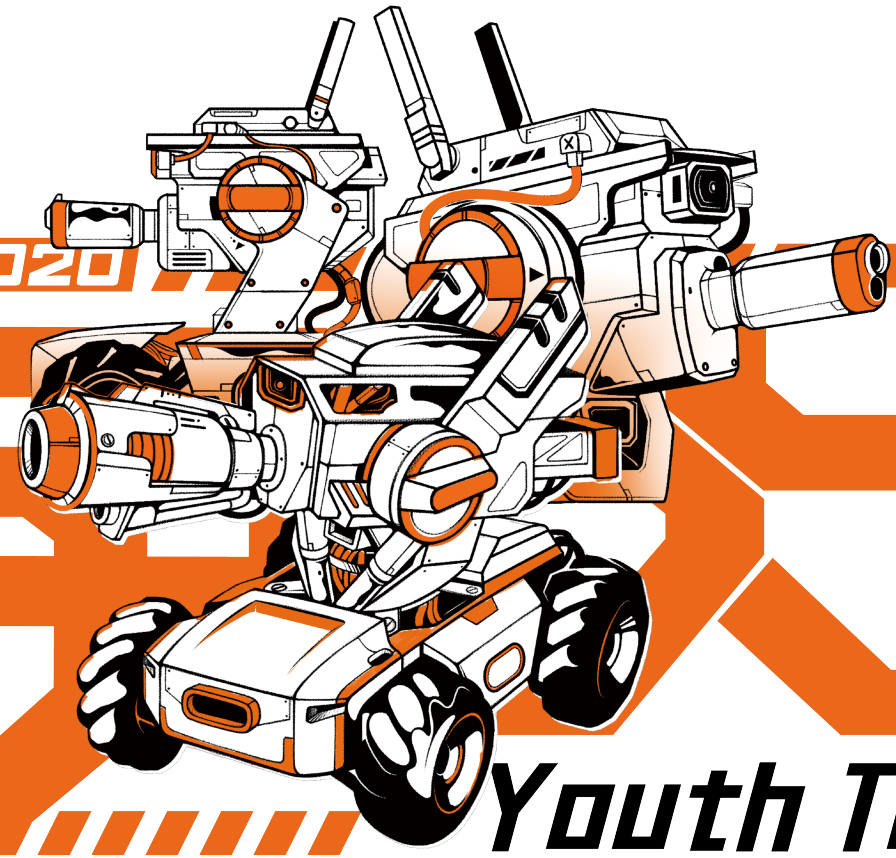
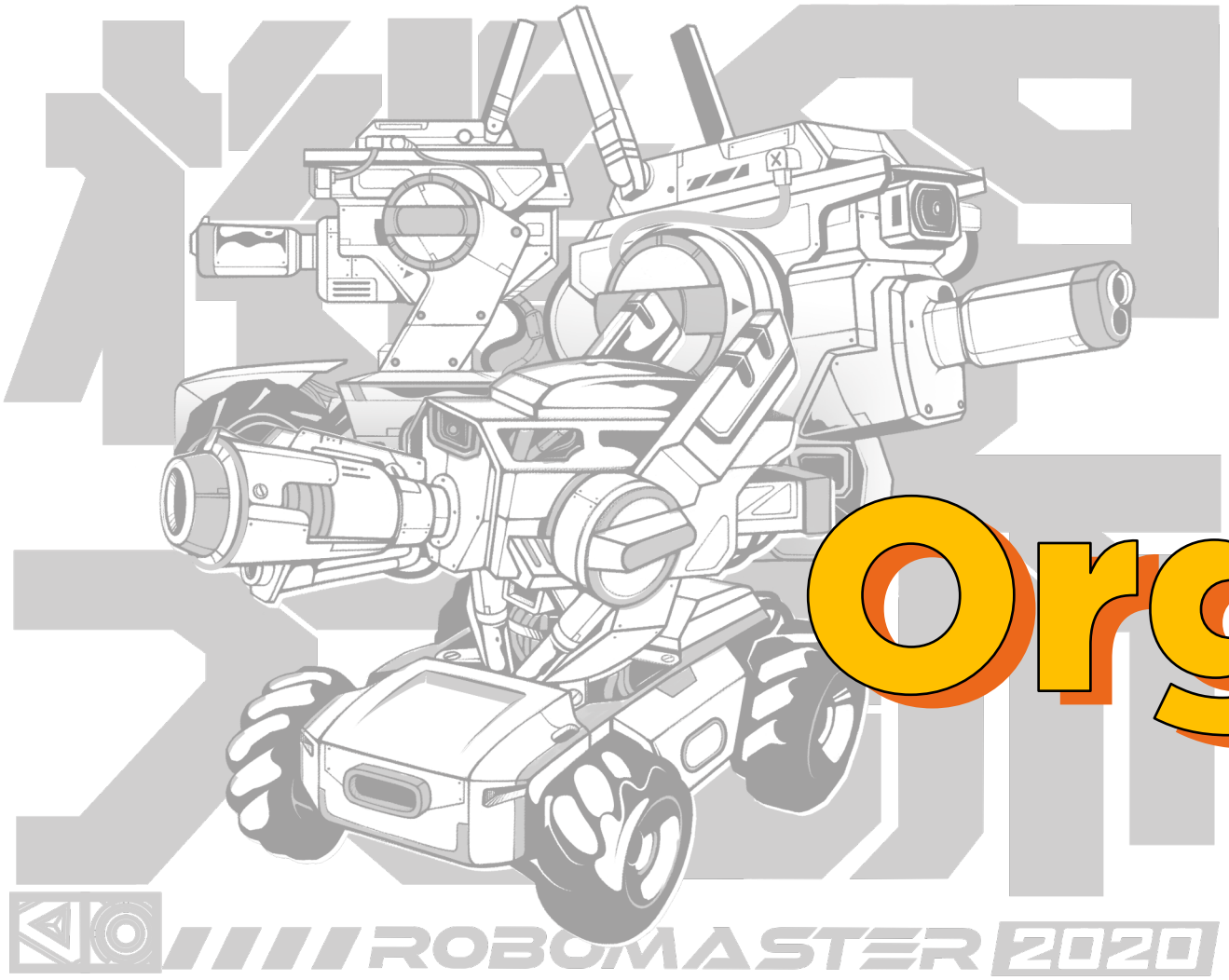
ROBOMASTER 2020

战令大师



Youth Tournament



01 Organizer

DJI

Bringing new perspectives to the world with technology and innovation

Drone systems

Handheld imaging systems

Robotics education

FAST COMPANY

Top ten global innovative companies in the consumer electronics sector in 2015

TESLA dji 大疆创新 Google

Forbes

Most innovative companies in China 2019

HUAWEI dji 大疆创新 蚂蚁金服

Mechanical Production

Esports

Talent

Innovative Startups

Robotics Education

“Made in China 2025”

New Engineering

Technology

AI

“Development Plan for New Generation of

Building a strong country

Artificial Intelligence”

DJI Robotics Education RoboMaster High School Camp

A practical engineering education platform for top students around the world

Technical theory seminars

Lectures by leading experts

Visits to university labs

Robot commissioning in teams

Summer camp robotics competition

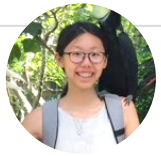
Technical Q&A with camp participants

- A practical robotics training program for promising engineering talent
- A strict selection process for top innovative talent from high schools around the world
- Preparing students for university through systematic training courses for cutting-edge engineering, lectures by leading experts and professional guidance by tutors
- Fostering logical thinking and self-guided learning in students and improving their overall aptitude and teamwork ability
- A scientific mechanism for talent assessment that ensures the most outstanding talent is selected for the talent bank, which provides an important channel for enrollment in top universities
- Participants are rewarded with DJI products and receive a recommendation letter, program completion certificate, etc.

