FORMULA-EDGE KICK-OFF

11TH OCT 2021 16:30 HKT

ARTIFICIAL
INTELLIGENCE
AI

KICK OFF

WORLD'S FIRST
FORMULAEDGE COMPETITION

ASIA WORLD EXPO,HK
10-12 DECEMBER, 2021

FORMULA EDGE

Main Organiser
SCC 智慧城市聯盟 Smart City Consortium

Event Operator:
STEM PLUS ECOSYSTEMS

Support Organisations:
創新及科技局 Innovation and Technology Bureau
Cyberport 數碼港
hkpc 生產力局
HKSTP 香港科技園
HKEIA 香港電子業商會

Official Partner:
STEM EDUCATION CENTRE https://stem.vic.edu.hk/

Official Sponsors:
NVIDIA
EDOM TECHNOLOGY CO., LTD.

OUR GUESTS

CLEMENT FUNG

VICE PRESIDENT SMART CITY CONSORTIUM

Mr Clement FUNG is a Director of an enterprise and the former Chairman of Yan Chai Hospital.

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SAMUEL LO

GENERAL MANAGER AI TECH CENTER, NVIDIA

Samuel joined NVIDIA as the General Manager of NVIDIA AI Technology Centr supporting local research and teaching in AI. Deep Learning and data analytics on GPU technology. Technology focus included Smart City, Fintech, Healthcare & IoT/Robotics. Prior joining NVDIA, he was in Oracle, Sun and SGI on various sales, marketing and management positions across Asia Pacific regions.

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DR. CHAO HE

Head of aI at Wisers, phd in ai, emba

Dr. Chao He is a Vice President and Head of AI at Wisers (a global leader in all-media big data business intelligence for Greater China market) and an Adjunct Associate Professor at the Hong Kong University of Science and Technology (HKUST) Business School.

He holds a Ph.D. degree in artificial intelligence (BIT, 2001) and an EMBA degree (Kellogg-HKUST, 2020). He has published 20+ papers in top international journals and conferences and holds 40+ international patents in the fields of the artificial intelligence and its applications. He is a Senior Member of the Institute of Electrical and Electronics Engineers (IEEE).

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DR. MING CHEUNG

MULTIMEDIA BIG DATA ANALYTICS LIMITED
PH.D. ELECTRONIC AND COMPUTER ENGINEERING, HKUST

Dr. Ming Cheung obtains his Ph.D. from Hong Kong University of Science and Technology. He has published 30+ publications in top journals and conferences in AI and big data, such as IEEE Transactions on Big Data and ACM Transactions on Multimedia Computing, Communications, and Applications. He has over 200+ citations on google scholar. He is also the founder of several tech startups. He is experienced in Social Media Analytics, Big Data Analytics & System, Convolutional Neural Network. He is still an active researcher on topic related to AI and big data.

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PETER LAU

KELLOGG-HKUST EXECUTIVE MBA

Experienced Chief Executive Officer with a demonstrated history of working in the marketing, IT, Retail, and investment bank industry.

Skilled in STEM, Education Technology, Business Development, Business Strategy and Management.

He holds an EMBA degree at Kellogg-HKUST, MIT-Slogan AI Applications for Business Strategy, Nvidia Deep Learning Institute Certificate of Competency

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HOUSE KEEPING
TERMS AND CONDITIONS

T&C CAN BE FOUND IN

HTTPS://COMPETITION.FORMULAEDGE.ORG/TERMS

PLEASE READ THEM

HOUSE KEEPING
ONLINE REGISTRATION

HTTPS://COMPETITION.FORMULAEDGE.ORG

HOUSE KEEPING MATERIALS

PDF VERSION WILL BE UPLOADED TO FORMULAEDGE.ORG. CHINESE VERSION WILL BE UPLOAD EARLY NEXT WEEK.

HOUSE KEEPING
ONLINE Q&A SUBMISSION

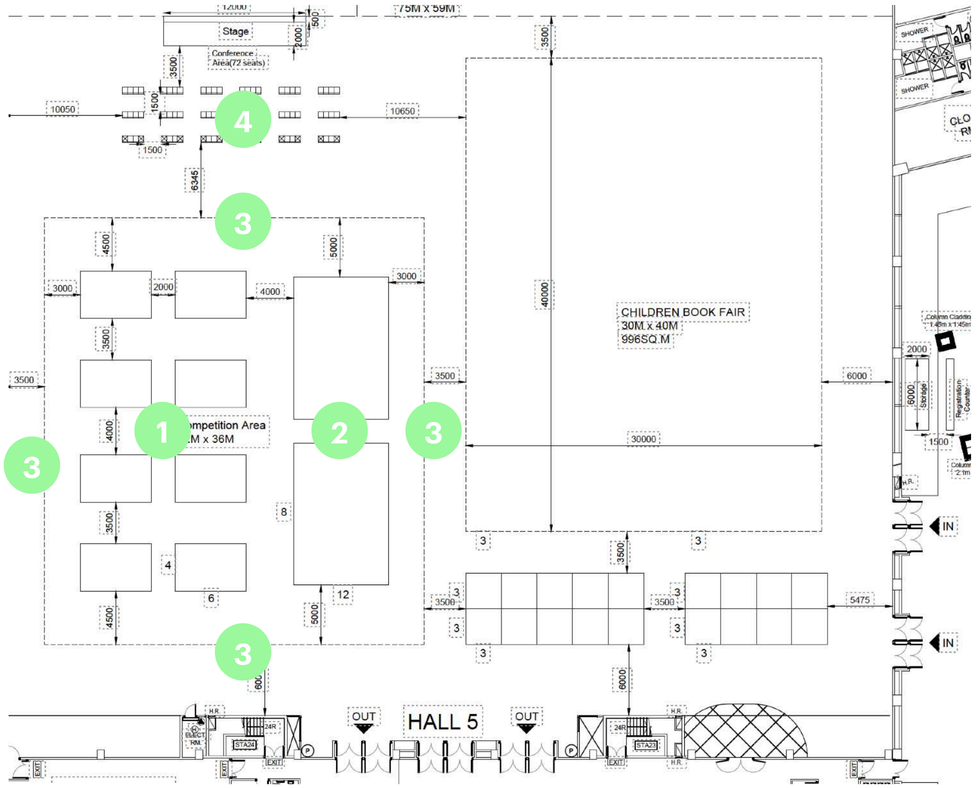
HTTPS://COMPETITION.FORMULAEDGE.ORG/QA

LET’S GET STARTED

SCHEDULE

SCHEDULE

Day 1	Jetbot	Jetracer
0900	Open for Registration	
1000 to 1800	FREE PRACTISE SESSION 1	FP1 + QUALIFYING
DAY 2		
0900	Open for Registration	
0900 TO 1500	FREE PRACTISE SESSION 2	
1500 TO 1700	QUALIFYING SESSION 1 (QS1)	FP2 + QUALIFYING
1700 TO 1800	QS1 RESULT CALCULATION & ANNOUNCEMENT	
DAY 3		
0900 TO 1100	QS2	FP3 + QUALYFYING
1100 TO 1200	FP3 (FINALS ONLY)	
1200 TO 1300		QUALYFYING
1300 TO 1500	FINALS	FINALS
1500 TO 1600	CEREMONY	



1, JETBOT AREA
2, JET RACER AREA
3, TEAM WORKING BENCH
4, STAGE

*Lunch hour might change subject to the latest social distancing requirement

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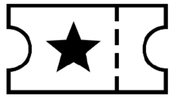
TEAM'S RACE PACK

