanding PR Team	No more than 8 teams	<ul style="list-style-type: none"> ● Honorary Certificate ● Cash prize of USD \$ 450 (pre-tax)
Outstanding Business Team	No more than 8 teams	<ul style="list-style-type: none"> ● Honorary Certificate ● Cash prize of USD \$ 450 (pre-tax)
Outstanding Advisor	No more than 8 people	<ul style="list-style-type: none"> ● Honorary Certificate ● Cash prize of USD \$ 450 (pre-tax)
Outstanding Volunteer	<ul style="list-style-type: none"> ● No more than 10 people per each division ● No more than 15 people for the Final Tournament 	Honorary Certificate

4.5 Organization Award

Organization Awards are as follows. For selection, please refer to [Appendix 3 About Award Selection](#).

Table 4-5 Organization Awards

Award	Quantity	Reward
Rookie Award	No more than 5 people	<ul style="list-style-type: none"> ● Honorary Certificate ● Cash prize of USD \$ 750 (pre-tax)

Award	Quantity	Reward
Mainstay Award	No more than 5 people	<ul style="list-style-type: none"> ● Honorary Certificate ● Cash prize of USD \$ 750 (pre-tax)
Competitive Spirit Award	No more than 5 people	<ul style="list-style-type: none"> ● Honorary Certificate ● Cash prize of USD \$ 750 (pre-tax)
Cost Control Award	No more than 5 people	Cash prize of USD \$ 750 (pre-tax)
Top Tactician Award	No more than 5 people	Cash prize of USD \$ 750 (pre-tax)
Comprehensive Competence Award	No more than 5 people	Cash prize of USD \$ 450 (pre-tax)
Rising Star Award	No more than 5 people	RoboMaster Standard that worth USD \$ 3,000

4.6 Aesthetic Design Award



- The RMOC will rank the award according to the quality of the Regional Competition's team aesthetic design. For example, if all Regional Competition team Aesthetic Designs are not particularly outstanding, there shall be no winner in the Outstanding Team Aesthetic Design Award. If there are multiple outstanding entries, multiple winners of the Outstanding Team Aesthetic Design Award can be selected.
- Winners of the Best Team Aesthetic Design Award in the Regional Competition will share their design experience at the Young Engineers Conference.

In order to improve the recognition and aesthetics of the robots' appearance, the RMOC encourages the teams to add industrial design elements when designing the robots' protective case, and the RMOC shall issue forth appearance-related rewards.

The Aesthetic Design Award is divided into Individual Aesthetic Design Award and Team Aesthetic Design Award. Among them, the Individual Aesthetic Design Award will select one best-appearance robot for each unit; the Team Aesthetic Design Award will select the team with better overall appearance of all the robots.

The Regional Competition Aesthetic Design Award will be selected by the RMOC before the official competition of the divisional competition. The annual Aesthetic Design Award will be selected by the RMOC before the Final Tournament. For selection, please refer to [Appendix 3 About Award Selection](#).

Table 4-6 Regional Competition Individual Aesthetic Design Award

Robot	Quantity	Reward
Standard	No more than 3 per division	<ul style="list-style-type: none"> ● Honorary Certificate ● Cash prize of USD \$ 150 (pre-tax)
Engineer	No more than 3 per division	<ul style="list-style-type: none"> ● Honorary Certificate

Robot	Quantity	Reward
		<ul style="list-style-type: none"> ● Cash prize of USD \$ 150 (pre-tax)
Hero	No more than 3 per division	<ul style="list-style-type: none"> ● Honorary Certificate ● Cash prize of USD \$ 150 (pre-tax)
Aerial	No more than 3 per division	<ul style="list-style-type: none"> ● Honorary Certificate ● Cash prize of USD \$ 150 (pre-tax)
Sentry	No more than 3 per division	<ul style="list-style-type: none"> ● Honorary Certificate ● Cash prize of USD \$ 150 (pre-tax)

Table 4-7 Regional Competition Team Aesthetic Design Award

Award	Quantity	Reward
Best Team Aesthetic Design Award	1 team per division	<ul style="list-style-type: none"> ● Honorary Certificate ● Cash prize of USD \$ 300 (pre-tax)
Outstanding Team Aesthetic Design Award	No more than 8 per division	<ul style="list-style-type: none"> ● Honorary Certificate ● Cash prize of USD \$ 150 (pre-tax)