DJI Robotics Education RoboMaster High School Camp

A talent assessment mechanism approved by top universities

Participants of previous camps have received offers from the world's top universities such as: Harvard University, Cornell University, University of Pennsylvania, University of California, Berkeley, University of Michigan, Carnegie Mellon University, University of Toronto, Olin College of Engineering, the Hong Kong University of Science and Technology, Tsinghua University, Shanghai Jiaotong University, Fudan University, Harbin Institute of Technology, Southern University of Science and Technology.



Jiang Yao, 2017 winter camp participant, currently an Electrical and Computer Engineering Bachelor's Degree student at Carnegie Mellon University

"I am thankful to the engineers and my seniors at DJI for their care and guidance. RoboMaster is a big family that is really warm and welcoming. I had an amazing experience at the summer camp, which was why I decided to join RoboMaster again in the summer as a high school intercollegiate team member. Thank you RoboMaster again for igniting my passion for robots and inspiring my future plans in life .

Wu Xinyi, 2018 summer camp participant, currently an Electrical and Computer Engineering Bachelor's Degree student at Olin College

"RoboMaster Summer Camp was a milestone in my journey of becoming an engineer, for teaching me how to apply my knowledge effectively in practice. The teamwork experience and programming and hardware skills I gained from the summer camp provided me with a solid foundation for university studies.

Yang Lizhi, 2018 winter camp participant, currently an Electrical Engineering and Computer Sciences Bachelor's Degree student at University of California, Berkeley

"At the winter camp, we developed great team spirit and a sound understanding of engineering applications, through the process of designing robots from scratch. I learned a lot during this experience. How limited materials should be used to realize the functions we need? How can processing and assembly be set up in a way that achieves the greatest efficiency? How can an iteration be executed within a short development cycle? These are issues that are not often paid attention to in competitions such as the FTC and FRC. I was also able to include this experience as part of my university application, which really helped me to secure an offer from the university.

Scan on WeChat

Check out videos of the camp

DJI Robotics Education RoboMaster Competitions

The most prestigious university robotics competition in the country | Globally unique IP for shooting battle Esport

5 Years
History of Competition

528
Participating Universities

30000+
Participating Students

20+
Participating Countries and Regions

300 mil
Competition Exposure

200+
Competition Patents Owned by Organizer

47
Countries and Regions Covered by Livestream

3
Livestream Languages

80 mil +
Organizers of Event Livestream

University of California, Berkeley

Tsinghua University

Peking University

National University of Singapore

University of Washington

Carnegie Mellon University

.....

*This ranking is based on the "Times Higher Education World University Rankings 2020"

DJI Robotics Education University Robotics Competition

Organized by the Communist Youth League of China

| One of the 34 assessment criteria for the “National University Subject Ranking”

中国共产主义青年团中央委员会

关于举办第十九届全国大学生机器人大赛的通知

共青团各省、自治区、直辖市委，新疆生产建设兵团团委：

全国大学生机器人大赛始终坚持“让思维沸腾起来，让智慧行动起来”的宗旨，在推动广大高校学生参与科技创新实践、培养工程实践能力、提高团队协作水平、培育创新创业精神方面发挥了积极作用，培养出一批爱创新、会动手、能协作、勇拼搏的科技精英人才，在高校和社会上产生了广泛、良好的影响。

为深入学习贯彻落实习近平新时代中国特色社会主义思想和党的十九大精神，深入学习宣传贯彻习近平总书记“7·2”重要讲话精神和团的十八大精神，进一步引导广大高校学生积极投身“大众创业、万众创新”的时代潮流，将于2020年举行第十九届全国大学生机器人大赛。现将大赛有关事项通知如下。

一、大赛名称

第十九届全国大学生机器人大赛

二、组织单位

主办单位：共青团中央

支持单位：中国青少年发展基金会

全国学校共青团研究中心

协办单位：教育部应用技术大学（学院）联盟、教育部高等学校机械类专业教学指导委员会、教育部高等学校计算机类专业教学指导委员会、山东电视台

大赛组委会秘书处设在北京科技大学

三、大赛项目

第十九届全国大学生机器人大赛下设4项赛事：ROBOCON赛事、RoboMaster赛事、ROBOTAC赛事和机器人创业赛。

1. ROBOCON赛事。该项赛事主题为“绿茵争锋”和“机器马术”两项，参赛队员为2020年8月前注册在籍的高校全日制在校本科生，每校允许一支队伍报名。赛事决赛由山东省邹城市人民政府承办。

2. RoboMaster赛事。该项赛事由共青团中央联合深圳市人民政府共同举办，团深圳市委、大疆创新科技有限公司承办。参赛队员为2020年8月前注册在籍的高校非在职博士研究生、硕士研究生与全日制本科生、专科生，每校允许一支队伍报名参赛。对于成功通过技术审核的初次参赛队伍，组委会将免费赠送一套机器人器材。

3. ROBOTAC赛事。赛事分为竞技赛和竞速赛两项，参赛队员为2020年8月前注册在籍的高职高专院校学生。

4. 机器人创业赛。参赛队员为2020年8月前注册在籍的高校学生或毕业不超过3年的本科生、专科生、硕士研究生、博士研究生。

四、大赛时间安排

1. 报名与确认。需登录各项赛事官方网站，在线填写报名反馈信息、查询竞赛具体规则、竞赛时间、地点等要求。ROBOCON、RoboMaster、ROBOTAC三项赛事报名时间为自通知发布之日起至2019年11月22日；2019年11月29日前，各赛事

中国高等教育学会
CHINA ASSOCIATION OF HIGHER EDUCATION

网站首页 | 学会概况 | 学会活动 | 会员服务 | 高教视点 | 政策法规 | 学术观点 | 投稿平台

学会资讯
学术活动
通知公告

当前位置： 中国高等教育学会 > 学会活动 > 学会资讯

2018全国普通高校学科竞赛排行榜重磅发布

作者：中国高等教育学会 浏览量：2640 时间：2019-02-22

排行榜为高校提高人才培养质量提供服务性参考信息。自2017年12月14日，由中国高等教育学会“高校竞赛评估与管理体系”专家工作组在杭州发布2012-2016年我国普通高校学科竞赛排行榜以来，学会针对高校竞赛研究工作正式拉开序幕。2018年2月2日，中国高等教育学会在北京继续发布2013-2017年普通高校学科竞赛排行榜，并于当年4月份在武汉发布我国首部“全国大学生竞赛白皮书（2012-2017）”，为进一步规范管理，推动和发挥学科竞赛类活动在教育教学、创新人才培养等方面的重要作用，提供了规范和引导。

2019年1月19日，高校竞赛评估排行榜专家委员会第二次会议在杭州召开，会议通过无记名投票，通过15项竞赛新增列入2014-2018年高校竞赛排行榜，其中本科类竞赛12项，高职类竞赛3项，列入排行榜的竞赛项目从原来的“18+1”项转变为“30+4”项（具体竞赛名单请见表1）