TEAM'S RACE PACK

Three day
Meal Tickets



FREE PRACTICE
TOKENS

Hoodie

Team's Profile

Mystery gifts

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CAR REQUIREMENTS

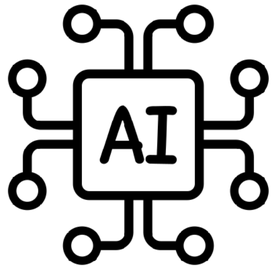
CAR REQUIREMENTS

HARDWARE/SOFTWARE

Mechanically Assembled

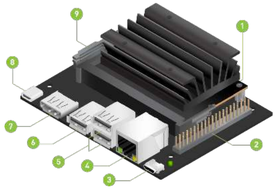
All-Electric

Parts firmly attached



Run using a Neural Network

Run Autonomously



Nvidia Jetson-Nano

No rules on coding

Input from Single Camera Sensor

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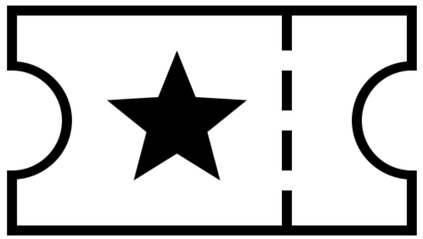
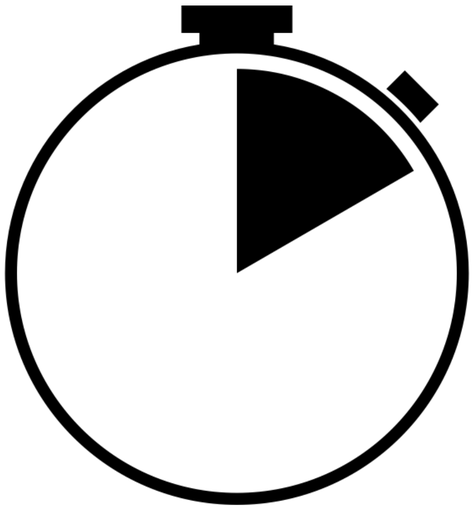
FREE PRACTICE TOKENS

TOKEN

RESERVING TRACK FOR PRACTICE/COLLECT DATA



One token



Ten minutes of
ONE single track

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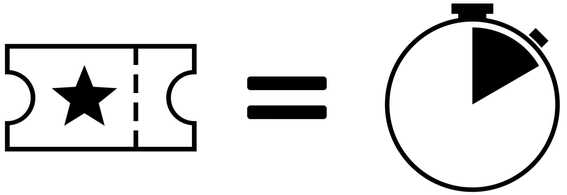
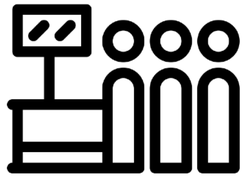
TOKEN

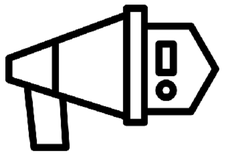


RESERVING TRACK FOR PRACTICE/COLLECT DATA

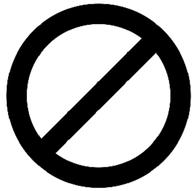


Queue at Track Hub
Officials will help participant queue for next available track

Max. two tokens use each time
i.e. 20mins in total



Officials will call out team name and the assigned track # when available



Not allow to select track

Tokens can’t be transfer across team not even within the same school

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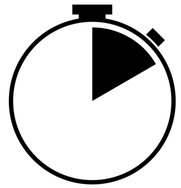
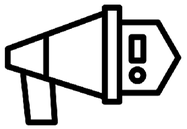
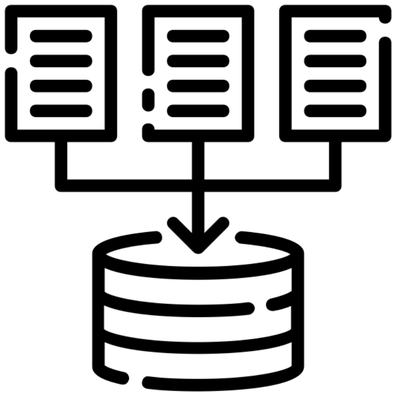
TOKEN





USE OF TRACK TIME (OUR SUGGESTIONS)



Data Collection

Test A.I. Models/Cars on Track

DO NOT USE IT TO TRAIN DATA. TRAIN WHEN YOU ARE NOT USING THE TRACK

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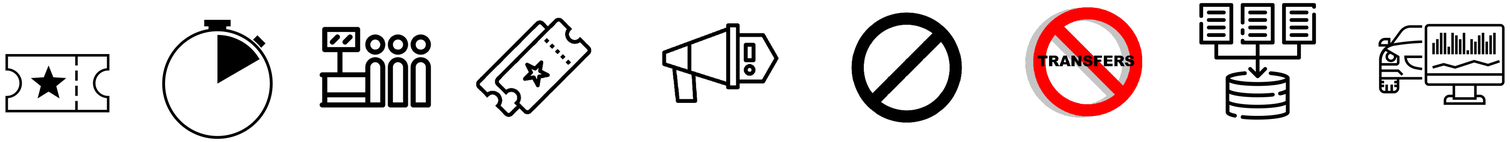
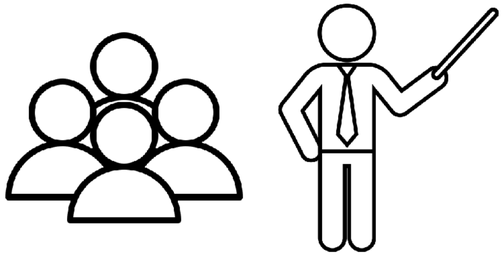
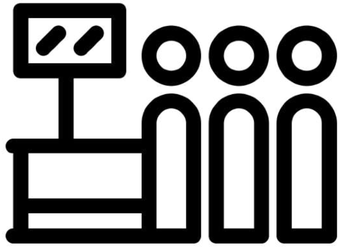
TOKEN



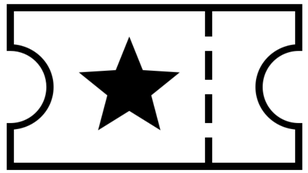
REMEMBER!!!



Max Four Students and One teacher are allowed on track



Time management
Don’t queue on last minute



Can only use within a specified session printed on ticket
Cannot accumulate
Unspent token will be forfeited and can’t be renew

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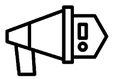
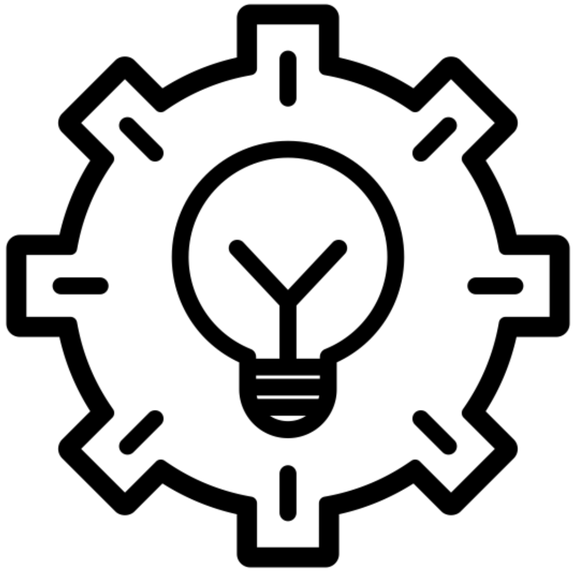
TOKEN



REMEMBER!!!



Use your tokens wisely

2 tokens or 1?
Data collection or Test?
What to tweak between each token use?