Table 4-8 Annual Individual Aesthetic Design Award

Participating Robot	Quantity	Reward
Standard	No more than 3	<ul style="list-style-type: none"> ● Honorary Certificate ● Cash prize of USD \$ 300 (pre-tax)
Engineer	No more than 3	<ul style="list-style-type: none"> ● Honorary Certificate ● Cash prize of USD \$ 300 (pre-tax)
Hero	No more than 3	<ul style="list-style-type: none"> ● Honorary Certificate ● Cash prize of USD \$ 300 (pre-tax)
Aerial	No more than 3	<ul style="list-style-type: none"> ● Honorary Certificate ● Cash prize of USD \$ 300 (pre-tax)
Sentry	No more than 3	<ul style="list-style-type: none"> ● Honorary Certificate ● Cash prize of USD \$ 300 (pre-tax)

Table 4-9 Annual Team Aesthetic Design Award

Participating Robot	Quantity	Reward
First Prize	No more than 2 teams	<ul style="list-style-type: none"> ● Honorary Certificate ● Cash prize of USD \$ 450 (pre-tax)

Participating Robot	Quantity	Reward
Second Prize	No more than 5 teams	<ul style="list-style-type: none"> ● Honorary Certificate ● Cash prize of USD \$ 300 (pre-tax)
Third Prize	No more than 10 teams	<ul style="list-style-type: none"> ● Honorary Certificate ● Cash prize of USD \$ 150 (pre-tax)

4.7 Robot Combat Award



The number of awards will be based on the selection criteria and the number of robots. For selection, please refer to [Appendix 3 About Award Selection](#).

Table 4-10 Robot Combat Award

Robot Type	Award	Quantity (number)	Reward
Standard	First Prize	Multiple	Honorary Certificate
	Second Prize	Multiple	Honorary Certificate
	Third Prize	Multiple	Honorary Certificate
Engineer	First Prize	Multiple	Honorary Certificate
	Second Prize	Multiple	Honorary Certificate
	Third Prize	Multiple	Honorary Certificate
Hero	First Prize	Multiple	Honorary Certificate
	Second Prize	Multiple	Honorary Certificate
	Third Prize	Multiple	Honorary Certificate
Aerial	First Prize	Multiple	Honorary Certificate
	Second Prize	Multiple	Honorary Certificate
	Third Prize	Multiple	Honorary Certificate
Sentry	First Prize	Multiple	Honorary Certificate
	Second Prize	Multiple	Honorary Certificate
	Third Prize	Multiple	Honorary Certificate

4.8 Creativity Award

Creativity Awards are as follows: For selection, please refer to [Appendix 3 About Award Selection](#).

Table 4-11 Creativity Award

Award	Quantity	Reward
Creativity Award	No more than 5	Honorary Certificate

Appendix 1 Technical Assessment

All teams that compete in the RM2020 Robotics Competition must complete a Technical Assessment in accordance with the requirements of the RMOC and within the time specified. For the schedule of the RM2020 Robotics Competition Technical Assessment, please refer to [2 Season Schedule](#).

The purpose of the Technical Assessment is to demonstrate the technical skills of a team, better prepare the team for the competition, help in the future development, improve the comprehensive competence of demand analysis, cost budgeting, data analysis, report compilation of team members. The score of Technical Assessment will become one of the bases for choosing the division of the Regional Competition and setting seeded teams. It is recommended that participating teams take the Technical Assessment seriously, play an active role in the process and fully demonstrate the team's strength.

Technical Assessment will be graded according to certain requirements and the grade will be displayed in the registration system. The following shows the relation between scores and grades:

Table 4-12 Rating System

Score Range	Grade
$90 \leq X \leq 100$	A
$75 \leq X < 90$	B
$60 \leq X < 75$	C
$45 \leq X < 60$	D
$30 \leq X < 45$	E
$0 \leq X < 30$	F

Technical Assessment Task and Requirement

There are seven Technical Assessment tasks in total in the RM2020 Robotics Competition: Rules Exam, Season Schedule, Mid-term Robot Assessment Video, Referee System Exam, Technical Proposal, Final Robot Assessment Video and Season Summary. Except Rules Exam and Referee System Exam, teams can only submit once in other sections.