表1 评估纳入的竞赛名称一览表

序号	列入时间	竞赛名称	备注
7	2012-2016、2013-2017年排行榜列入	全国大学生化学实验邀请赛	
8		全国高等医学院校大学生临床技能竞赛	
9		全国大学生机械创新设计大赛	
10		全国大学生结构设计竞赛	
11		全国大学生广告艺术大赛	
12		全国大学生智能汽车竞赛	
13		全国大学生交通科技大赛	
14		全国大学生电子商务“创新、创意及创业”挑战赛	
15		全国大学生节能减排社会实践与科技竞赛	
16		全国大学生工程训练综合能力竞赛	
17		全国大学生物流设计大赛	
18		“外研社杯”全国英语演讲大赛	
19		全国职业院校技能大赛	只纳入高职排行
21		全国大学生机器人大赛RoboMaster	
23		全国大学生化工设计竞赛	
24		全国大学生先进成图技术与产品信息建模创新大赛	

DJI Robotics Education University Robotics Competition

The Whampoa Military Academy of the Robotics Industry

Integrated Engineer's Training Structure

Theoretical knowledge

Building depth and breadth in knowledge and theoretical foundation

Hands-on application

Planning, localization/problem-solving, details handling and resource coordination abilities

Overall aptitude

- Innovation, teamwork, communication, self-management and self-learning abilities
- Adaptability and learning from failures

Using the South China Tiger Team of the South China University of Technology as an example

190+

Utility Patents

170+

Patents

8

Startups by Undergraduates

No.	Company Name
1	Guangzhou Chengshi Information Technology Co., Ltd.
2	Guangzhou Xiangtian Smart Technology Co., Ltd.
3	Guangzhou Botai Electromechanical Technology Co., Ltd.
4	Guangzhou Jizhen Smart Technology Co., Ltd.
5	Guangzhou Lianwei Internet of Things Technology Co., Ltd.
6	.....

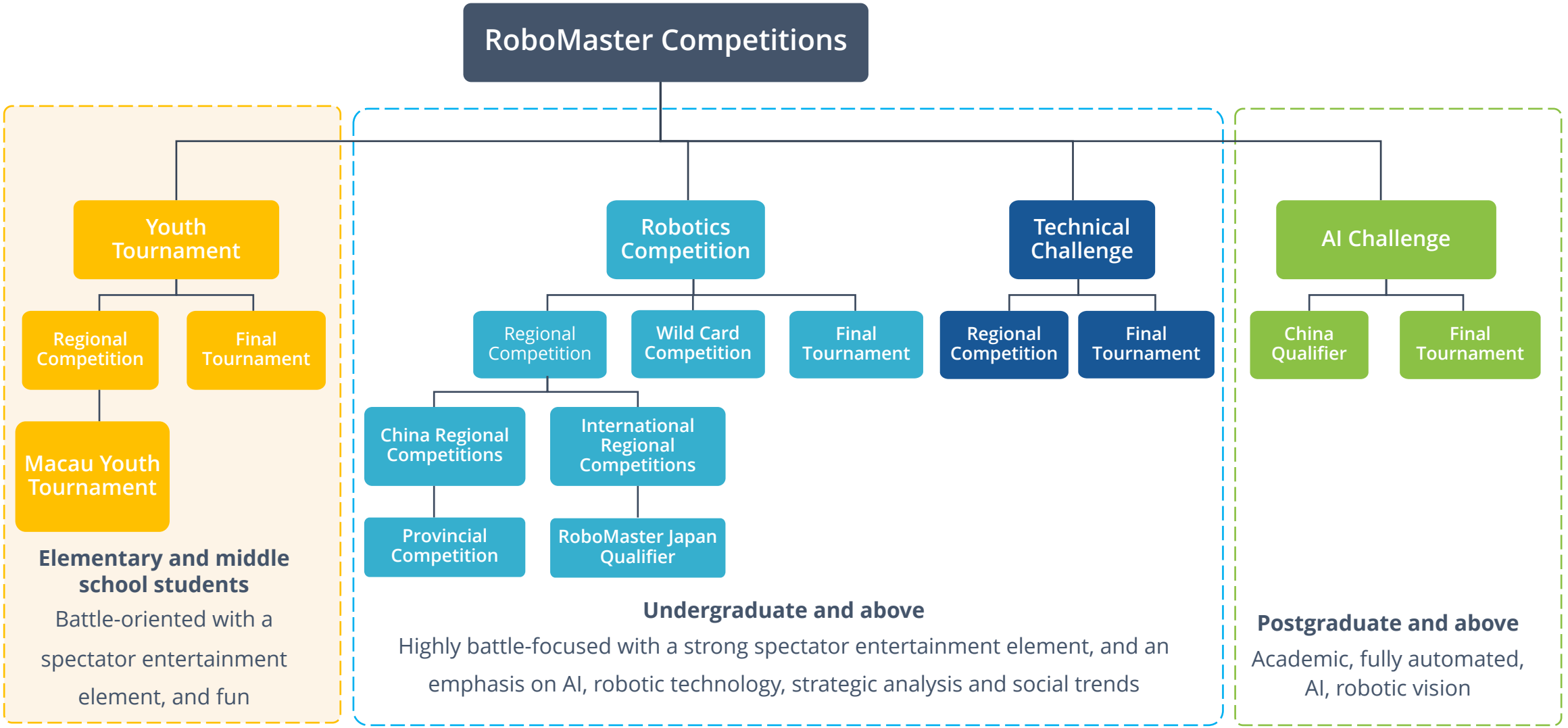
Data as of 2018

Scan on WeChat

Check out informational videos

DJI Robotics Education Competition Structure

A platform nurturing the growth of youth engineers



Elementary and middle school students

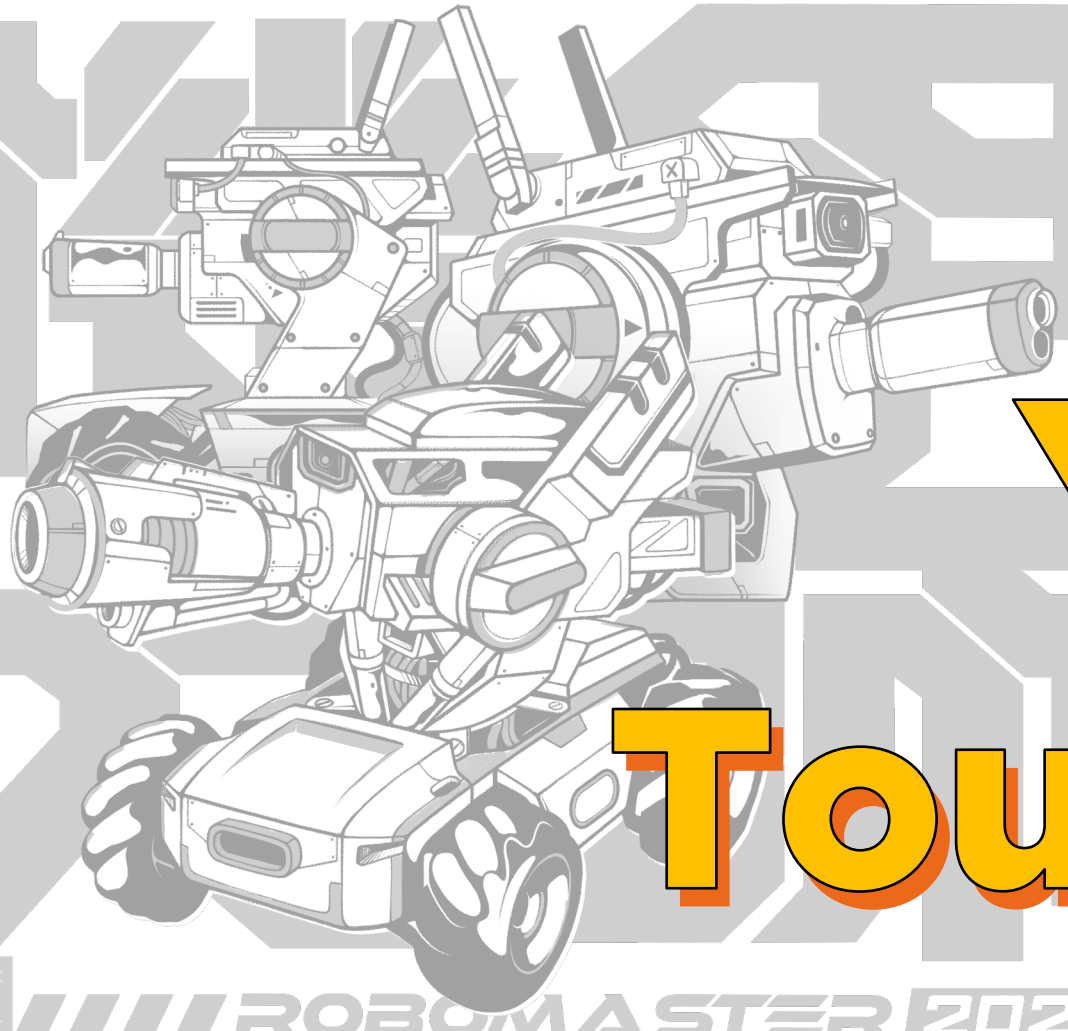
Battle-oriented with a spectator entertainment element, and fun