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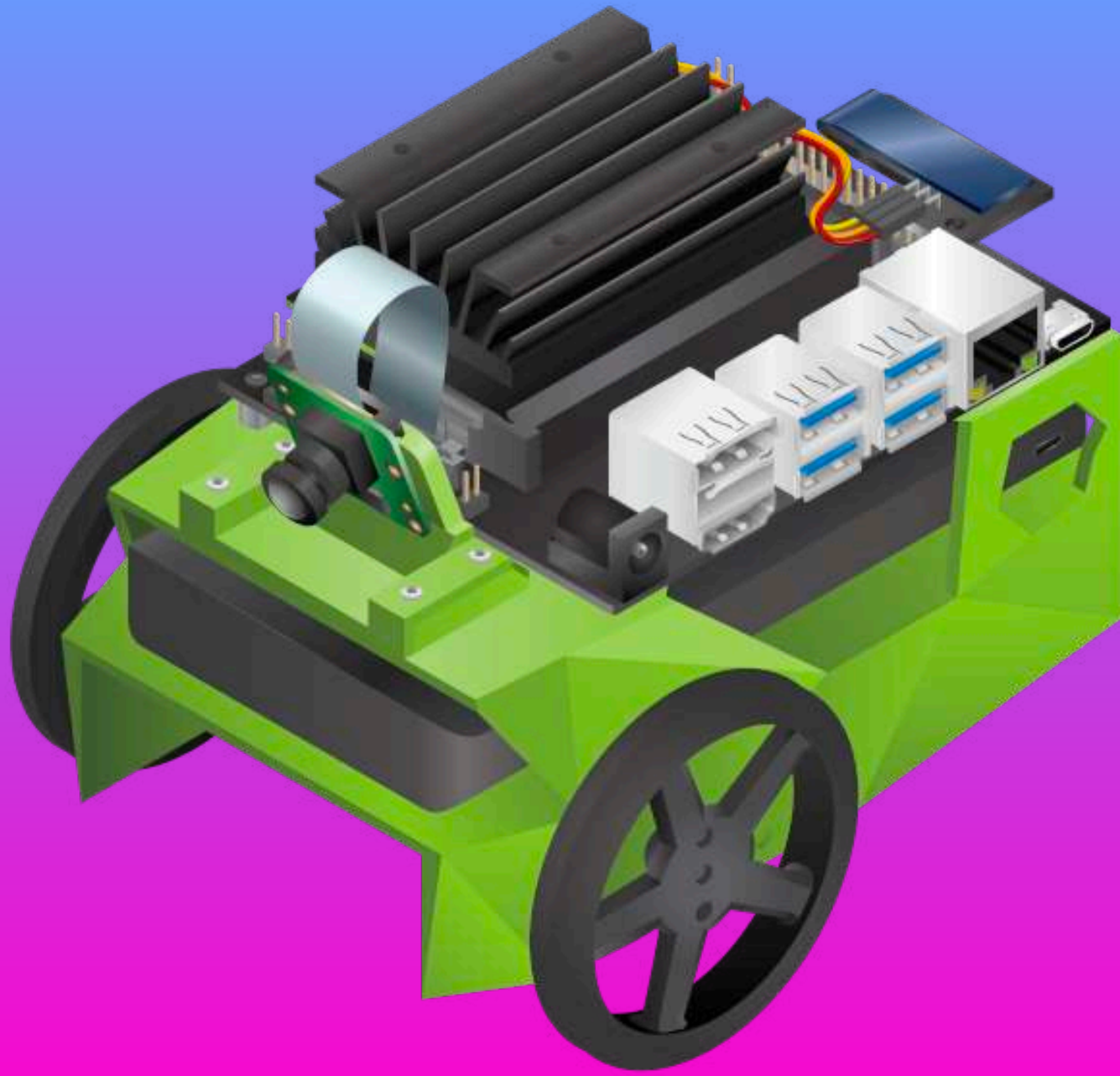
JETBOT

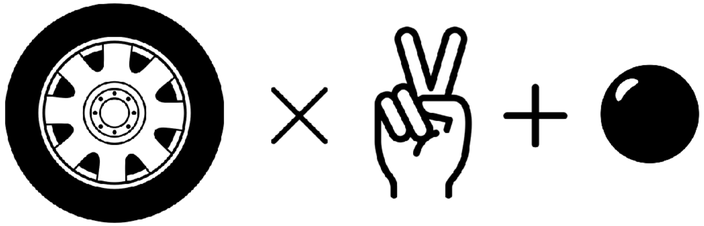
REQUIREMENTS



JETBOT

REQUIREMENTS

< 200mm width



Two standard wheels
+ one ball wheel

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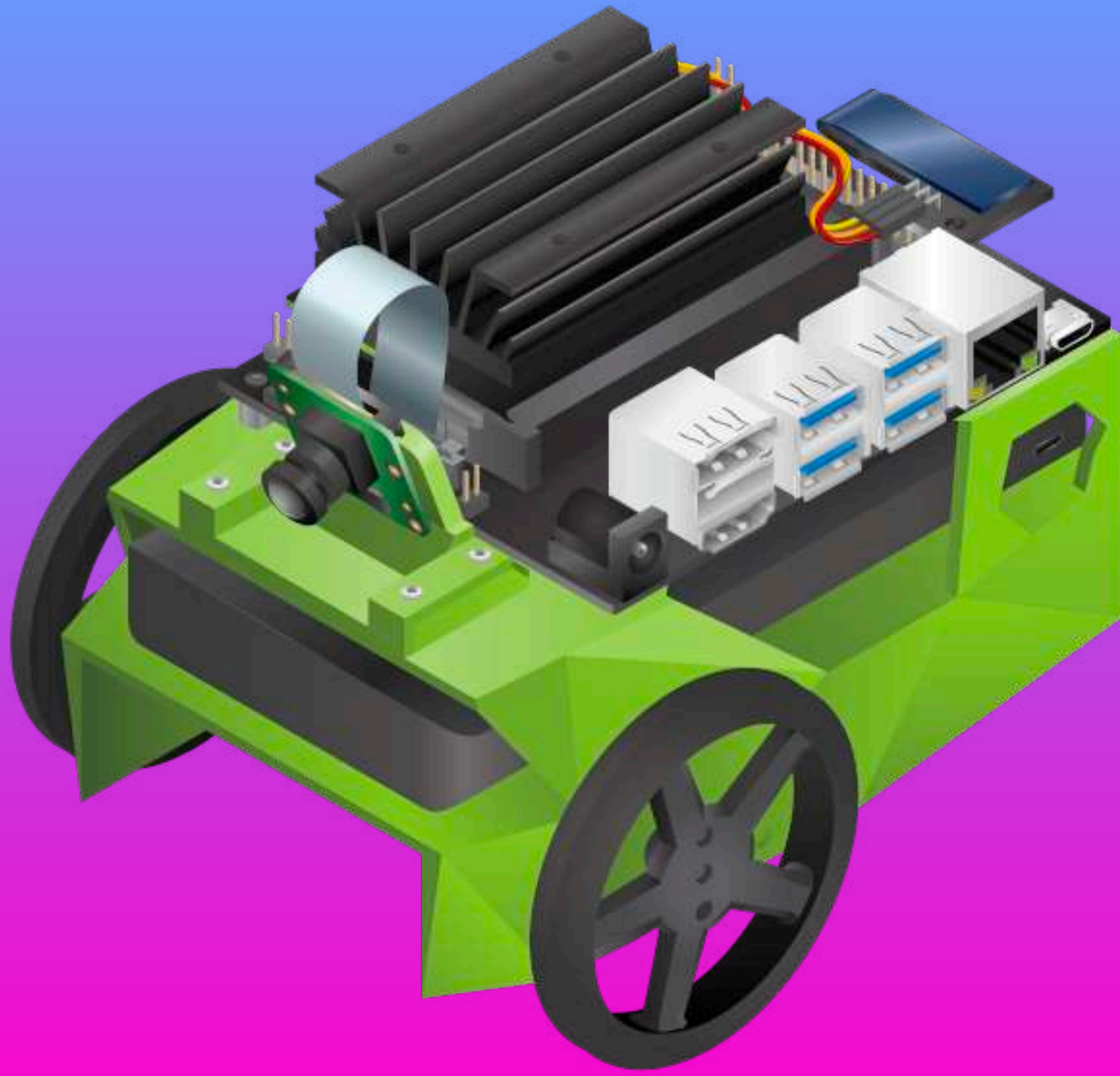
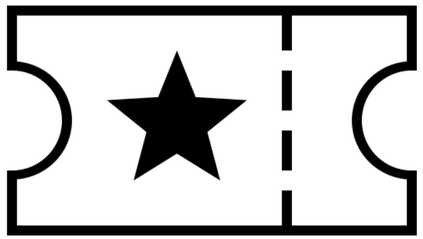
JETBOT