The total score of the Technical Assessment is the weighted average of scores of each section. Below shows the weight of each section:

Table 4-13 Weight of Each Section of Technical Assessment

Technical Assessment Task	Weight
Rules Exam	10%
Season Schedule	10%

Technical Assessment Task	Weight
Mid-term Robot Assessment Video	20%
Referee System Exam	10%
Technical Proposal	30%
Final Robot Assessment Video	20%

1. Rules Exam

- Exam content: RoboMaster 2020 Robotics Competition Rules Manual V1.0 and relevant competition rules
- Exam form: 50 multiple-choice questions (generated randomly). Full mark is 100, with 2 marks for each question
- Qualification: 90 or above
- The exam can be done more than one time within the effective time, and the minimum interval between the start time of the first and the second attempt is 40 minutes
- The result of the exam is based on the last submission within the effective exam period

2. Season Schedule

- Format: PDF document
- Document Requirements:
 - Text Format: Sim Sun (Chinese) or Times New Roman (English) in 4-point size, with 1.5 lines spacing
 - File Size: No word limits and include diagrams (flowcharts, tables, etc.)
 - Filename: College Name + Team Name + Season Schedule
- Pass Requirement: Grade D or above
- Evaluation Requirement: There are multiple modules and each has its own requirements. The details and requirements for the modules are as follows:

Table 4-14 Season Schedule Evaluation Requirement

Module	Content	Scoring Criteria	Score
Competition Culture	RM competition details and culture core team culture	Clarity and accuracy	5
Project Analysis	Interpretation of new rules	Interpret the rules correctly and in depth	25

Module	Content	Scoring Criteria	Score
	Requirement analysis and design idea of each type of robot	Clear requirement analysis	
	Other content and schedule (e.g. Battlefield, debugging tool) that are required to complete	Plan comprehensively	
Team Structure	Team's management structure	Reasonable structure	15
	Recruitment direction	Reasonable labor division and combination of regular team members and reserve team members	
	Responsibilities of each role	Clarity of duties	
	Team atmosphere construction and legacy of the team	Reasonable planning and strong executability	
Team Cooperation	Open source materials, manuals and the arrangement of related information in the forum	Abundant and practical information	20
	Use planning of code, drawings and document collaboration tool	Collaborative solution is practical	
	Use planning of R&D management tool (ONES AI or other tools)	Reasonable planning	
	Training and self-learning processes	Reasonable study plan	
Auditing System	Task proposal, allocation, verification, evaluation, progress tracking and results acceptance system	Reasonable processes that are easily executable	10
Resource Management	Evaluation of resources available (budgeting, materials, and manufacturing resources)	Thoroughness of investigation	15
	Arrangement of manpower and schedule	Reasonable planning	

Module	Content	Scoring Criteria	Score
	Robot funds, lab management budget	Reasonable and comprehensive budget planning	
Business Plan	<ul style="list-style-type: none"> ● Planning of demand resources and materials throughout the season ● Planning of sponsorship demand and promotional demand 	Clarity and quality of plan	10
Total			100

3. Mid-term Robot Assessment Video

- Submission Format: Video + BOM Form
- Basic Requirement:
 - Complete functions of Engineer, Hero and Standard and submit the BOM Form of the corresponding robot
 - Display functions and progress of other robots can get extra points
- Video Requirement:
 - Information boards or captions must be shown at the beginning of the video, to include the following details: college name and date and location of recording
 - Every process must include captions or information boards, which must provide clear and accurate explanations for each process shown in the video
 - Ensure only relevant content is shown and the video is tightly edited lasting no longer than three minutes
 - Videos must have a resolution of 720p or higher
- Submission Method:
 - Upload the video to Youku/YouTube and set an access password
 - Fill the BOM Form according to the template
 - Submit the video URL, access password and BOM Form through the registration system
- Pass Requirement: The teams will be ranked according to their total marks for the video and BOM Form, and will pass the assessment according to a certain percentage
- Evaluation Requirement: Different items have different requirements and scores



Display content and basic requirement of each item are subject to further updates.