Undergraduate and above

Highly battle-focused with a strong spectator entertainment element, and an emphasis on AI, robotic technology, strategic analysis and social trends

Postgraduate and above

Academic, fully automated, AI, robotic vision



ROBOMASTER 2020

02 Youth Tournament

Overview First Launch in 2020

A competition set in motion after three years of planning by the top team

Event experience comprising three years of preparation and five years of competition

- Over a hundred DJI employees committed as full-time members of the competition event team with complete control over the quality of the competition
- A self-developed referee system with a fully automated referee video feature to ensure the fairness of the competition
- Five years' experience in organizing university competitions, with close to a thousand participating team members and more than 20,000 spectators for each event
- Three years of development and planning for the Youth Tournament

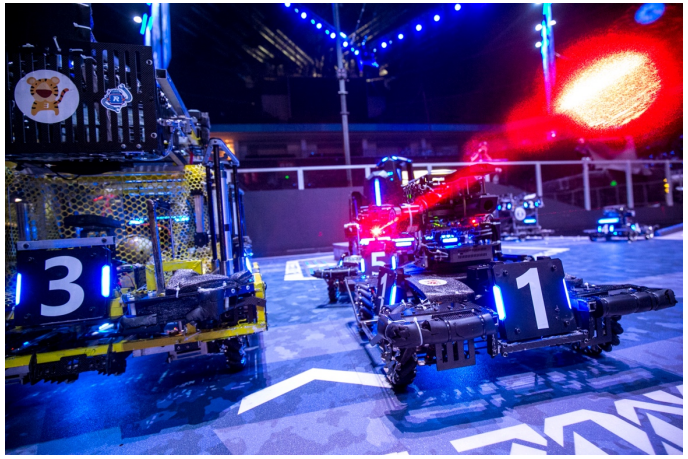
RMB 10 million invested in first year of launch

- The inaugural tournament will feature more than 20 regional competitions with estimated 500 participating teams and more than 3000 participants
- More than RMB 10 million invested with the full commitment of the entire team
- The competition will be strictly monitored for quality to develop it into the foremost youth robotics competition in the country

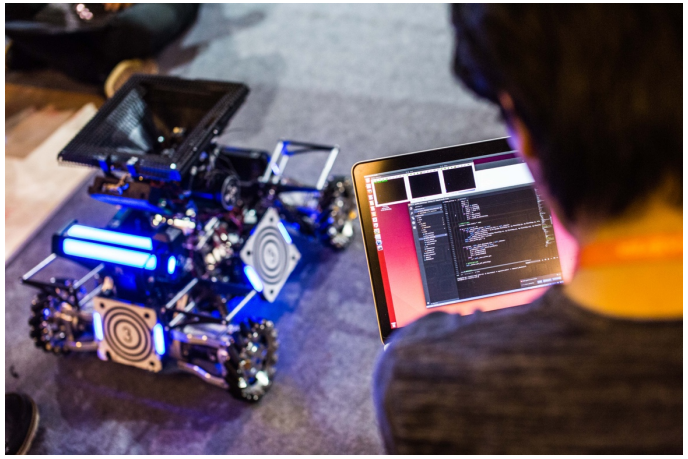
Overview Competition Highlights

Emulating the university competition style

Combining Innovation, Technology and Spectator Appeal



A robotic competition
that incorporates a globally unique shooting battle format and eSport elements



Learning about the multiple dimensions of robotics
Mechanical, embedded systems, algorithms

Hardcore technology, intense battle, mind-bending strategy
Exclusive livestream solutions, self-developed data panels

Overview Competition Highlights

A flexible and comprehensive sharing platform for nurturing growth

Educational

Official courses, open-source materials

Sharing events held from time to time

Online community forums and offline activities

Opportunities to meet peers from around the country

Closely linked to the High School Camp and university robotics competitions

Building networks for the growth of talent

Overview Competition Requirements

RoboMaster 2020
RoboMaster Youth Tournament

For secondary and primary school students aged 9 - 19

Target Participants

General secondary and primary school and full-time vocational school students (proof of student identity should be valid up to August 2020)

Participating Institution

Each school is allowed to send not more than two teams

Competition Categories

[Junior Category]

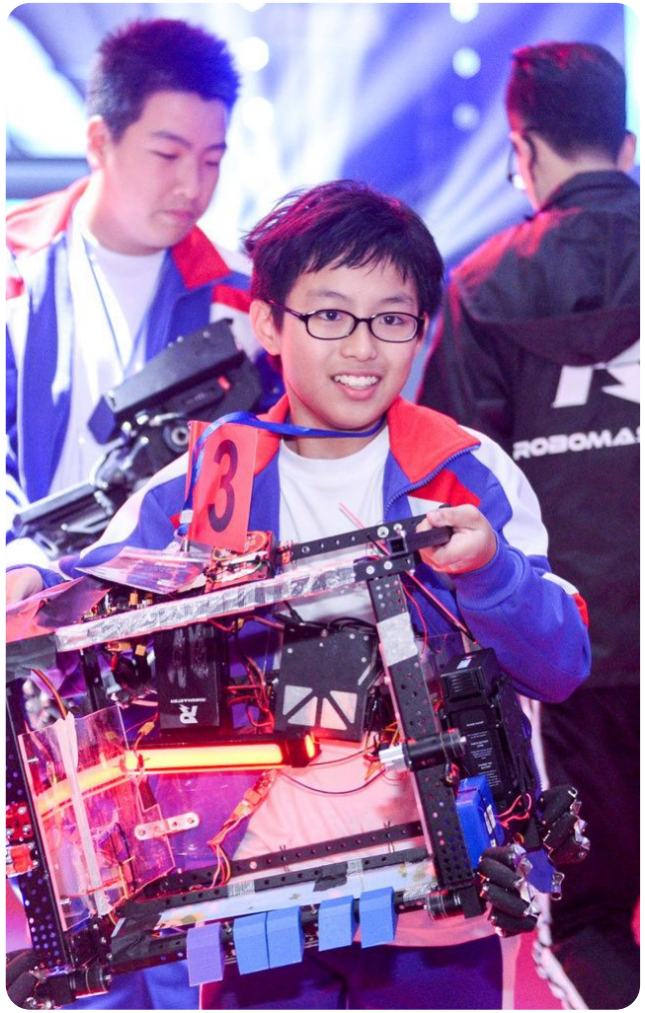
Age 9 - 15

[Senior Category]

Age 15 - 19

Team Size

Each team must consist of 5 - 8 student members, and be guided by 1 - 3 supervising teachers



Overview Competition Schedule

Open for Pre-Registration
December 12, 2019

PRE-REGISTRATION

REGISTRATION

Open for Official Registration
March 2020

REGIONAL

National Regional Competitions
June-October 2020
Macau, Beijing, Chongqing, Fujian, Guangdong, Hebei, Henan, Hubei, Hunan, Jiangsu, Liaoning, Ningxia, Shanxi, Shanxi, Shandong, Shanghai, Sichuan, Taiwan, Hong Kong, Singapore, Xinjiang, Yunnan, Zhejiang...