FREE PRACTICE SESSION

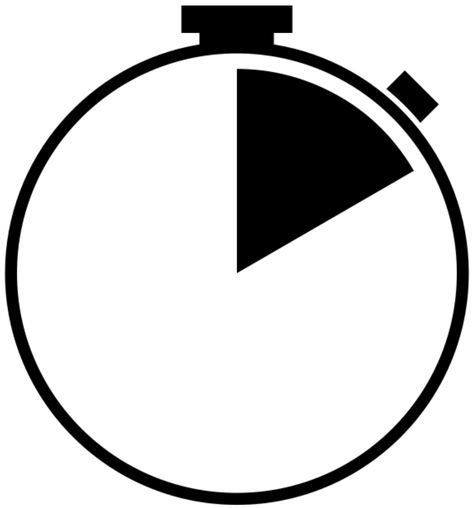


TOKEN

RESERVING TRACK FOR PRACTICE/COLLECT DATA



One token



Ten minutes of
ONE single track

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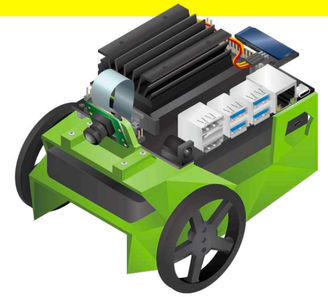
JETBOT



FREE PRACTICE SESSION

FP1 10/12/2021 10:00 TO 18:00

4m x 6m tracks

3 x morning
10 mins tokens

3 x evening
10 mins tokens

Morning - 10:00 to 13:59

Afternoon - 14:00 to 18:00

Time listed are track usage time. Not queuing time

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FREE PRACTICE SESSION

FP2 - 11/12/2021 09:00 TO 14:59

4m x 6m tracks

2 x 10 mins
tokens

2 x 10mins assigned time-slots
(welcome pack)

Time listed are track usage time. Not queuing time

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JETBOT

FREE PRACTICE SESSION

FP3 (FINALS ONLY) - 12/12/2021 11:00 TO 13:00

60mins on one track per team

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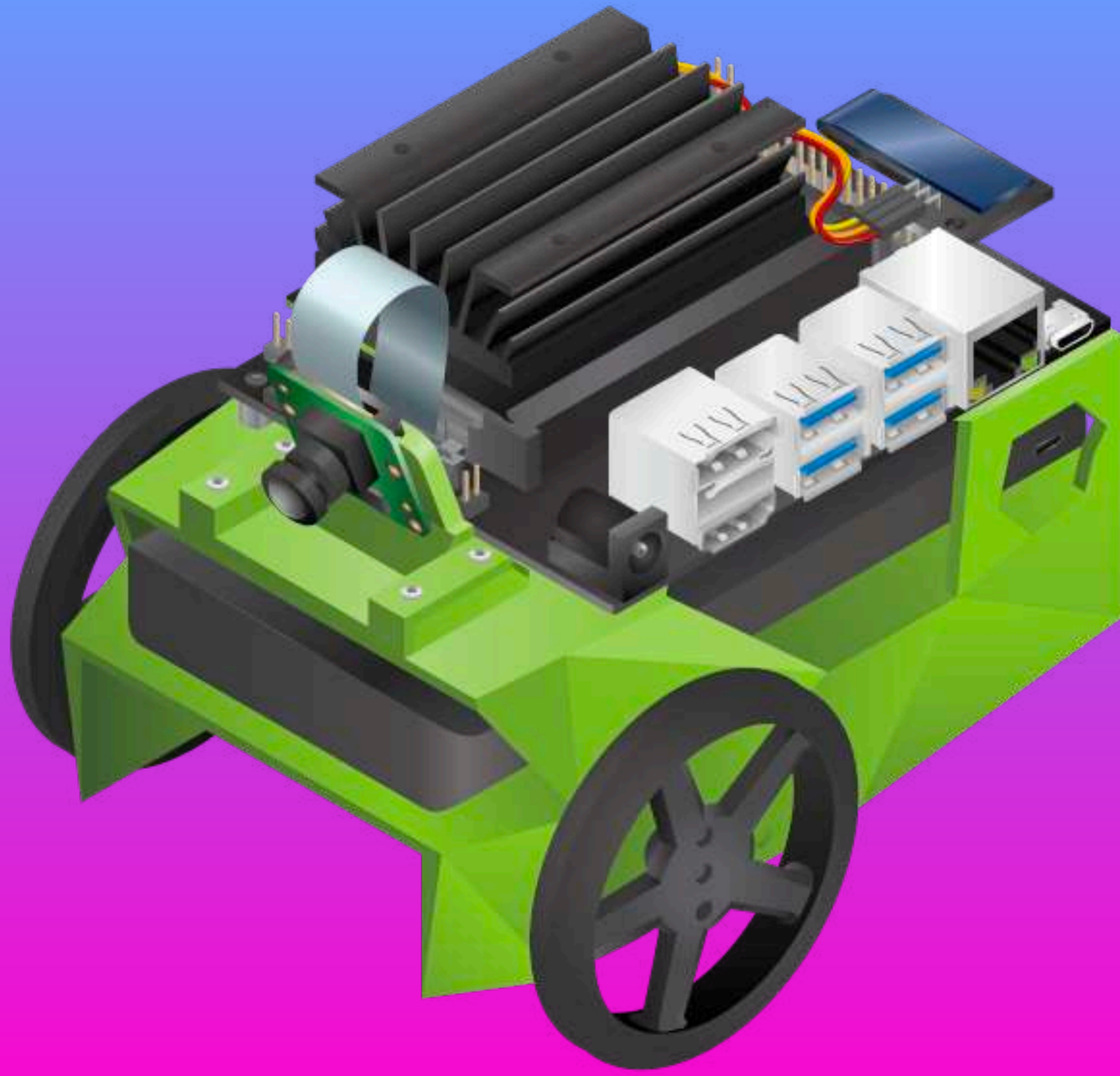
JETBOT

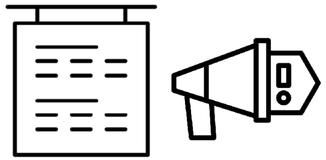
QUALIFYING ROUND



JETBOT

QUALIFYING ROUND

Team will take turn to qualify.