4. Referee System Examination

- Exam Content: Multiple-choice questions randomly selected from the RoboMaster database. Full mark is 100
- Pass Requirement: 90 or above
- If the pass requirements have not been met within the valid time of the evaluation, repeat the completion of questions. Once several requirements are met, then it will immediately pass the review. The minimum interval between the start of the two questions is 20 minutes. Multiple team members of one team need to participate in the Examination simultaneously.
- The result of the exam is based on the last submission within the effective exam period

5. Technical Proposal

- Format: PDF document
- Document Requirements:
 - Text Format: Sim Sun (Chinese) or Times New Roman (English) in 4-point size, with 1.5 lines spacing
 - File Size: The word count must not exceed 8,000 words and include diagrams (flowcharts, tables, etc.)
 - File Name: College Name + Team Name + Technical Proposal
- Pass Requirement: Grade D or above
- Evaluation Requirement: There are multiple modules and each has its own requirements. The details and requirements for the modules are as follows:

Table 4-15 Technical Proposal Evaluation Requirement

Module	Content	Scoring Criteria	Score
Requirement Confirmation	From the rules and team's ability, determine task priorities and key technologies for winning matches	<ul style="list-style-type: none">● Clarity and quality of technical requirements and specifications● Analyze target performance and calculate theory limit	15

Module	Content	Scoring Criteria	Score
Structural Design	<ul style="list-style-type: none"> ● Technical Proposal of some assembly or component (can refer to the below table) ● Analysis of Design For Manufacturability (DFM) 	Analysis of the quality, requirements, performance, material usage, component selection, and manufacturing method	25
Programming Logic	Show the program logic diagram for one of the robots	Logic accuracy and modularity	10
Scientific Design Method	Analyze specific cases of theory analysis, software simulation, experimental test and practice improvement that apply to robots	Whether the process of theory guiding practice, experiment and data analysis, and iterative design has been reflected	20
Innovation	Use case description of innovative methods applied to robots	Whether innovations lead to better results	10
Cost Control	Analyze the sections and parts that have adopted measures to reduce cost	Whether the cost control solution is reasonable and takes effect	10
Industrial Design	<ul style="list-style-type: none"> ● Industrial design proposal ● Typical user-robot interaction case 	<ul style="list-style-type: none"> ● Whether the design idea is specific and the appearance is aesthetic and practical ● Whether the user-robot interaction will be optimized and the overall arrangement is reasonable, and maintainability will also be considered 	10
Total			100


- Based on a certain functional component, the structural design analysis can focus on the following aspects:

Table 4-16 Structural Design Reference

Item	Content
Requirements Analysis	Mechanism function, performance indexes and analysis under different working conditions. Sensor and actuator selection parameters
Design Drawings	Taking one component as an example and show the engineering diagram (with STEP file)
Materials and Manufacturing Processes	Lists the materials selection, manufacturing techniques/cost, and plan to reduce costs for different batches
Finite Element Method (FEM)	A FEM report for a certain component that includes: loading condition, meshing, results analysis, optimization

6. Final Robot Assessment Video

- Submission Format: Video + Cost report
- Basic Requirement: Display videos of Hero, Engineer, Standard and Sentry and cost report of the whole team
- Submission method:
 - Upload the video to Youku/YouTube and set an access password
 - Submit the video URL, access password and cost report through the registration system
- Video requirements are the same with the Mid-term Robot Assessment Video
- Evaluation Requirement: Different items have different requirements and scores

 Display content and basic requirement of each item are subject to further updates.