FINALS

Final Tournament
Late 2020
Shenzhen

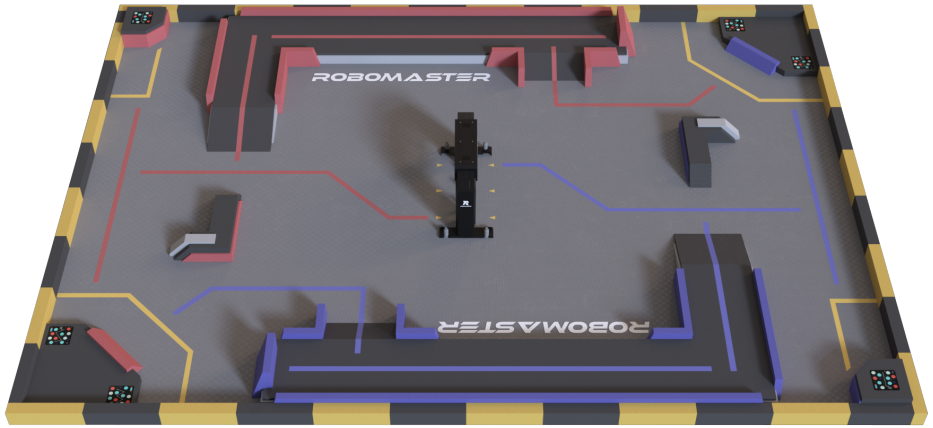
*Regional Competitions are listed in alphabetical order by the first letter of their names, and are based on the latest information released

Rules Basic Information

4v4 ground-and-air battle

Description of rules

Teams are required to develop or modify their own robots, and engage in a 4v4 tactical battle at the designated battlefield by controlling the robots and launching projectiles to attack the enemy team's robots or base. Multiple missions have to be completed during the match. The winner at the end of the match shall be the team with the higher remaining base HP.



Team sizes

*To complete secondary development using the robot SDK

Engineer x 1	Standard x 2	Aerial x 1
		
Engineer x 1	Standard x 2	Aerial x 1
		

*Kindly refer to the official rules manual

Scan on WeChat

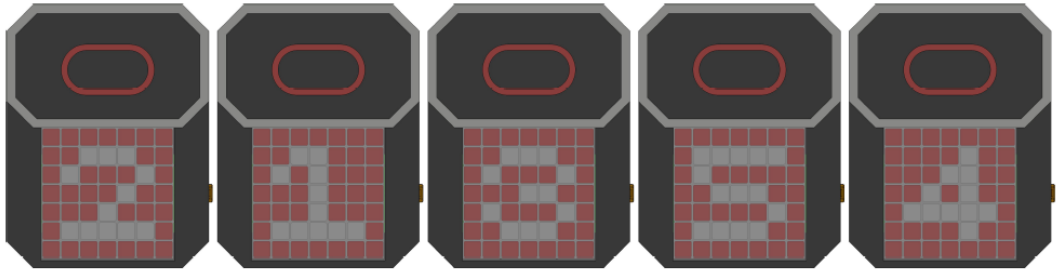
Check out videos on the rules

Rules Mission Descriptions

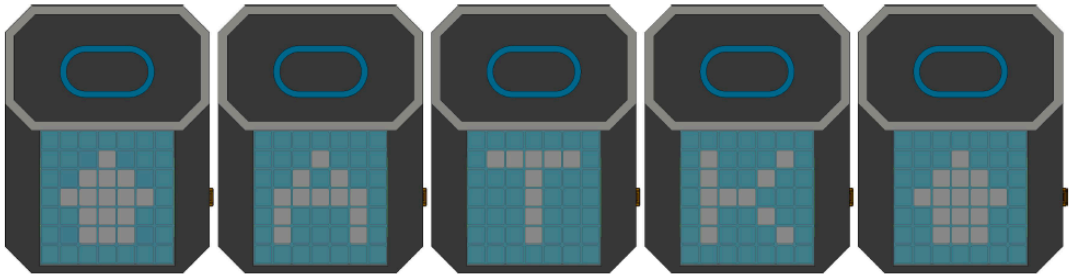
Activating of Power Rune by Standard

A randomized series of numbers consisting of 1 to 5 will be generated through five electronic visual tags. To activate the Power Rune, a robot will have to strike the armor modules above the five visual tags in the sequence of 1 to 5 at a distance of one meter. After successful activation, the electronic visual tags will display an attack buff marker. Once the marker is recognized by a robot, its whole team will receive a double attack buff.

Randomized numbers



Attack buff



Knowledge assessment points	Robot learning and gimbal control	Robotic functions used	Route recognition and localization, TOF distance-measuring sensor, recognition of visual tag colors

*Kindly refer to the official rules manual

Rules Mission Descriptions

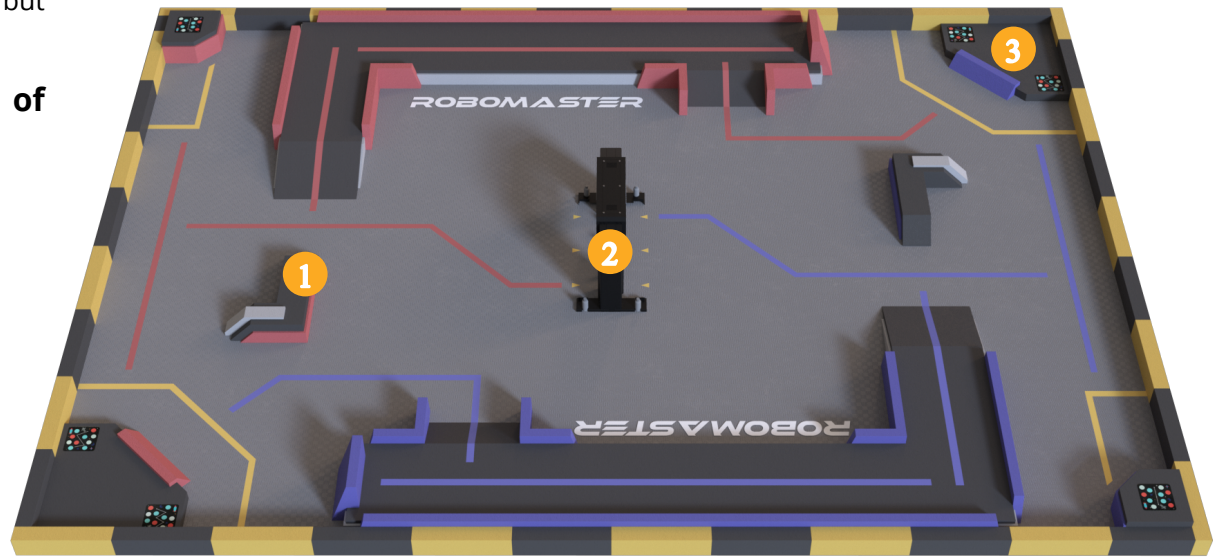
One-minute Automated Period for Standard Robots (Routes and Recognition)

In the first minute of the match, ground robots are allowed to move automatically, but operators will not be able to control them through the client interface.