Order of qualifying teams will be shown on notice board. There will also be announcements

Disqualify when no team member shows up 60s after the beginning of their turn

Preparation: 60 seconds will be given to each team

Two Trials

Best time of two trials

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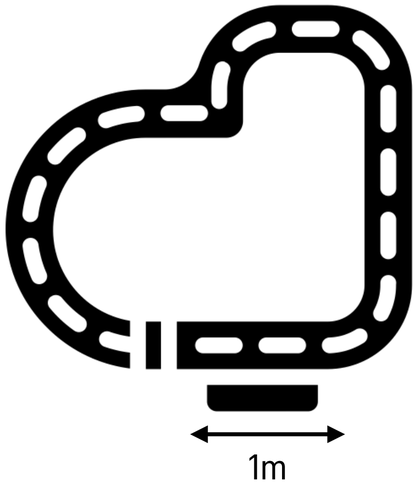
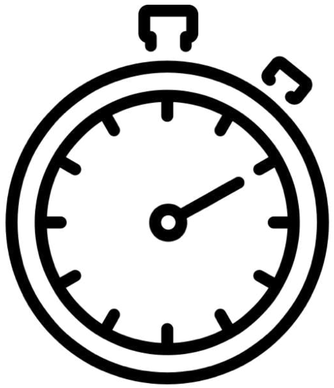
QUALIFYING ROUND

JETBOT



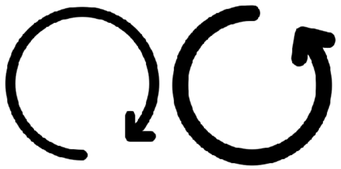
Car place within 1 meter before starting line.



Timer will start/stop
when car crosses the starting/finish

Hands off

Must Follow track.



CAN CHOOSE
COUNTERCLOCKWISE
CLOCKWISE

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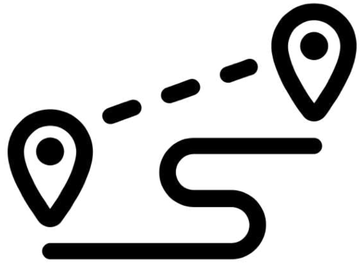
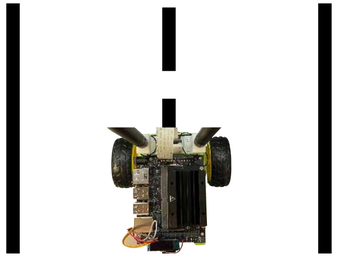
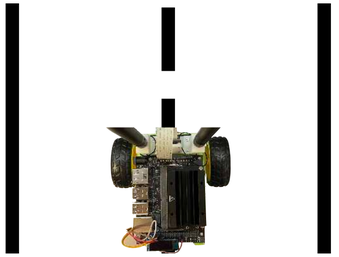
QUALIFYING ROUND

JETBOT

OFF TRACK







Off-track -
Two wheels are completely outside of track boundary.
One Wheel touches the boundary line is ok
Continue if no advantage move
if advantage move
Reset operation is require + 2 seconds penalty
Judge has the final call

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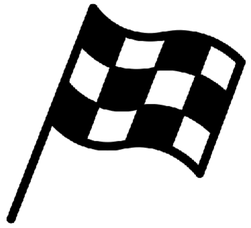
QUALIFYING ROUND

JETBOT

TRIAL ENDS



COMPLETED 2 LAPS

DO NOT FINISH (DNF)

Disqualify

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QUALIFYING ROUND

JETBOT

DO NOT FINISH (DNF)

TEAM CHOOSE TO FORFEITS

CAR RESETS 3 TIMES

UNABLE TO FINISH
2 LAPS IN 5 MINS

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QUALIFYING ROUND

JETBOT

TO THE FINALS

Total time finish 2 laps
Plus penalty
DNF = 5 minutes

Top 16 teams with highest score
will advance to finals.

Max 2 teams per school
can advance to finals

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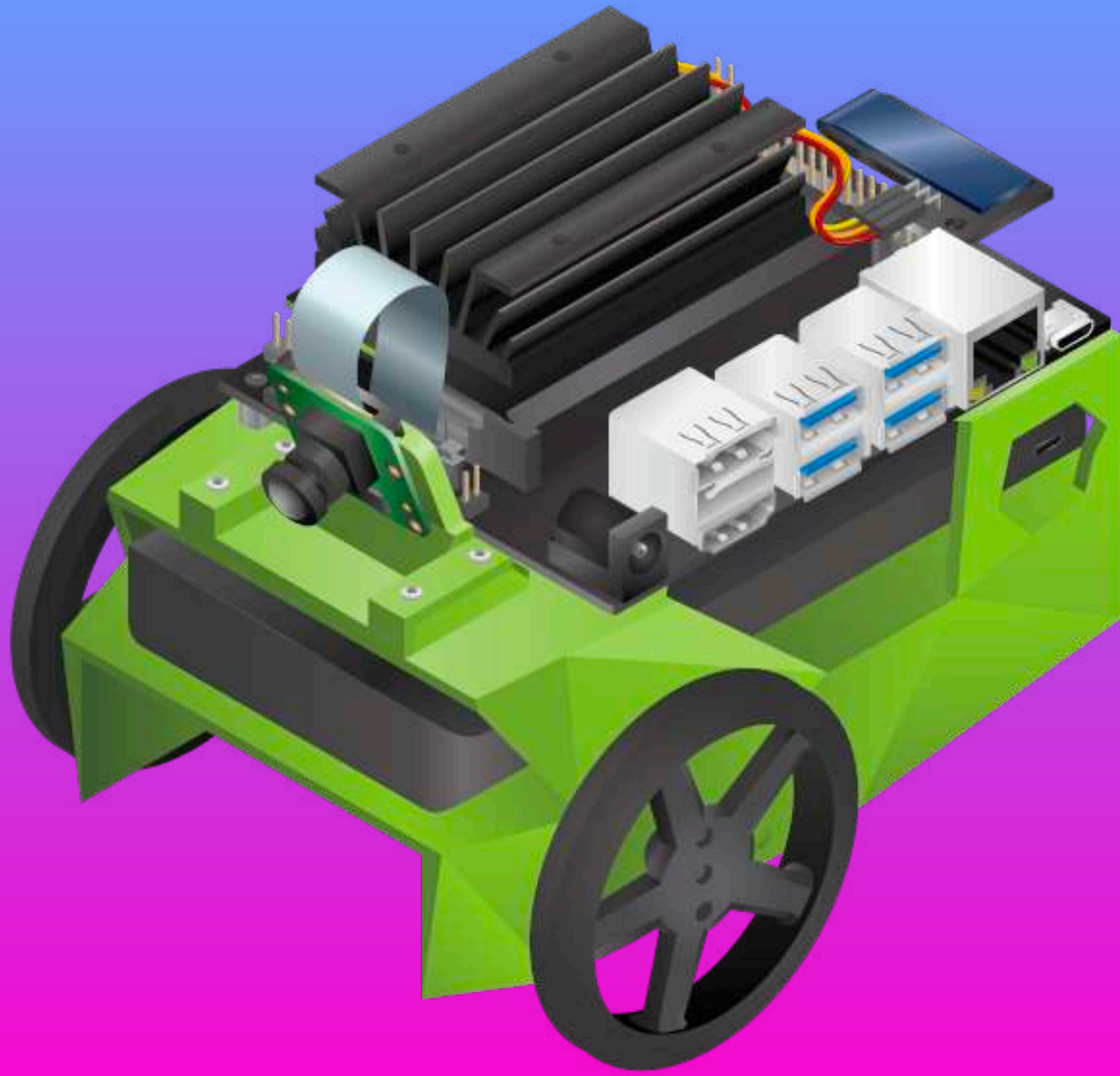
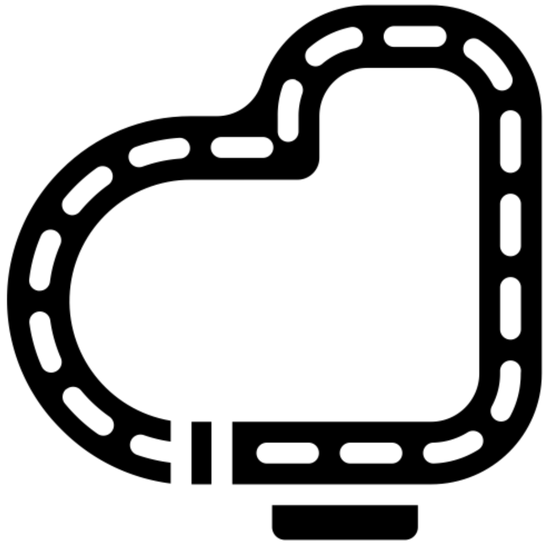
JETBOT

