

USC RoboCon 2026

Event Guidelines and Mechanics

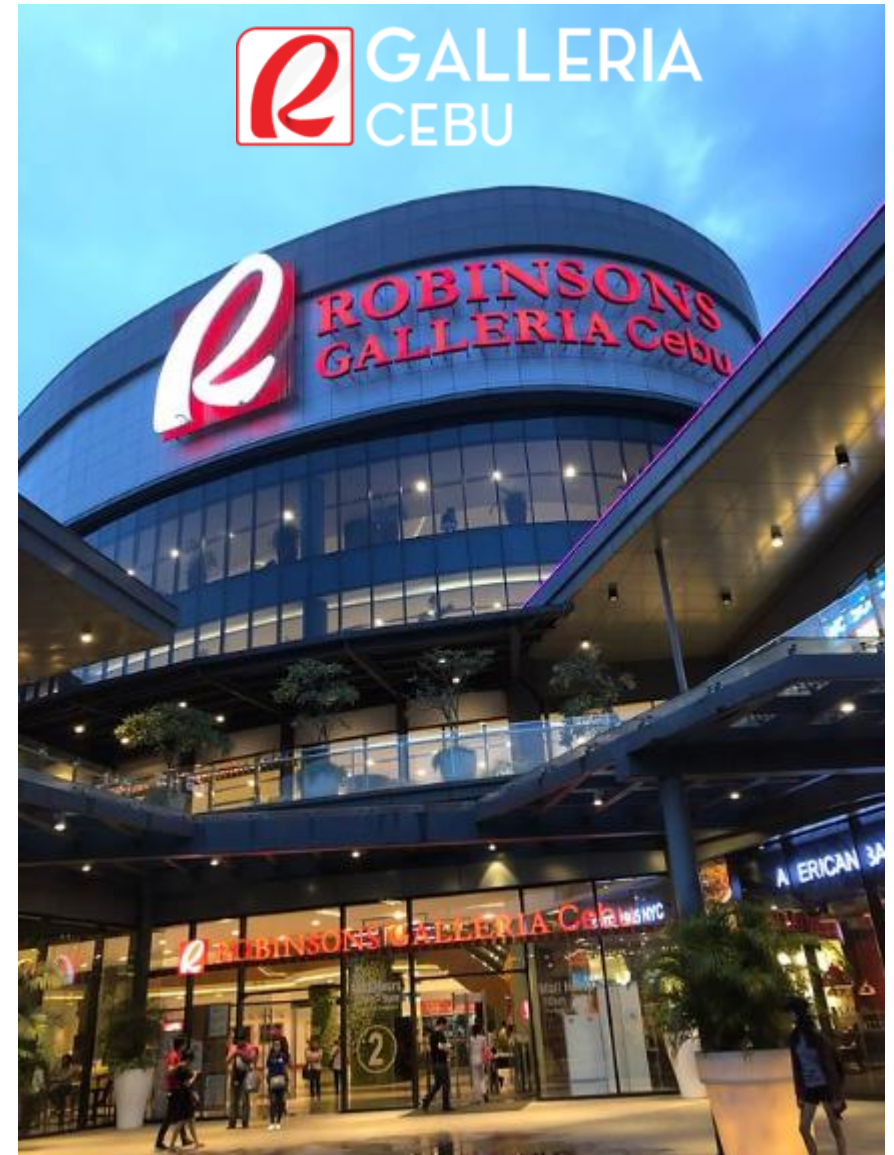
We officially invite you to participate in
USC RoboCon 2026!