Marked routes exist on the paths for the automatic movement of robots. Obstacles are also present in certain areas.

During this period:

- If the Referee System of a ground robot recognizes a defense marker (1) above its own team's bunker, the robot will receive the corresponding defense buff after the end of the automated period.
- If a ground robot successfully activates the Power Rune (2), all robots in its team will receive a corresponding attack buff after the end of the automated period.
- If a ground robot attacks the base of its enemy team (3), it will receive a corresponding attack buff.
- If a ground robot destroys any robot from its enemy team, all robots in its team will receive a corresponding HP buff (current HP and Maximum HP).



Knowledge assessment points	Robot learning, Computer Vision recognition, route recognition, gimbal control	Robotic functions used	Route recognition and localization, TOF distance-measuring sensor, automatic obstacle avoidance

*Kindly refer to the official rules manual

Rules Mission Descriptions

Engineer Obtaining Projectiles

Projectile Containers are placed at three different locations in the Resource Island. The Projectile Container of each location is loaded with a different quantity of projectiles.

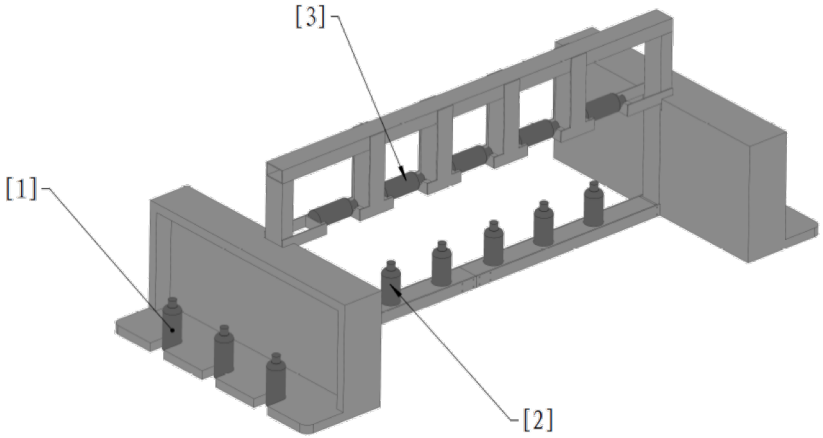
Engineer is allowed to carry the Projectile Containers in the Resource Island. Only a Projectile Container that is carried by Engineer back into the area of its team's Supplier Zone (including the bracket lines) will be deemed effective.

Three different Projectile Containers are held in the central Projectile Depot with different projectile quantities

[1] 50-Round Projectile Container: Located near the base of one's team, and projectiles can be obtained easily by directly installing and using an EDU mechanical claw.

[2] 100-Round Projectile Container: Located at the bottom of the central Public Zone, and projectiles can also be obtained using a mechanical claw, except that the claw will need to be slightly modified to achieve the required grabbing efficiency.

[3] 200-Round Projectile Container: Located at the top of the central Public Zone, for which the degrees of freedom for lifting of the mechanical claw will need to be modified to grab the projectiles.



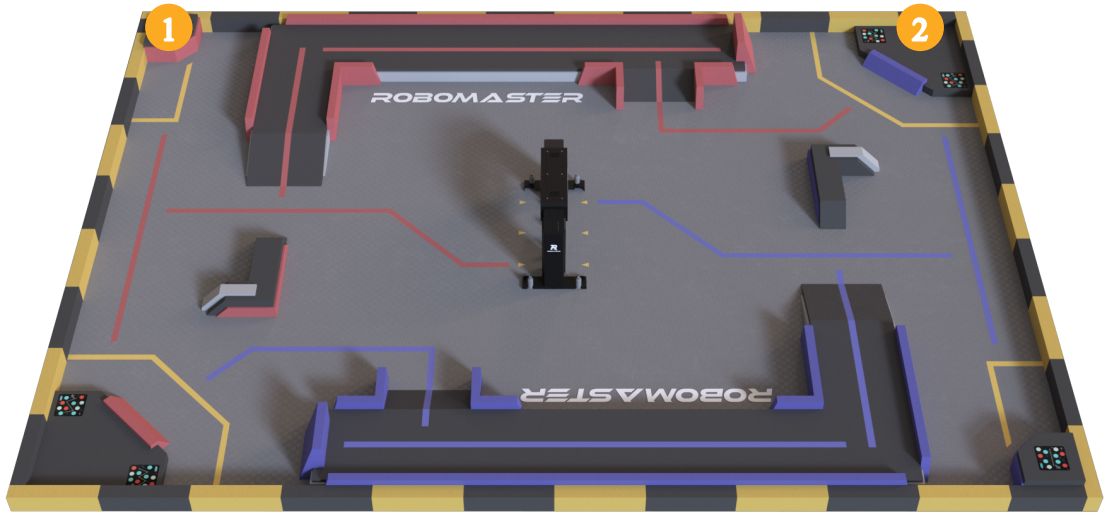
Knowledge assessment points	**Claw mechanism design, lifting structure design, angle sensor use, angle closed loop control, motor position loop control**
Robotic functions used	**2-degree-of-freedom robotic arm, TOF distance-measuring sensor, high-performance steering gear installed with accurate image transmission device**

*Kindly refer to the official rules manual

Rules Mission Descriptions

Aerial Weakening Enemy Base Defenses

Aerial takes off from the Landing Pad, 1 flies to the space above the enemy team's base 2 by following the markings on the Battlefield ground, and hovers there. If the Referee System of the enemy team's base detects the marker carried by Aerial, the defense armor value of the base will drop 50 points and remain so for 20 seconds.

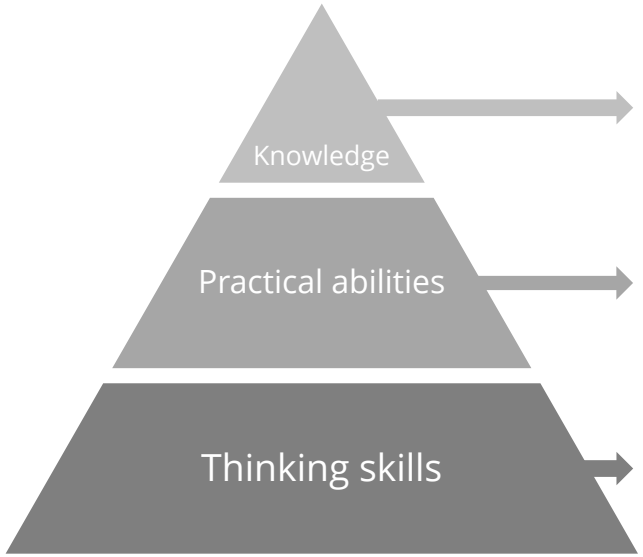


Knowledge assessment points	Drone programming, flight control
Robotic functions used	Automatic flight over set distance, accurate computer vision marker localization, setting flight paths through programming

*Kindly refer to the official rules manual

Rules Mission Descriptions

Robot	Mission	Technical points
Standard	Attack Power Rune	Robot learning, gimbal control
	One-minute automated period	Robot learning, computer visual recognition, route recognition, gimbal control
Engineer (80% mechanical design)	Obtain projectiles	Claw mechanism design, lifting structure design, angle sensor use, angle closed loop control, motor position loop control
	Rescue and revive robots	
Aerial	Weaken enemy base defenses	Drone programming, flight control