FINALS

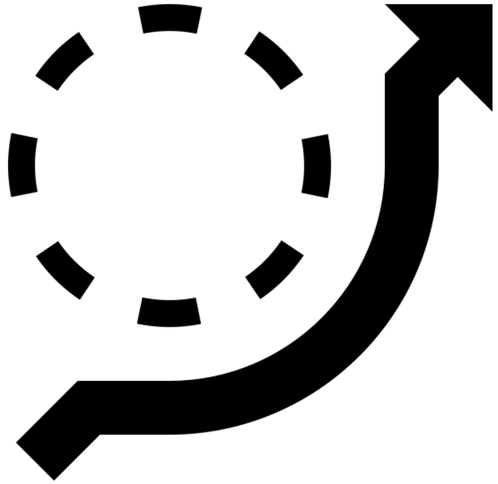


FINALS

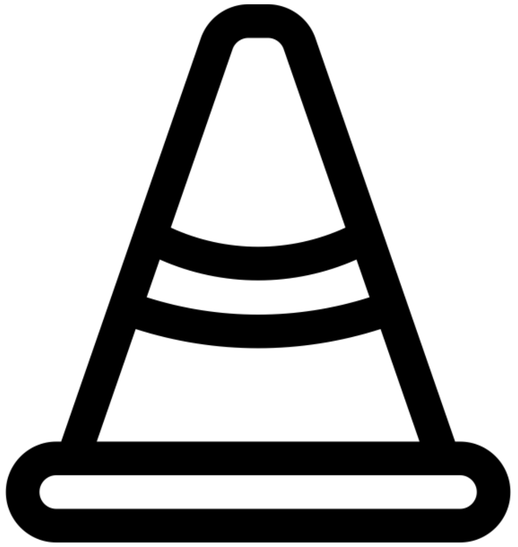
JETBOT



Same Map will be use



Obstacles will be placed on the tracks
Cars are expected to avoid obstacles



10 obstacles per team
will be deliver to school
via courier within 14 days.
Ship out to all schools on the same day.

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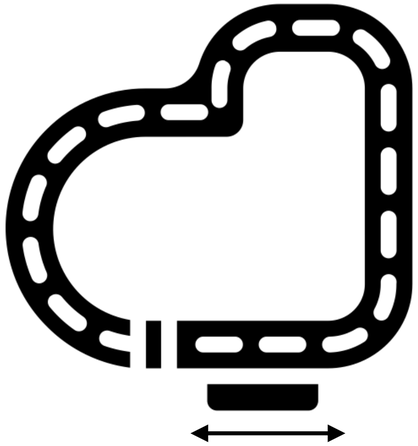
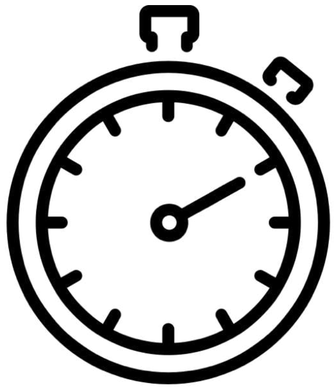
FINALS

JETBOT



Car place within 1 meter before starting line.



Timer will start/stop
when car crosses the starting/finish

Hands off

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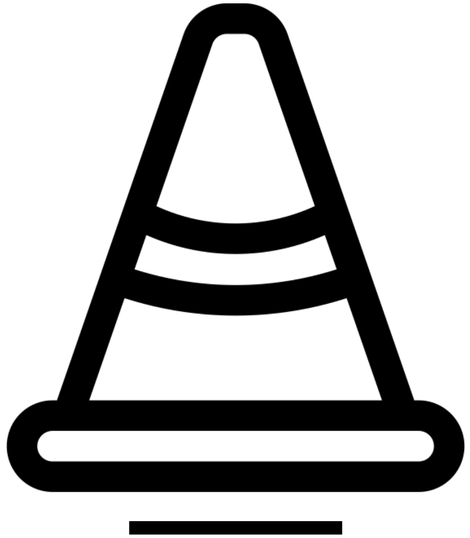
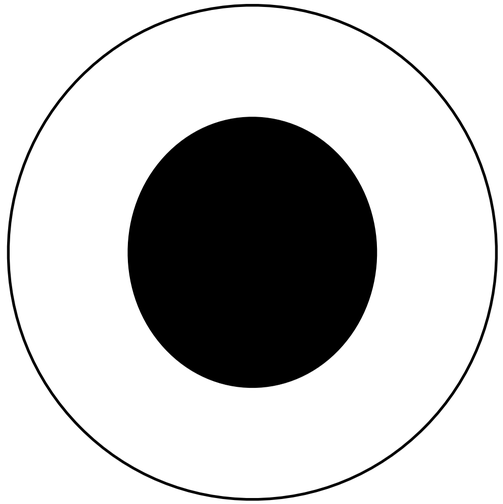
FINALS

OBSTACLE COURSE

Side view



Top view



A circle will be place
under each obstacle

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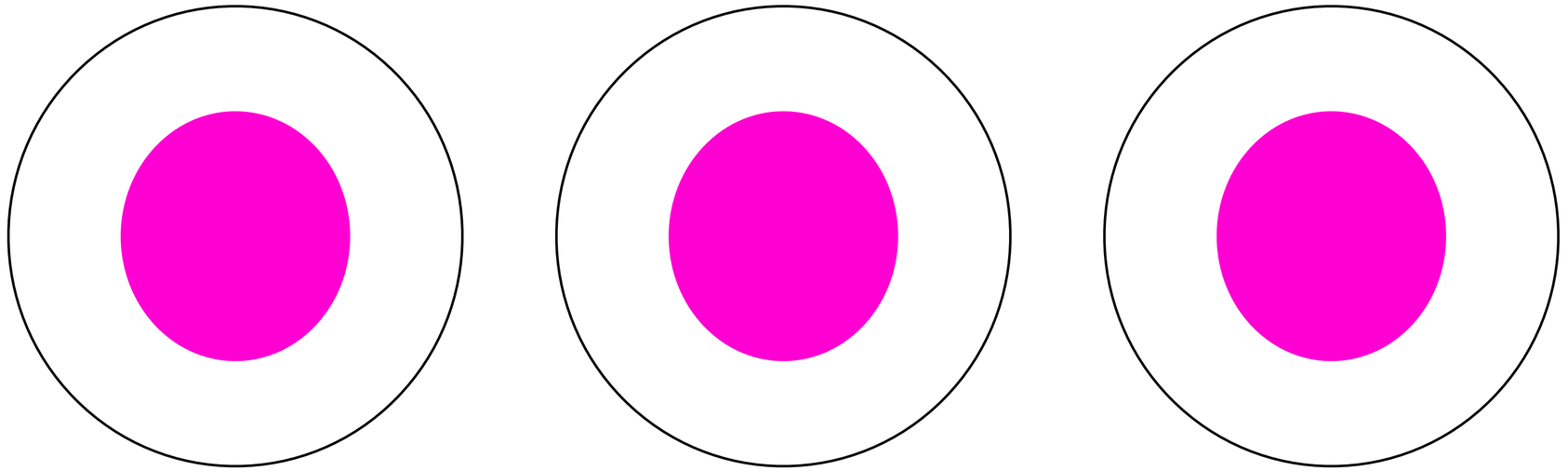
FINAL ROUND