7. Season Summary

- Format: PDF document
- Document Requirements:
 - Text Format: Sim Sun (Chinese) or Times New Roman (English) in 4-point size, with 1.5 lines spacing
 - File Size: The word count must not exceed 5,000 words
 - Filename: College Name + Team Name + Season Summary
- Pass Requirement: Grade D or above
- Evaluation Requirement: There are multiple modules and each has its own requirements. The details

and requirements for the modules are as follows:

Table 4-17 Season Summary Evaluation Requirement

Module	Content	Scoring Criteria	Score
Academic Innovation	All competition-related patents, academic articles, and open-source documents	The quality and quantity of patents, articles and open-source documents	30
Competition Analysis	Analyze problems that arise in each match and then find a cause and solution	Comprehensiveness of analysis adequacy of data helpfulness of the summary	15
Team Development	Summary of the problems and challenges encountered throughout the season, plans to improve and develop the team		30
R&D Management	The input and actual output of R&D management, summary of strengths and weaknesses		25
Total			100

Appendix 2 Product Discount Quantity

Name	Rules Exam	Season Schedule	Mid-term Robot Assessment Video	Regional Competition Summary
RoboMaster Development Board Type A	3	3	2	1
RoboMaster Development Board Type B	3	3	2	1
RoboMaster Development Board Type C	8	3	2	1
RoboMaster Development Board Cables Package	1	1	1	1
RoboMaster GM6020 Brushless DC Motor	4	6	4	2
RoboMaster M3508 P19 Brushless DC Gear Motor	8	12	8	4
RoboMaster M3508 Accessories Package	2	2	2	1
RoboMaster C620 Brushless Motor ESC	8	12	8	4
RoboMaster M2006 P36 Brushless DC Gear Motor	4	4	2	1
RoboMaster C610 Brushless Motor ESC	4	4	2	1
RoboMaster SNAIL 2305 Brushless DC Motor	4	8	4	2
RoboMaster C615 Brushless Motor ESC	4	8	4	2
MATRICE 600 Part46 - Intelligent Flight Battery TB47S	8	4	2	1
Manifold 2-G 128G (CN)	3	3	2	1

Appendix 3 About Award Selection

Individual winners or team winners of each award are required to submit experience sharing for the award.

A. Open Source Award

a) Selection Rule

The RMOC will score the open source materials according to the following two criteria: the basic format and content. The specific details and scores of each criterion used will be announced separately.

- (95, 100]: Open Source Grand Prize
- (90, 95]: Open Source First Prize
- (85, 90]: Open Source Second Prize
- (80, 85]: Open Source Third Prize
- (70, 80]: Open Source Outstanding Prize

b) Application Process

To be determined.

B. Outstanding Contribution Awards

Table 4-18 Outstanding Contribution Award Selection Criteria

Award	Selection Criteria	Selection Method
Outstanding Supervisor	<ul style="list-style-type: none">● The team that the Supervisor belongs to displays a good competitive spirit, and there exist no violations that seriously breach the rules and the spirit of civilized competition● Guides the student team and instills team culture, displays a high sense of responsibility, is caring towards each team member, cares about the growth and development of students in the field of competition, and is deeply revered by said students	<ol style="list-style-type: none">1. Participants shall submit the "RM2020 Outstanding Supervisor Application Form" to apply2. After the participants apply, the RMOC selects the best according to the "application form"

Award	Selection Criteria	Selection Method
Outstanding Captain	<ul style="list-style-type: none"> ● The team that the Captain belongs to displays a good competitive spirit, and there exist no violations that seriously breach the rules and the spirit of civilized competition ● The Captain's team actively cooperates with the RMOC and is willing to share knowledge, create a good communication atmosphere in the team circle; ensure the official information access rate within the team; completes the participation process on time ● The team is divided according to the grade class, and the performance class is maintained at the same level as or improved from that of the previous competition 	<ul style="list-style-type: none"> ● Participates in the Captain's discussions, the content of the discussions is widely endorsed, and the top three votes after each discussion will enjoy extra points ● Score class: <ol style="list-style-type: none"> 1. Regional Competition Third Prize 2. Regional Competition Second Prize/Final Tournament Third Prize 3. Final Tournament Second Prize 4. Final Tournament First Prize 5. Final Tournament Champion, First Runner-up, Second Runner-up
Outstanding Project Manager	<ul style="list-style-type: none"> ● The team that the Project Manager belongs to displays a good competitive spirit, and there exist no violations that seriously breach the rules and the spirit of civilized competition ● Employ good project management methods, control the overall progress of the project, comprehensively consider R&D costs, work safety, etc., and comprehensively manage the whole work 	Selected according to the Project Manager's assessment score ranking

