

V1.1

Using a 55-56 motor driver chip and
Pulse-Width Modulation (PWM), the
RoboMaster C620 Brushless DC Motor Speed
Controler enables precise control over motor
torque.

Exclusively designed for the RoboMaster
M350C P18 Brushless DC Motor and
C620 Brushless DC Motor Speed Controller,
the M350C Accessories Kit includes several
screws and a terminal block.

Refer to System Specification Manual,
RoboMaster User Manual, Introduction
of RoboMaster Kits

The M350C Accessories Kit includes several
screws and a terminal block, ensuring
compatible installation system when by the
Independent System.



ROBOMASTER

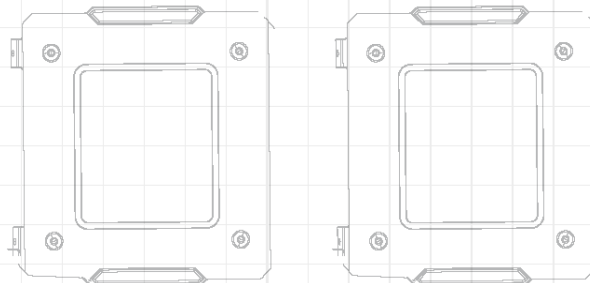
ROBOMASTER 2020

TECHNICAL CHALLENGE

PARTICIPANT MANUAL

Prepared by the RoboMaster Organizing Committee

Updated on **January, 2020**



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
2020.1.7	V1.1	<ol style="list-style-type: none">1. Update Platform for Communication and Q&A.2. Update Open Source Award setting.3. Add Outstanding Contribution Award and its selection standart.4. Update Appendix 1, assessment requirements of Mid-Term Robot Assessment Video and Final Robot Assessment Video.
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 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 Technical Challenge is set under RoboMaster Competition. The RoboMaster 2020 Technical Challenge (hereinafter referred to as “RM2020 Technical Challenge”) 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 that complete the registration and pass the Technical Assessment qualify for the Final Tournament. For details about the Technical Assessment, please refer to Appendix 1 Technical Assessment. Teams registering for the Technical Assessment can get a product discount. For details, please refer to [RoboMaster 2020 Instructions for Purchasing Materials](#).

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., March 28, 2020 - 12 p.m., March 29, 2020	Technical Assessment– Referee System Exam	Teams from Mainland China; Teams from Hong Kong, Macao, Taiwan and overseas	Qualify for submitting the Final Robot Assessment Video
12 p.m., March 30, 2020 - 12 p.m., April 2, 2020	Technical Assessment– Final Robot Assessment Video	Teams from Mainland China	Qualify for borrowing the participating robot's Referee System and participating in the China Regional Competition
		Teams from Hong Kong, Macao, Taiwan and overseas	Qualify for borrowing the participating robot's Referee System and participating in the Final Tournament

Table 2-2 Offline Schedule

Schedule	Item	Property	Rights and Duties
May 2020 – June 2020	China Regional Competition	Teams from Mainland China	<ul style="list-style-type: none"> ● Teams that pass the Final Robot Assessment Video qualify for the China Regional Competition ● 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 rankings of the total score of Technical Assessment
July 2020 – August 2020	Final Tournament	Teams from Mainland China	Teams that rank top in the China Regional Competition qualify for the Final Tournament
		Teams from Hong Kong, Macao, Taiwan and overseas	Directly 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 to recognize the participants 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 Team 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 Coordinate campus resources, guide the team in developing project plans, control preparation schedule, help the team successfully conclude the match During the matches, the Supervisor must actively cooperate with the work of the RMOC

Roles	Role Instructions	Qty.	Status	Responsibilities
Advisor	<ul style="list-style-type: none"> ● Team guidance ● Cannot simultaneously assume the roles of Supervisor and Team Member 	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	<ul style="list-style-type: none"> ● Provide guidance and support to the team on strategy, technology, management, etc. ● Advisor can undertake tasks of manufacturing robots and other competition affairs
Team Member	<ul style="list-style-type: none"> ● Including Captain, Project Manager and General Member, see the table below for details ● Cannot simultaneously assume the roles of Advisor and Supervisor 	Meet the requirements stated in Table 3-3	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