OBSTACLE COURSE

NO PENALTY

Top view



Unable to see the circle

SOLID PINK: CIRCLE
SOLID BLACK LINE: CONE

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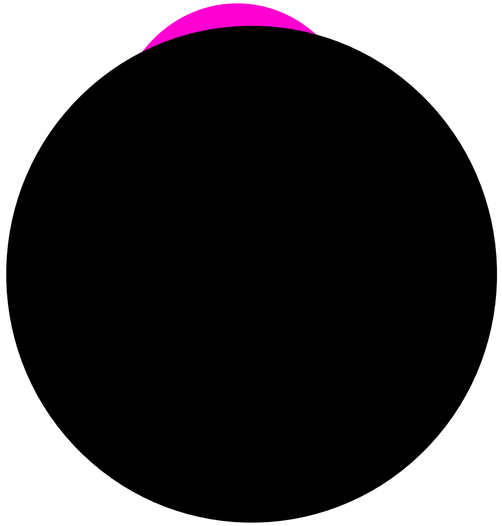
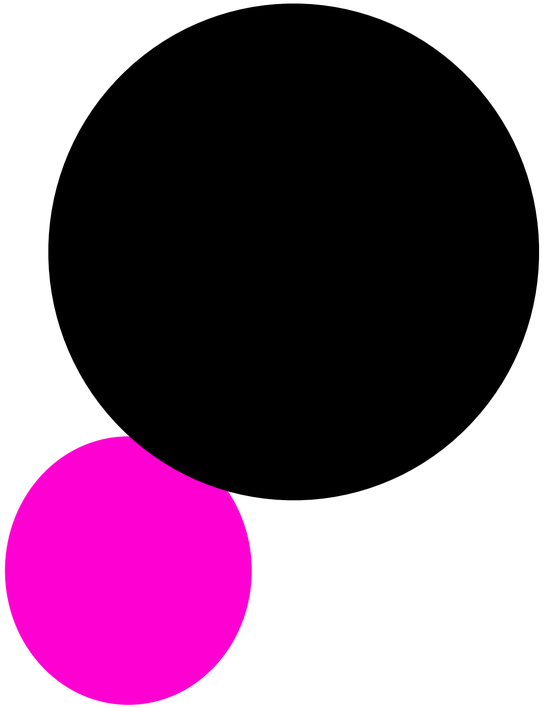
FINAL ROUND

OBSTACLE COURSE

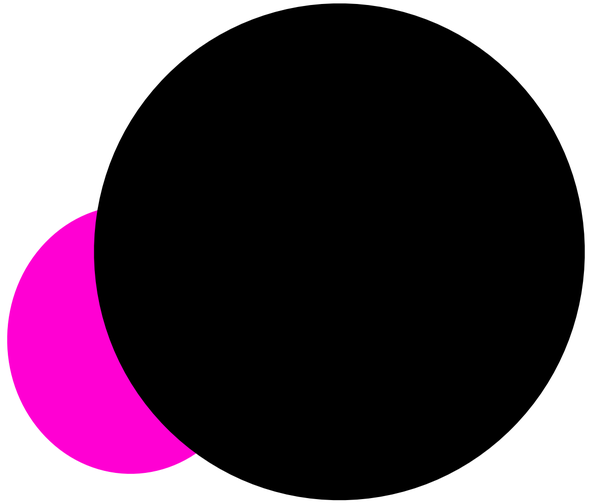
1S PENALTY PER OBSTACLE

Top view





Reveal part of the circle



SOLID PINK: CIRCLE
SOLID BLACK: CONE

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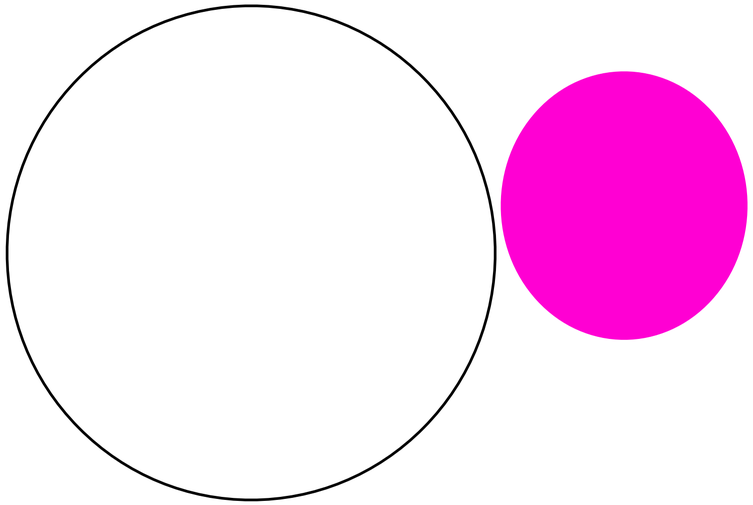
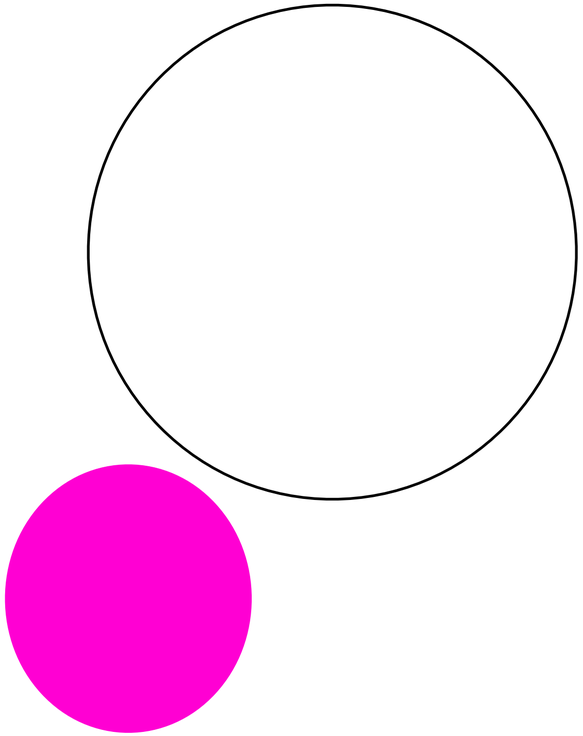
FINAL ROUND

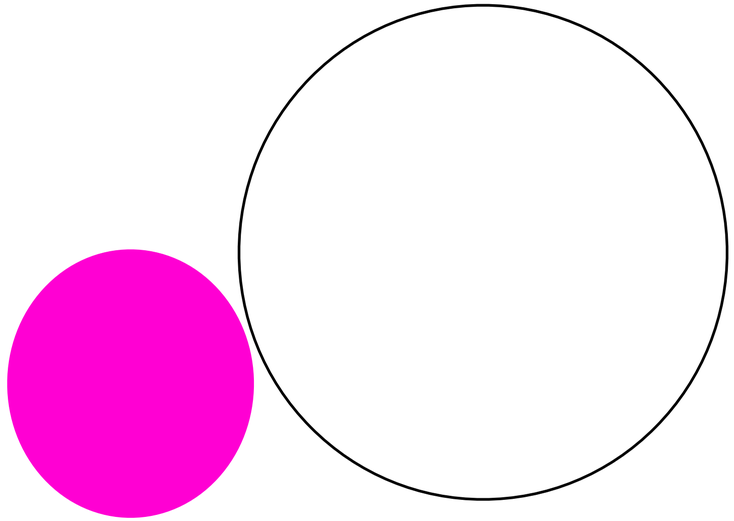
OBSTACLE COURSE

3S PENALTY PER OBSTACLE

Top view







Reveal whole part
of the circle

SOLID PINK: CIRCLE
SOLID BLACK LINE: CONE

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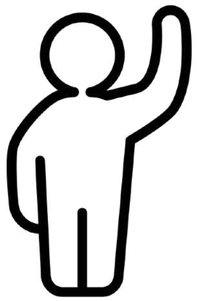
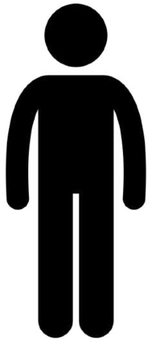
FINAL ROUND