Award	Selection Criteria	Selection Method
Outstanding PR Team	<ul style="list-style-type: none"> ● The team that the PR team members belongs to displays a good competitive spirit, and there exist no violations that seriously breach the rules and the spirit of civilized competition ● Submit a publicity report on time every month, actively plan the team's PR work so that the team's influence will be improved 	Selected according to the PR team's assessment score ranking and comprehensive performance evaluation
Outstanding Business Team	<ul style="list-style-type: none"> ● The team that the Business team members belongs to displays a good competitive spirit, and there exist no violations that seriously breach the rules and the spirit of civilized competition ● Actively plan the investment promotion within the team, integrate the internal and external resources of the team, locate investment partners through various channels in order to provide technical support and fund sponsorship for the team 	Selected according to the Business team's assessment score ranking
Outstanding Advisor	<ul style="list-style-type: none"> ● The team that the Advisor belongs to displays a good competitive spirit, and there exist no violations that seriously breach the rules and the spirit of civilized competition 	<ol style="list-style-type: none"> 1. Participants shall submit the "RM2020 Outstanding Advisor Application Form" to apply 2. After the participants apply, the RMOC selects the best according to the "application form"

Award	Selection Criteria	Selection Method
	<ul style="list-style-type: none"> In the aspects of technological innovation, tactical design, team management, team building, etc., the advisor provides constructive and practical suggestions to the team, and provides guidance and support to the team in strategy, technology and management 	
Outstanding Volunteer	<ul style="list-style-type: none"> Participate in RM2020 volunteer work, understand, respect, and love the RoboMaster competition, and actively cooperate with the work of the RMOC The Advisor is diligent and pragmatic, display teamwork spirit, and show outstanding performance in volunteer work Display no dereliction of duty, misconduct, or major work mistakes 	Nomination is done by the person in charge of the RMOC, and selection is then made according to the nomination materials

C. Organization Award

Table 4-19 Organization Award Selection Criteria

Award	Selection Criteria	Selection Method
Rookie Award	<ul style="list-style-type: none"> The team has qualified for the Regional Competition for three consecutive years (including for the present competition) Never entered the Top 8 in the Final Tournament in two years The current competition scores are upgraded to one level higher than the previous one's scores 	<ul style="list-style-type: none"> The team with more overall progress will be given priority for the award Score class: <ol style="list-style-type: none"> Regional Competition Third Prize Regional Competition Second Prize/Final Tournament Third Prize Final Tournament Second Prize

Award	Selection Criteria	Selection Method
		<p>4. Final Tournament First Prize</p> <p>5. Final Tournament Champion, First Runner-up, Second Runner-up</p>
Mainstay Award	Hve participated for three consecutive years (including in the current competition), and won 8th-32nd place in the Final Tournament in three years	Teams with a longer participation period and teams with better scores will be given priority
Competitive Spirit Award	<ul style="list-style-type: none"> ● The team displays a good competitive spirit, and there exist no violations that seriously breach the rules and the spirit of civilized competition ● The team is more active in forums, WeChat groups, etc., and gets along well with the RMOC, volunteers, and other teams ● The team is helpful, active and an open source of information to others, enthusiastically sharing their experiences and willing to provide resources to other teams 	<ul style="list-style-type: none"> ● Selection is to be made according to the feedback given by the staff of the RMOC, other teams, and volunteers of the competition ● Teams with more positive feedback from the RMOC staff, other teams, and event volunteers will be given priority
Cost Control Award	To be determined	To be determined
Top Tactician Award	To be determined	To be determined

Award	Selection Criteria	Selection Method
Comprehensive Competence Award	<ul style="list-style-type: none"> ● The team displays a good competitive spirit, and there exist no violations that seriously breach the rules and the spirit of civilized competition ● The team or the lab whether the team belongs to has rich experience in robotics competitions ● The team or the lab whether the team belongs to has extensive patents, published papers or scientific research records of robotics ● The team or the lab whether the team belongs to has abundant information on entrepreneurship, jobs and further education 	<ul style="list-style-type: none"> ● Selection is to be made according to various relevant information of teams collected by the RMOC ● Teams with more abundant information and that perform well in various aspects will be given priority
Rising Star Award	<ul style="list-style-type: none"> ● The team has not qualified for the RoboMaster Robotics Competition for the past two seasons (RM2018, RM2019) ● The team has not received gift materials which are subject to teams that participate in RoboMaster competitions for the first time for the past two seasons (RM2018, RM2019) ● Participate and pass the Rules Exam within the specified period ● Agree with and accept relevant terms of the Gift Materials contract (for details, please refer to RoboMaster 2020 Robotics Competition Gift Materials Contract) 	<p>Selection is to be determined and made according to the register information</p>