Table 3-2 Team 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 	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

Roles	Role Instructions	Qty.	Responsibilities
			<ul style="list-style-type: none"> Responsible for the legacy and development of the team after the competition
Project Manager	Overall manager of the project	0-1	Responsible for systemizing project tasks, coordinating fund, material and human resources of the team, assisting to establish and improve team management norms and systems, and reasonably planning and managing the goal, schedule and cost of the team's project
General Member	Assume none of the above roles	Meet the requirements stated in Table 3-3	-

Table 3-3 The Number of Team Members in Each Challenge



Challenge	Number of Team Member	Number of Pit Crew
Engineer Projectile Obtaining	3-8	3
Standard Racing and Smart Firing	2-5	3
2V2 Confrontation	3-10	6 (including Projectile Supplier)
Dart Targeting	2-5	4

3.2 Participating Team

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

Table 3-4 Types of Participating Teams

Teams from Mainland China	
Definition	Passes the registration review 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 current season competition, award selection and competition upgrading/promotion.

Entry Procedures	<ol style="list-style-type: none"> The event procedure is carried out in accordance with the standards for teams from Mainland China. <hr/>  The event procedure includes material gifts, purchases, and participation support. <hr/> <ol style="list-style-type: none"> Participate in the China Regional Competitions, those who perform satisfactorily will advance to the Final Tournament.
Teams from Hong Kong, Macao, Taiwan and overseas	
Definition	Through the registration review within the specified time, the participating teams from Hong Kong, Macao, Taiwan and overseas regions meet the relevant entry requirements.
Entry Rights	<p>Qualified for the current season competition, award selection and competition upgrading/promotion.</p> <hr/>  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"> The event procedure is carried out in accordance with the standards for teams from Hong Kong, Macao, Taiwan and overseas. Directly qualify for the Final Tournament.
Chinese and Foreign Joint Teams	
Definition	Through the registration review 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 current season competition, award selection and competition upgrading/promotion.
Entry Procedures	<ol style="list-style-type: none"> 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. 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 R1 rule of Chapter 6.2.1.1 Participating Teams/Personnel of RoboMaster 2020 Technical Challenge Rules Manual.

3.3 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 3-5 Platform for Communication and Q&A

Channel	Office Hour	Notes
Official Forum: bbs.robomaster.com	Office hour: 10:30-12:30, 14:00-19:30 on weekdays	-
Email: robomaster@dji.com		-
Tel: 0755-36383255		-
QQ: 2355418059		When sending a friend request, please write down
WeChat: rmsaiwu		"Specific competition + college name + role + name"

4. Award System

4.1 Final Tournament



- The name of the award will be adjusted later, subject to the actual certificate issued.
- The number of prizes of each challenge is subjected to the actual number of qualified teams. The number of First Prize is no more than 10% of the total participating teams in principle. For the actual number, please pay attention to the latest version of Participant Manual released by the RMOC.

Awards of 2V2 Confrontation of the Final Tournament are as follows:

Table 4-1 2V2 Confrontation Awards

Award	Ranking	Quantity	Reward
National First Prize	Champion: 1st place	1	<ul style="list-style-type: none"> ● Champion Trophy ● First Prize Honorary Certificate ● Cash prize of USD \$ 750 (pre-tax)
	First Runner-up: 2nd place	1	<ul style="list-style-type: none"> ● First Runner-up Trophy ● First Prize Honorary Certificate ● Cash prize of USD \$ 750 (pre-tax)
	Second Runner-up: 3rd place	1	<ul style="list-style-type: none"> ● Second Runner-up Trophy ● First Prize Honorary Certificate ● Cash prize of USD \$ 750 (pre-tax)
	4th place	1	<ul style="list-style-type: none"> ● First Prize Honorary Certificate ● Cash prize of USD \$ 750 (pre-tax)
National Second Prize	-	Multiple	Second Prize Honorary Certificate
National Third Prize	-	Multiple	Third Prize Honorary Certificate