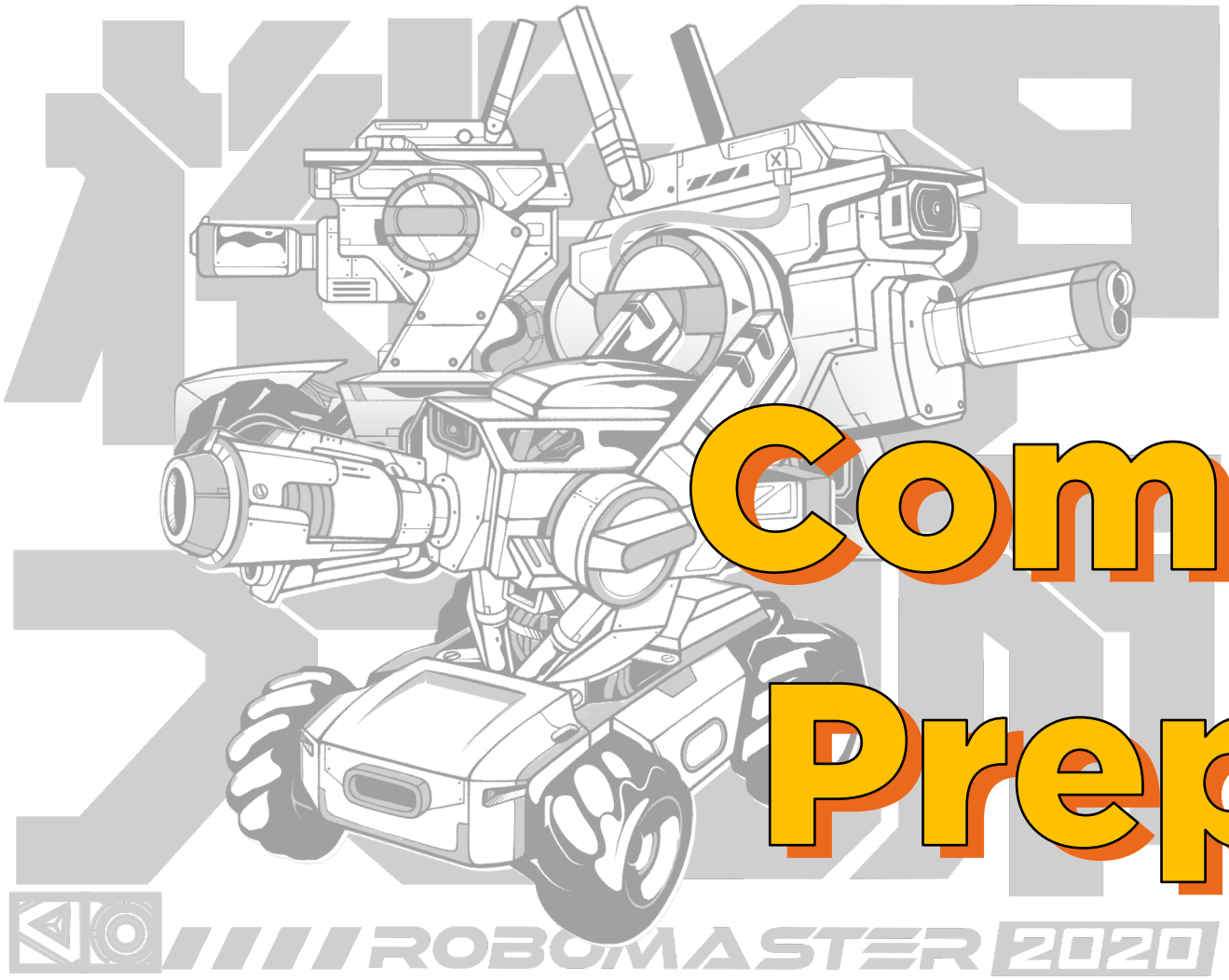
Imparting multi-disciplinary knowledge covering robotics, programming and AI

Cultivating children's hands-on application and problem-analyzing and solving skills, and developing their sense of responsibility and team-working ability

Fostering logical, comprehensive, abstract and critical thinking skills in children

Rules Manual Preview

Participant's Manual Preview



03 Competition Preparation

Team Setup Suggestions

Item	Description
Team size	Each team should have 5 - 8 students (one of whom should be the captain), and 1 - 3 supervising teachers
Team structure	To assign 1 to 2 members to structural setup and 3 to 5 members to software programming
Executing tasks	The team can set the order of priority for the missions based on their levels of difficulty and benefit, and begin development starting with missions that the team can finish more quickly based on the team's current technical ability
Rewards	1. Developing thinking skills, knowledge and practical abilities 2. A platform to meet peers and grow one's talent 3. Learning how to work in a team and adapt to immediate changes 4. First, second and third prizes: Trophies, medals, certificates and prizes 5. Other teams: Certificates from the organizer, and certificates from the official education system websites of the respective areas 6. Referral opportunities from the high school camp, where outstanding participants will receive a DJI recommendation letter, certificate of training, RoboMaster certificate of completion and referrals to universities

Key strategies for university competitions, for reference only: How to build a robot team, from Step 0 to 5

Learning

Basic Robotics

- Actuator + controller + sensor knowledge and application
- Chassis + gimbal + actuator mechanisms

Programming

- Computational thinking + Basic programming statements
- Thinking: Decomposition + Abstraction + Pattern Recognition + Algorithm
- Basic statements: Conditions, variables, functions and lists

Basic AI

- Image recognition theories
- Marker tracking

Control Theories

- PID control theories
- RoboMaster route challenge

Advanced Missions

- Claw actuator control
- Electronic marker recognition
- Drone automated flight

Key strategies for university competitions, for reference only: How does a healthy robot team prepare for battle