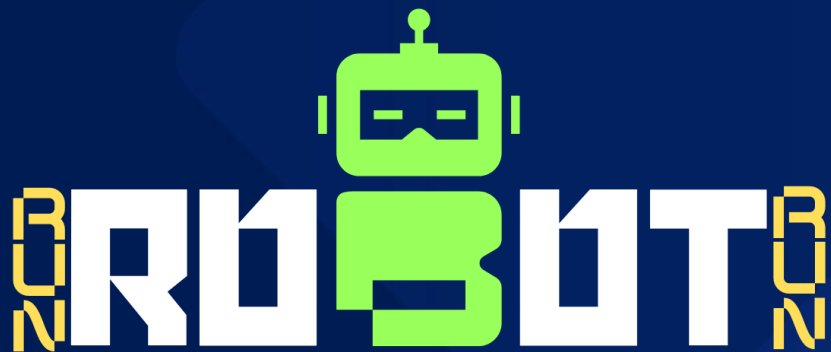
USC RoboCon 2026

- **Date:** March 8, 2026 (Sun)
- **Time:** 1:00 – 5:00 PM
- **Venue:**

Robinsons Galleria Cebu - Atrium

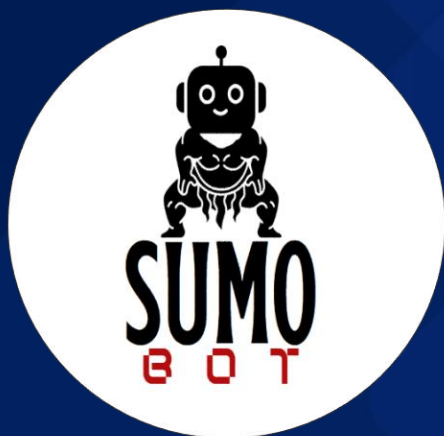
General Maxilom Avenue cor. Sergio Osmeña Boulevard, Cebu City.