D. Aesthetic Design Award

Selection Criteria

Table 4-20 Individual Aesthetic Design Award Selection Criteria

Scoring Criteria	Weight	Instructions		
		4-5 points	2-3 points	1 point
Degree of Completion	30%	Serious attitude, in line with the requirements of the rules, regular and orderly components, strong outer shape, rich decorative details	Serious attitude, in line with the requirements of the rules, outer shape which is rich in decorative details	Attitude displayed is not serious or does not meet the requirements of the rules
Aesthetic	30%	Beautiful overall design, with a reproducible design language	Relatively beautiful overall	Unsightly
Identifiability	20%	The appearance is very characteristic, easy to be remembered and recognized at a glance	The appearance is somewhat characteristic, and somewhat easy to be remembered and recognized at a glance	The appearance is not characteristic and isn't memorable
Innovation	20%	New materials, new processes, new models, novel design language are used, etc., with excellent overall results	Try to adopt new materials, new processes, new shapes, novel design language, etc.	Follow the prescribed order, display no innovation

The selection criteria for the Regional Competition Team Aesthetic Design Award are as follows:

Table 4-21 Regional Competition Team Aesthetic Design Award Selection Criteria

Scoring Criteria	Weight	Instructions		
		4-5 points	2-3 points	1 point
Degree of Completion	30%	Serious attitude, in line with the requirements of the rules, the whole team's robots display the same design, regular and orderly components, strong outer shape, rich decorative details	Serious attitude, in line with the requirements of the rules, most robots have the same design	Attitude displayed is not serious, does not meet the requirements of the rules or only individual robots have such a design
Aesthetic	20%	The team is beautiful overall, with a reproducible design language	The team is is relatively beautiful overall	Unsightly
Identifiability	20%	The overall appearance of the team is very characteristic, easy to be remembered and recognized at a glance	The overall appearance of the team is somewhat characteristic, and somewhat easy to be remembered and recognized at a glance	The appearance is not characteristic and isn't memorable
Coordination	20%	The team's robot color, material, style and language are coordinated, and the overall impression is strong	The team's robots are relatively coordinated in appearance, uniform in style, and display a certain sense of unity	The style isn't uniform
Innovation	10%	New materials, new processes, new models, novel design language are used, etc., with excellent overall results	Try to adopt new materials, new processes, new shapes, novel design language, etc.	Follow the prescribed order, display no innovation

The selection criteria for the Annual Team Aesthetic Design Award are as follows:

Table 4-22 Annual Team Aesthetic Design Award Selection Criteria

Scoring Criteria	Weight	Instructions		
		4-5 points	2-3 points	1 point
Degree of Completion	30%	Serious attitude, in line with the requirements of the rules, the whole team's robots display the same design, regular and orderly components, strong outer shape, rich decorative details	Serious attitude, in line with the requirements of the rules, most robots have the same design	Attitude displayed is not serious, does not meet the requirements of the rules or only individual robots have such a design
Aesthetic	20%	The team is beautiful overall, with a reproducible design language	The team is relatively beautiful overall	Unsightly
Identifiability	20%	The overall appearance of the team is very characteristic, easy to be remembered and recognized at a glance	The overall appearance of the team is somewhat characteristic, and somewhat easy to be remembered and recognized at a glance	The appearance is not characteristic and is difficult to remember
Degree of Coordination	20%	The team's robot color, material, style and language are coordinated, and the overall impression is strong	The team's robots are relatively coordinated in appearance, uniform in style, and display a certain sense of unity	The style isn't uniform
Innovation	10%	New materials, new processes, new models, novel design language are used, etc., with excellent overall results	Try to adopt new materials, new processes, new shapes, novel design language, etc.	Follow the prescribed order, display no innovation