The below table of awards is applicable to Engineer Projectile Obtaining, Standard Racing and Smart Firing and Dart Targeting (i.e. non-2V2 Confrontation) of the Final Tournament:

Table 4-2 Non-2V2 Confrontation Awards

Award	Quantity	Reward
National First Prize	Multiple	<ul style="list-style-type: none"> ● First Prize Trophy ● First Prize Honorary Certificate ● Cash prize of USD \$ 750 (pre-tax)
National Second Prize	Multiple	Second Prize Honorary Certificate

Award	Quantity	Reward
National Third Prize	Multiple	Third Prize Honorary Certificate

4.2 China Regional Competition



The number of prizes of each challenge is subjected to the actual number of qualified teams. The number of First Prize is no more than 10% of the total participating teams in principle. For the actual number, please pay attention to the latest version of Participant Manual released by the RMOC.

Awards of 2V2 Confrontation of the China Regional Competition are as follows:

Table 4-3 2V2 Confrontation Awards

Award	Ranking	Quantity	Reward
Regional Competition First Prize	Champion: 1st place	1	<ul style="list-style-type: none"> ● Champion Trophy ● First Prize Honorary Certificate ● Cash prize of USD \$ 450 (pre-tax)
	First Runner-up: 2nd place	1	<ul style="list-style-type: none"> ● First Runner-up Trophy ● First Prize Honorary Certificate ● Cash prize of USD \$ 450 (pre-tax)
	Second Runner-up: 3rd place	1	<ul style="list-style-type: none"> ● Second Runner-up Trophy ● First Prize Honorary Certificate ● Cash prize of USD \$ 450 (pre-tax)
	4th place	1	<ul style="list-style-type: none"> ● First Prize Honorary Certificate ● Cash prize of USD \$ 450 (pre-tax)
Regional Competition Second Prize	-	Multiple	Second Prize Honorary Certificate
Regional third prize	-	Multiple	Third Prize Honorary Certificate

The below table of awards is applicable to Engineer Projectile Obtaining, Standard Racing and Smart Firing and Dart Targeting (i.e. non-2V2 Confrontation) of the China Regional Competition:

Table 4-4 Non-2V2 Confrontation Awards

Award	Quantity	Reward
Regional Competition First Prize	Multiple	<ul style="list-style-type: none"> ● First Prize Honorary Certificate ● Cash prize of USD \$ 450 (pre-tax)
Regional Competition Second Prize	Multiple	Second Prize Honorary Certificate

Award	Quantity	Reward
Regional third prize	Multiple	Third 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 of 2V2 Confrontation and rank top three of non-2V2 Confrontation 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 2 About Award Selection.

Table 4-5 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 2

About Award Selection.

Table 4-6 Outstanding Contribution Awards

Award	Quantity	Prize
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 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

Appendix 1 Technical Assessment



Except teams that participate in the Dart Targetting challenge, teams that pass the Technical Assessment of the RoboMaster 2020 Robotics Competition are considered to have directly passed the Technical Assessment of the RoboMaster 2020 Technical Challenge and do not need to submit repeatedly.

All teams that compete in the RM2020 must complete a Technical Assessment in accordance with the requirements of the RMOC and within the time specified. For the schedule of the RM2020 season 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 China Regional Competition. 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:

Appendix Table 1 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

In RoboMaster 2019 Technical Challenge, there are two Technical Assessment tasks in total: Referee System Examination and Final Robot Assessment Video. In the Final Robot Assessment Video section, teams can only submit once.

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

Appendix Table 2 Weight of Each Section of Technical Assessment

Technical Assessment Task	Weight
Referee System Examination	30%
Final Robot Assessment Video	70%

1. 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.
- The result of the exam is based on the last submission within the effective exam period

2. Final Robot Assessment Video

- Submission Format: Video of each challenge and its BOM Form
- Basic Requirement: Display video of the participating robot of each challenge and its BOM Form
- Video Requirement:
 - Name of university/college, shooting date and location must be stated at the beginning of the video
 - Subtitles or commentaries should be included to explain each process in the video
 - Only contain relevant content and the video is tightly edited lasting no longer than three minutes
 - Video must have a resolution of 720p or higher
 - Full lineup display
- Submission Method:
 - Upload the video to Youku and set an access password
 - Submit the video URL, access password and BOM For through the registration system
- Video Assessment Requirements: Different challenges have different requirements and scores. The following are the specific requirements for each challenge:

Appendix Table 3 Final Robot Assessment Video Requirement

Item	Display Content	Scoring Criteria		Score
		Criteria for Pass	Criteria for Full Score	
Standard Racing and Smart Firing	Aesthetic Design	<ul style="list-style-type: none"> ● Circuit and electronic components have been protected to a certain extent and there are no bare wires ● Have certain shape ● The number and combinations of coating color meet the requirement 	<ul style="list-style-type: none"> ● Circuit and electronic components have been protected properly and there are no bare wires ● The aesthetic design is excellent and the shell is sophisticatedly manufactured ● The number and combinations of coating color meet the requirement and the coating design is aesthetic 	10
	Complete movement	Show normal movement	there is no HP deduction caused by power consumption exceeding the limit during the rapid shuttle run and the omnidirectional movement is flexible	5
	Launch 50 rounds of 17mm projectiles successively to the Small Armor Module three meters away and calculate the hit rate	Hit rate is no less than 50%	Hit rate is no less than 90%	20

Item	Display Content	Scoring Criteria		Score
		Criteria for Pass	Criteria for Full Score	
	Climb a 15-degree slope and display the power consumption data in real time	When climbing the 15-degree slope, there is no HP deduction caused by power consumption exceeding the limit	Make the most of buffer energy and ensure that the power is stable with no HP deduction caused by power consumption exceeding the limit	10
	Display of the mounting location of the Referee System	<ul style="list-style-type: none"> ● Display the mounting hole of each referee system module separately ● The duration of mounting hole display of each module shall be not less than one second 	Display the mounting hole of each referee system module separately and the mounting effect of the full set of the Referee System	20
	Launch the ramp	<ul style="list-style-type: none"> ● Can launch the ramp ● Can move normally after launching the ramp 	<ul style="list-style-type: none"> ● When launching the ramp, there is no HP deduction caused by power consumption exceeding the limit ● After launching the ramp, the robot lands smoothly and there is no collision of frames 	20
	Activate the Power Rune	Can automatically recognize and hit the Armor Module seven meters away	Can activate the Power Rune successfully	10

Item	Display Content		Scoring Criteria		Score
			Criteria for Pass	Criteria for Full Score	
	Other highlights		Except the above display content, there is one extra stable highlight to display	Except the above display content, there is two or more extra stable highlights to display	5
2V2 Confrontation	S t a n d a r d	Aesthetic Design	<ul style="list-style-type: none"> ● Circuit and electronic components have been protected to a certain extent and there are no bare wires ● Have certain shape ● The number and combinations of coating color meet the requirement 	<ul style="list-style-type: none"> ● Circuit and electronic components have been protected properly and there are no bare wires ● The aesthetic design is excellent and the shell is sophisticatedly manufactured ● The number and combinations of coating color meet the requirement and the coating design is aesthetic 	5
		Complete movement	Show normal movement	The power consumption should not exceed the limit during the rapid shuttle run and the omnidirectional movement is flexible	2

Item	Display Content	Scoring Criteria		Score
		Criteria for Pass	Criteria for Full Score	
	Launch 50 rounds of 17mm projectiles successively to the Small Armor Module three meters away and calculate the hit rate	Hit rate is no less than 50%	Hit rate is no less than 90%	10
	Climb a 15-degree slope and display the power consumption data in real time	When climbing the 15-degree slope, there is no HP deduction caused by power consumption exceeding the limit	Make the most of buffer energy and ensure that the power is stable with no HP deduction caused by power consumption exceeding the limit	10
	Display of the mounting location of the Referee System	<ul style="list-style-type: none"> ● Display the mounting hole of each referee system module separately ● The duration of mounting hole display of each module shall be not less than one second 	Display the mounting hole of each referee system module separately and the mounting effect of the full set of the Referee System	10
	Other highlights	Except the above display content, there is one extra stable highlight to display	Except the above display content, there is two or more extra stable highlights to display	10