LINE FOLLOWER

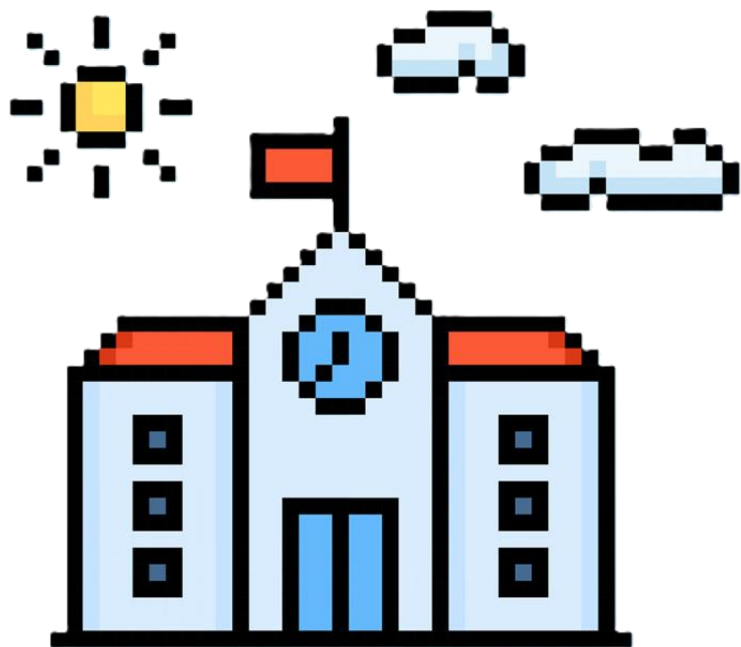
Event Categories of USC RoboCon 2026



INTELLIGENT ROBOT CONTEST FESTIVAL



ROBOT



BASIC EDUCATION SCHOOLS

GRADES 4 TO 6

FIRST LISTED TEAM



3 STUDENTS



1 ADVISER

SECOND LISTED TEAM



3 STUDENTS



1 ADVISER

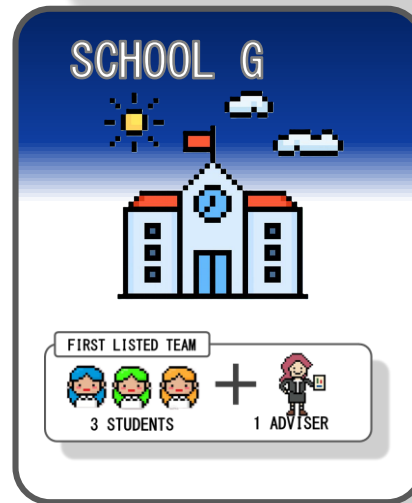
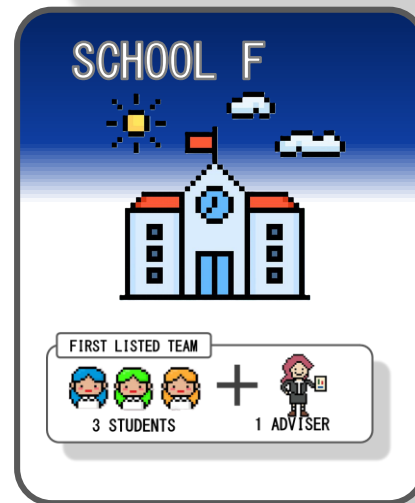
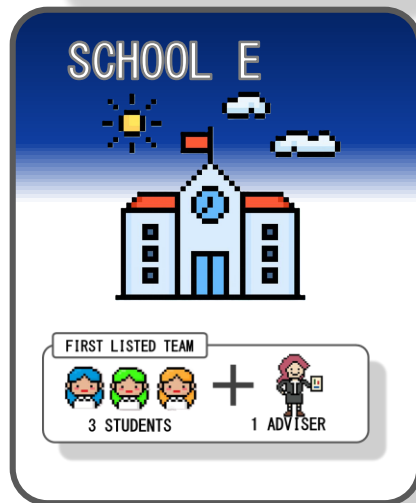
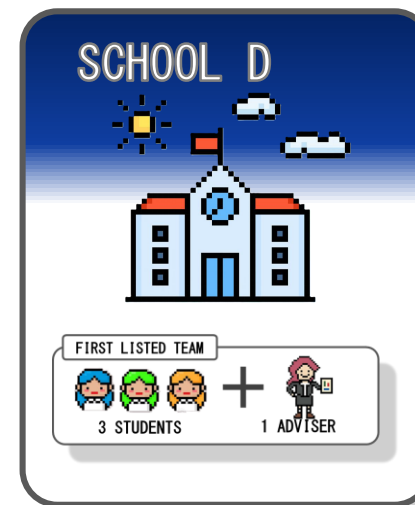
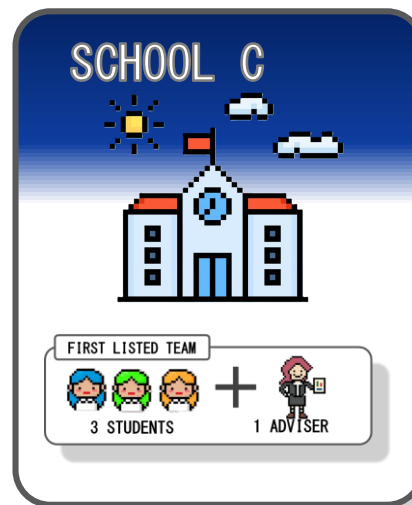
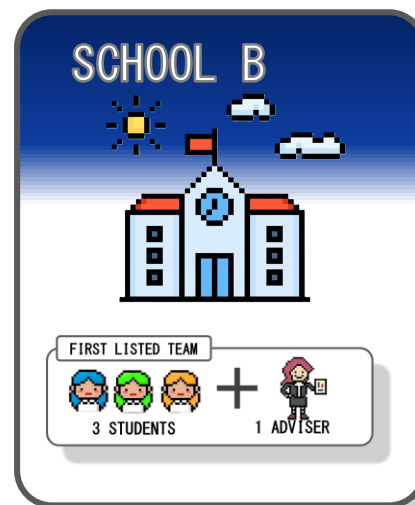
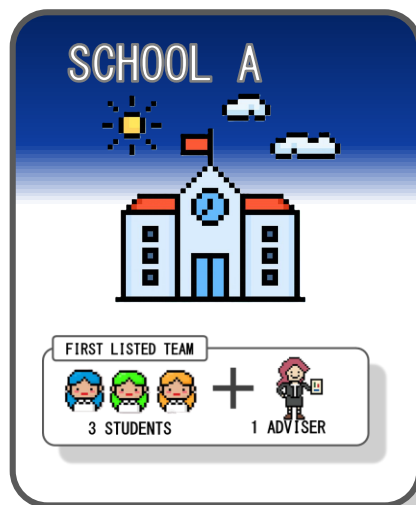
- ▶ This event is open to BASIC EDUCATION STUDENTS, specifically students from GRADE 4 to GRADE 6.
- ▶ The event is played in TEAMS of 3 STUDENTS plus 1 ADVISER.
- ▶ Each school can register up to 2 TEAMS. Queueing priority is given to the FIRST LISTED TEAM of each school.



PLAYER INFORMATION



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► A total of 8 TEAMS will compete in this event. FIRST LISTED TEAMS from the registering schools will be queued in a FIRST COME FIRST SERVED basis.