Recommended Equipment

RoboMaster EP * 3

Applicable to: Standard, Engineer

Expected release in February 2020

Kindly email robomasteryouth@dji.com to order

Tello EDU * 1

Applicable to: Aerial

More details at https://www.ryzerobotics.com/cn/tello-edu

Kindly email robomasteryouth@dji.com to order

Recommended Equipment

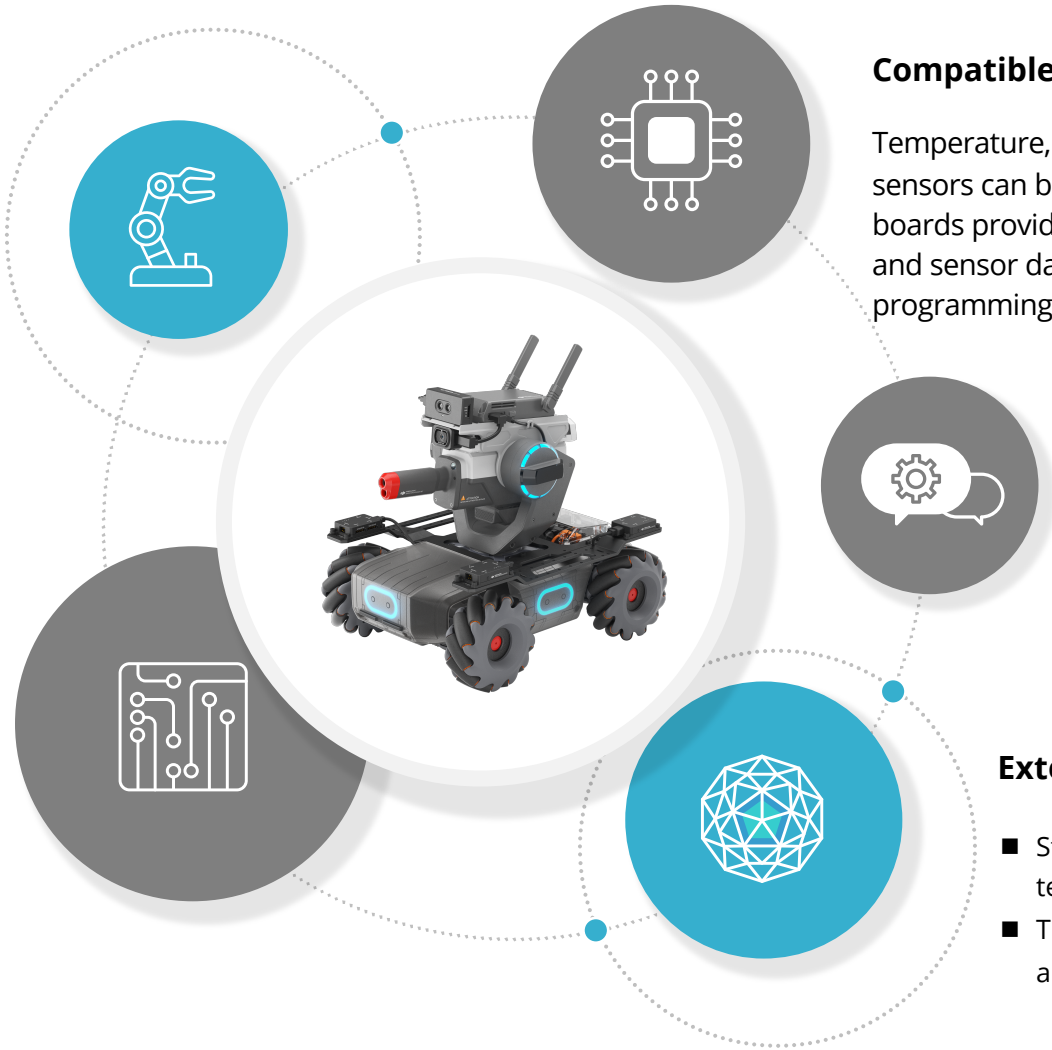
RoboMaster EP

Structural Setup and Development

- An 8mm gap is built into the base board platform, where holes can be set flexibly for installation. Its structure is compatible with Lego blocks.
- A development equipment kit is provided, which includes mechanical claws, metal connectors, power management modules, steering gear, infrared sensors, sensor transmission adapter boards, and cables.

Supports External Open-Source Hardware

S1 EDU provides power and communication solutions for the open-source hardware of Micro: Bit, Arduino, Raspberry Pi and others, and facilitates their incorporation into the education development kit. It can also be used with the AI chip platform Jetson Nano, and carry out model training and scenario recognition using an SDK.



Compatible with Third-Party Sensors

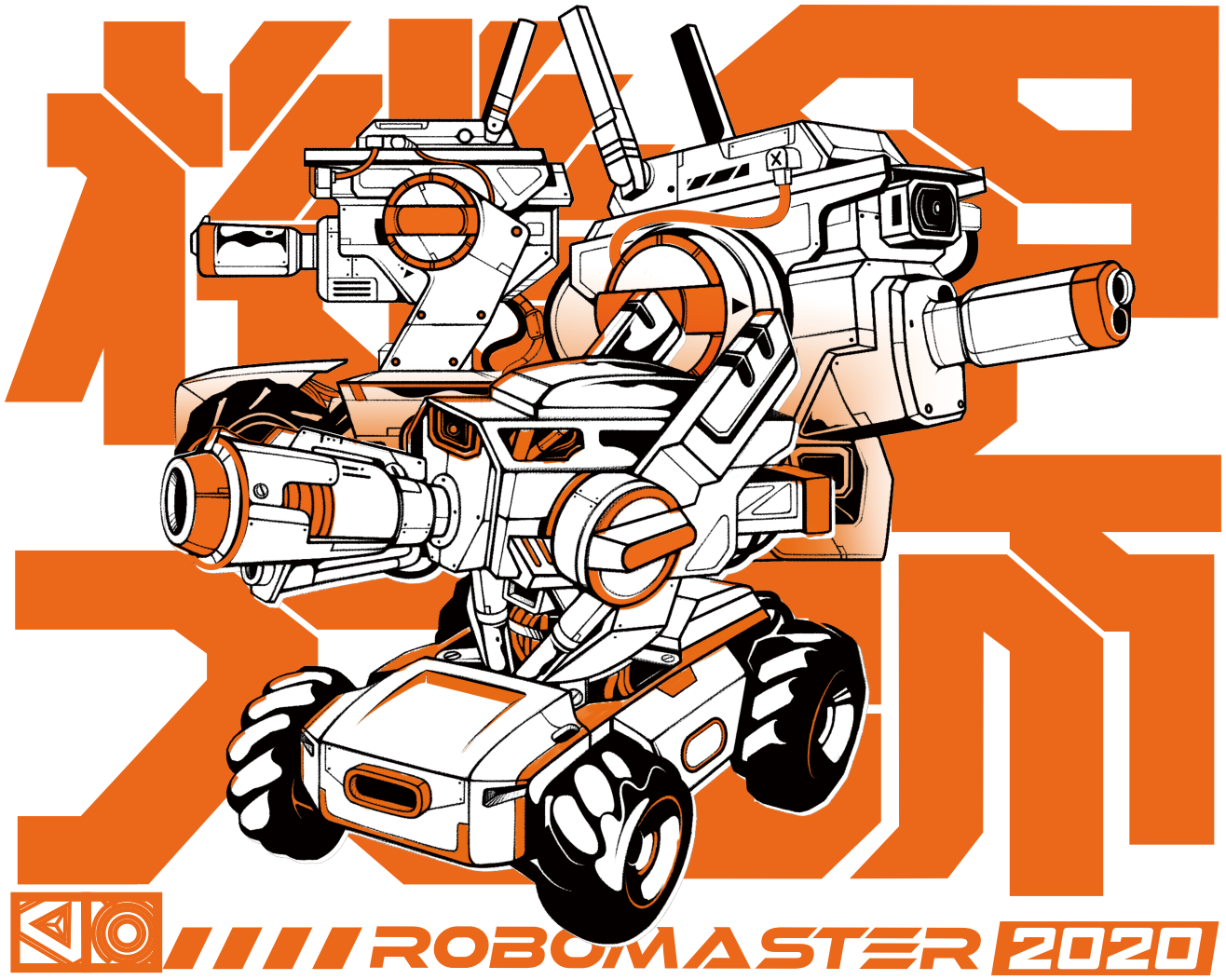
Temperature, pressure, distance-measuring and other sensors can be connected to the four sensor adapter boards provided in the S1 EDU kit,
and sensor data can be obtained in the Scratch programming environment.

Various Programming Patterns to Explore

Supports custom UI programming, multi-machine communication interface, and chassis serial communication; comes with brand-new Scratch programming function.

Extensive Knowledge Resources

- Student's reference book, engineering logs, teacher's manual, teaching PPT
- Theoretical knowledge + Classroom application



RoboMaster is revolutionizing the way innovative talent is nurtured and is building a comprehensive sharing platform for participants in its competitions. Through competitions and practical experience, participants continue to grow, improve and work towards their dream of ultimately changing the world.

Through our efforts, we hope to increase the visibility of the field of robotic battle and engineering, and inspire more individuals and groups to pursue their dreams in tech and join the ranks of future tech innovators.

Official website: www.robomaster.com
E-mail: robomaster@dji.com
WeChat: RoboMaster(QR code to the left)
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Check out RoboMaster’s fifth anniversary videos