OBSTACLE COURSE
OTHER SITUATION

Obstacle stuck in front



Signal judge and clear obstacles
5s penalty



Let car continue
3s penalty

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FINAL ROUND

OBSTACLE COURSE
FINAL RESULTS

Total time finish 3 laps
Plus penalty

If all participants can’t finish the race or disqualified,
the final results will be based on the qualifying results

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FORMULA
EDGE

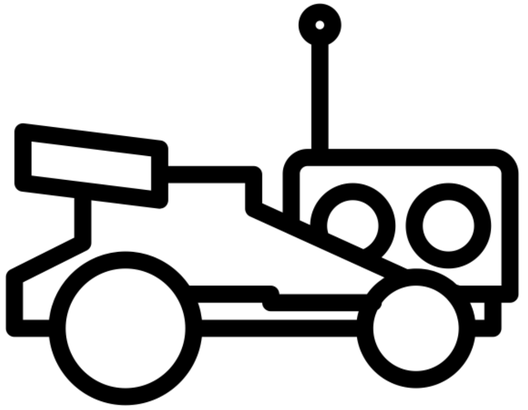
JETRACER

HARDWARE REQUIREMENT

JETRACER

HARDWARE REQUIREMENT

< 300mm width



Recommend using an off-the-shelf RC Car
e.g. Tamiya TT-02 (1/10) or LaTrax Rally 1/18
or similar

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JETRACER

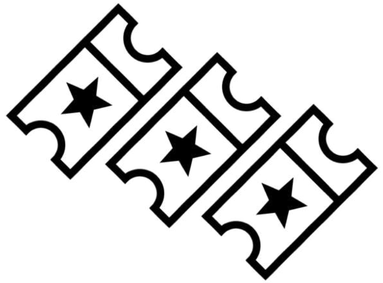
FREE PRACTICE SESSION

JETRACER

FREE PRACTICE SESSION

FP1 AND FP2 - 10-11/12/2021 10:00 TO 18:00
QUALIFYING HAPPEN AT THE SAME TIME

12m x 8m
Designated for FP



3 x 10 mins
Tokens

Time listed are track usage time. Not queuing time

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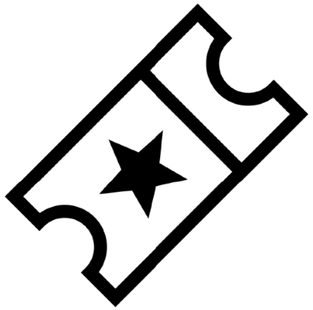
JETRACER

FREE PRACTICE SESSION

FP3 - 11/12/2021 09:00 TO 13:00

QUALIFYING HAPPEN AT THE SAME TIME

12m x 8m
designated for FP



One token

Time listed are track usage time. Not queuing time

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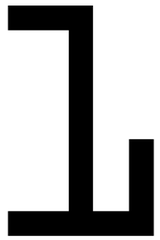
JETRACER

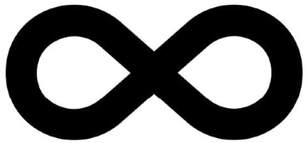
QUALIFYING SESSION

QUALIFYING SESSION

JETRACER

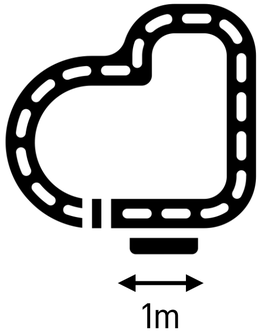


ONE Designated Track
QUALIFYING

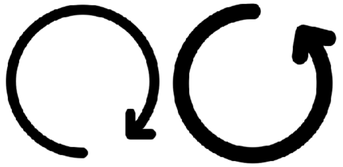


Qualifying
Unlimited attempts
Use best lap time

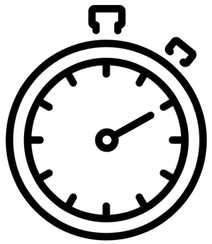
First come first serve
Only 1 attempt per turn.
No preparation time.
2 laps per attempt



Car place within 1 meter before starting line.



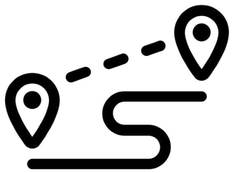
CAN CHOOSE
COUNTERCLOCKWISE
CLOCKWISE



Timer will start/stop when car crosses the starting/finish

Hands off

Must Follow track.



Off-track
Two wheels are completely outside of track boundary.
Continue if no advantage move
if advantage move
attempt will end immediately

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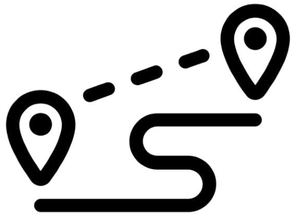
QUALIFYING SESSION

JETRACER

DO NOT FINISH (DNF)

TEAM CHOOSE TO FORFEITS



Advantage move

UNABLE TO FINISH
2 LAPS IN 3 MINS

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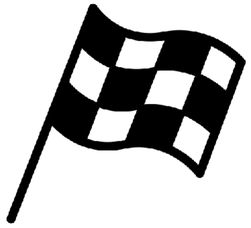
QUALIFYING SESSION

JETRACER

TRIAL ENDS



COMPLETED 2 LAPS

DO NOT FINISH (DNF)

Disqualify

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QUALIFYING SESSION

JETRACER

QUALIFYING RESULTS

Best time finishes 2 laps

Top 8 teams with highest score will advance to finals.

Max 2 teams per school can advance to finals

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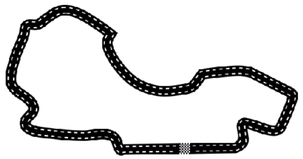
JETRACER

FINALS

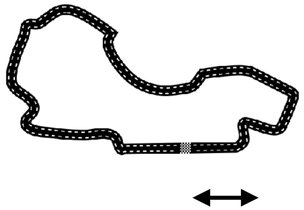
FINALS

JETRACER

1 attempt only



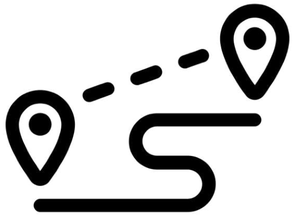
More Challenging Map



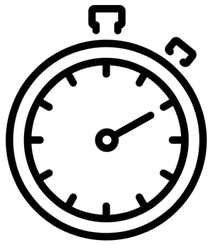
1m

Car place within 1 meter before starting line.

Must Follow track.



Off-track
Continue if no advantage move
if advantage move
Reset operation is require +
5 seconds penalty
Judge has the final call



Timer will start/stop when car crosses the starting/finish

Hands off

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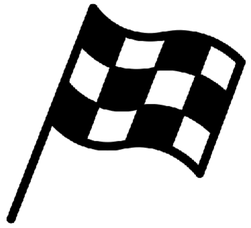
FINALS

JETRACER

ENDS



COMPLETED 3 LAPS

DO NOT FINISH (DNF)

Disqualify

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FINALS

JETRACER

DO NOT FINISH (DNF)

TEAM CHOOSE TO FORFEITS

4

CAR RESETS 4 TIMES

UNABLE TO FINISH
3 LAPS IN 5 MINS

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FINALS

JETRACER

FINAL RESULTS

Total time finish 3 laps
Plus penalty

If all participants can’t finish the race or disqualified, the final results will be based on the qualifying results

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MAY THE BEST TEAM WIN

ONE MORE THING

CLOUDAI.STEMPLUS.HK

FE.SUPPORT@FORMULAEDGE.ORG

Q&A