Scoring Criteria	Weight	Instructions		
		4-5 points	2-3 points	1 point
Firmness	Multiply by the total score as a coefficient	See the below table		

Table 4-23 Firmness Criteria and Score Instructions

Coefficient	Criteria
50%	<ul style="list-style-type: none"> ● Fixation stability: The appearance of the robots and the fixation of protective shell is unstable and easy to loosen, resulting in deformation and shedding. For example: It is bonded using unfirm tapes and can be easily taken off. ● Material strength: The protective shell is made of a material that is fragile and easily broken, and is easily damaged in the combat. For example: Use a double-sided adhesive, foam adhesive or other adhesive to stabilize the fixation adhesion.
75%	<ul style="list-style-type: none"> ● Fixation stability: The appearance of the robots and the protective shell have a certain fixation stability, and the material is bonded using a material having a certain strength. For example: Use a double-sided adhesive, foam adhesive or other adhesive to stabilize the fixation adhesion. ● Material strength: The material used for the protective shell is not easily damaged, but the overall structural strength is not high, and damage may occur in the case of collision etc. For example: With PC board splicing, the connections are easily broken and fractured.
100%	<ul style="list-style-type: none"> ● Fixation stability: The appearance of the robots and the protective shell have good fixation stability, and the material with high strength is used for bonding or soft material for connecting. For example: Use material with firm adhesion, such as a fiber-reinforced tape, a magic buckle, etc. to stabilize the fixation adhesion. ● Material strength: The material used for the protective shell is not easily damaged, and the overall structural strength is good, and it is difficult to be damaged in the case of collision etc. For example: Made with PC bending, but the overall shell structure strength is slightly poorer.

Coefficient	Criteria
125%	<ul style="list-style-type: none"> <li data-bbox="343 228 1434 474">● Fixation stability: The appearance of the robots and the protective shell have good fixation stability. They are rigidly connected by screws or quick-disassembly structure, and they are firmly fixed and can be used as part of the anti-collision structure of the robots. For example: The outer frame is protected by a metal material and is firmly fixed. <li data-bbox="343 497 1434 743">● Material strength: The material used for the protective shell is difficult to break, and the overall structure is highly strong. Considering the design and connection of the details section, such as the connections, it also protects and buffers the robot collision in the Battlefield. For example: The PC shell connection is adhered with a fiber tape and has a foamed lining as a buffer.

Selection Process

If the participating teams need to participate in the Aesthetic Design Award selection, they shall abide by following processes:

Regional Competition

1. The participating team members shall submit the registration materials for award consideration. The registration materials are: A photo of the participating team robots (including all participating robots) and an introductory text of less than 100 words.
2. The RMOC and the participating teams shall then vote for the selection.

Final Tournament

1. It is optional for the participating teams to sign up for the Aesthetic Design Award.
2. Each participating team sends a representative to form a panel of judges with the RMOC.
3. The Aesthetic Design Award selection meeting will be held according to the registration conditions, and the participating teams will carry the robots to the designated positions in sequence.
4. The jury team shall then score the robots of the participating teams.

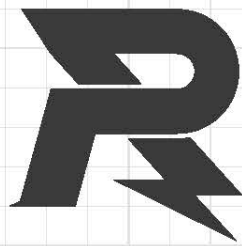
E. Robot Combat Award

Selection is to be made according to the actual performance of each robot in the matches, according to specific data for ranking, and according to a specific percentage.

F. Creativity Award

Table 4-24 Creativity Award Selection Criteria

Scoring Criteria	Weight	Instructions		
		4-5 points	2-3 points	1 point
Innovation	50%	The structure is innovative, and it is manifested in solving similar tasks with new methods or solves unsolved tasks.	Optimize and improve upon existing mature solutions, display certain innovation and improve work efficiency	It is on the straight and narrow, but display no innovation
Practicality	30%	Practical and efficient, and the actual performance is ranked in the top 10% of similar robots in the current season's competition	It displays certain practicability and high efficiency. The actual performance is in the top 20% of similar robots in the current season's competition	Not practical, with low efficiency
Influence	20%	Great influence on the participating teams and is widely emulated for learning	Have a certain influence on other teams and a certain reference value and reference significance	Have no reference value



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