Item	Display Content		Scoring Criteria		Score
			Criteria for Pass	Criteria for Full Score	
S e n t r y		Complete movement on the Sentry Rail	Can move stably on the Sentry Rail	Can move stably and rapidly on the Sentry Rail and there is no HP deduction caused by power consumption exceeding the limit	5
		Launch 50 rounds of 17mm projectiles successively to the Small Armor Module three meters away and calculate the hit rate	Hit rate is no less than 50%	Hit rate is no less than 90%	15
		Display of the mounting location of the Referee System	<ul style="list-style-type: none"> ● Display the mounting hole of each referee system module separately ● The duration of mounting hole display of each module shall be not less than one second 	Display the mounting hole of each referee system module separately and the mounting effect of the full set of the Referee System	10
		Visual counterattack	Can recognize armors	<ul style="list-style-type: none"> ● Can rapidly recognize armors of a moving Standard ● The attack hit rate is greater than 50% 	20

Item	Display Content		Scoring Criteria		Score
			Criteria for Pass	Criteria for Full Score	
				<ul style="list-style-type: none"> Can defeat a moving Standard within 15 seconds 	
Engineer Projectile Obtaining	Complete movement	Show normal movement	Shuttle run is rapid and the omnidirectional movement is flexible	20	
	Climb the slope	Can climb the 15-degree slope	Pass the 15-degree slope rapidly, move stably, evenly and flexibly	20	
	Obtain projectiles	Can obtain projectiles inside the Projectile Container on the Resource Island	Can obtain all projectiles inside the three Projectile Containers on the diagonal position of the Resource Island, hand over successfully and display the duration of the whole process	60	
Dart Targeting	Adjusting the angles of pitch and yaw axes of the Dart Launcher	Has an angle adjusting mechanism	Adjusting the angles of pitch and yaw axes quickly and precisely	20	
	Loading and launching dart	Able to load and launch dart	Able to load and launch dart quickly and continuously	20	
	Launching dart to attack a target at an Outpost's distance	Launching dart to attack a target near an Outpost's distance	Able to attack a target	40	

Item	Display Content	Scoring Criteria		Score
		Criteria for Pass	Criteria for Full Score	
	Demonstrating the installation of the Referee System (or the installation spot reserved for the Referee System)	<ul style="list-style-type: none"> ● Display the mounting hole of each referee system module separately ● The duration of mounting hole display of each module shall be not less than one second 	Display the mounting hole of each referee system module separately and the mounting effect of the full set of the Referee System	20

- BOM Form Assessment Requirements: All challenges are applicable to the following requirements and score:

Appendix Table 4 BOM Form Requirement

Display Content	Scoring Criteria		Score
	Criteria for Pass	Criteria for Pass	
BOM Form	Part BOM is complete, including unit price and total price	<ul style="list-style-type: none"> ● BOM of all parts, including screws ● Classification is clear and well-arranged 	10

Appendix 2 About Award Selection

Individual winners or team winners of Open Source 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.

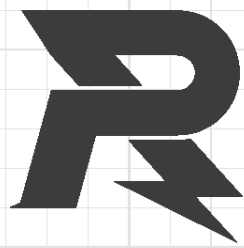
B. Outstanding Contribution Awards

Appendix Table 5 Outstanding Contribution Awards 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 participant applies, 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 performance level, and the performance level of the current season 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 ● Performance level: <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 ● Employs good project management methods, controls the overall progress of the project, comprehensively considers R&D costs, work safety, etc., and comprehensively manages the whole work 	Selected according to the Project Manager's assessment score ranking

Award	Selection Criteria	Selection Method
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 ● 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 	<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"
Outstanding Volunteer	<ul style="list-style-type: none"> ● Participates in RM2020 volunteer work, understands, respects, and loves the RoboMaster competition, and actively cooperates with the work of the RMOC ● The volunteer is diligent and pragmatic, displays teamwork spirit, and shows outstanding performance in volunteer work ● Displays no dereliction of duty, misconduct, or major work mistakes 	<p>Nomination is done by the person in charge of the RMOC, and selection is then made according to the nomination materials</p>



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