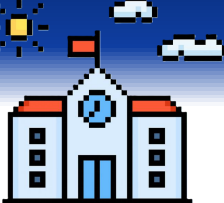


PLAYER INFORMATION



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SCHOOL A



FIRST LISTED TEAM



3 STUDENTS

+



1 ADVISER

SCHOOL B



FIRST LISTED TEAM



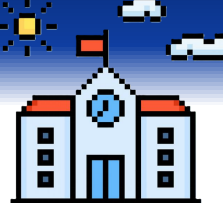
3 STUDENTS

+



1 ADVISER

SCHOOL C



FIRST LISTED TEAM



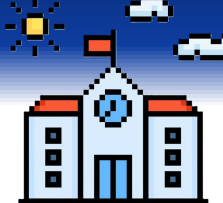
3 STUDENTS

+



1 ADVISER

SCHOOL D



FIRST LISTED TEAM



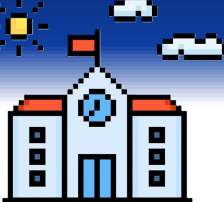
3 STUDENTS

+



1 ADVISER

SCHOOL E



FIRST LISTED TEAM



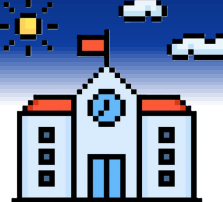
3 STUDENTS

+



1 ADVISER

SCHOOL F



FIRST LISTED TEAM



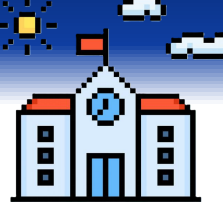
3 STUDENTS

+



1 ADVISER

SCHOOL G



FIRST LISTED TEAM



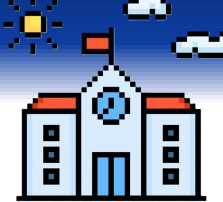
3 STUDENTS

+



1 ADVISER

SCHOOL H



FIRST LISTED TEAM



3 STUDENTS

+



1 ADVISER

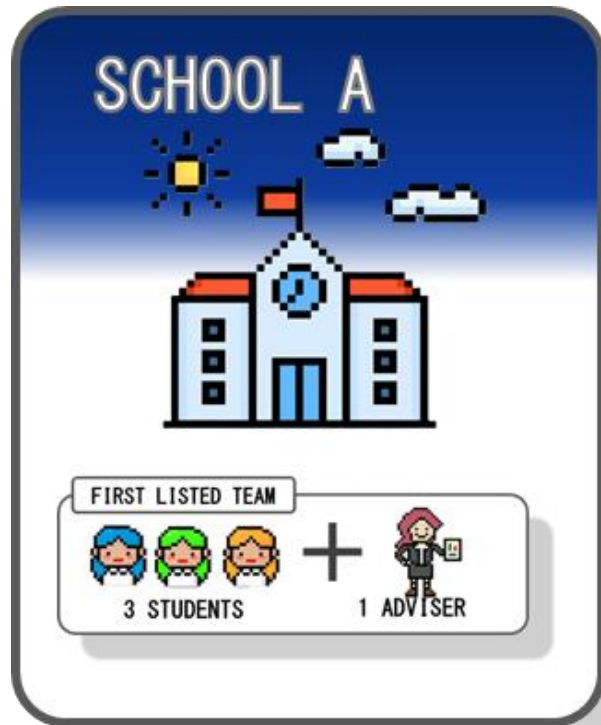
► In cases where an open slot remains after considering all FIRST LISTED TEAMS, the remaining slots will be filled out by the SECOND LISTED TEAMS queued on a FIRST COME FIRST SERVED BASIS.



PLAYER INFORMATION



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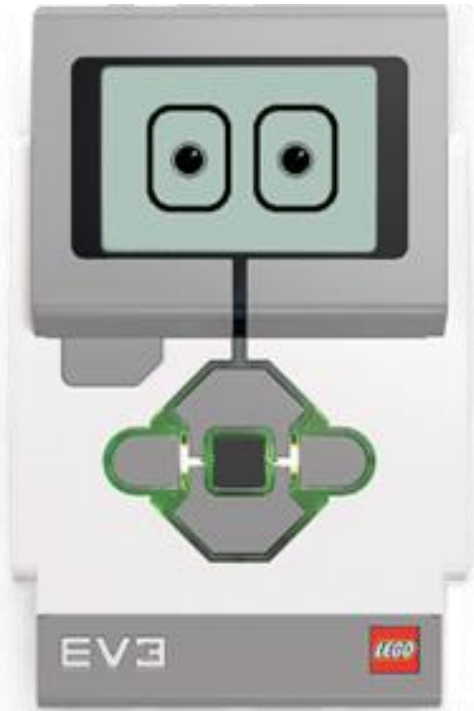
- Successfully registered teams will each be assigned a LEGO MINDSTORMS EV3 EDUCATION KIT.



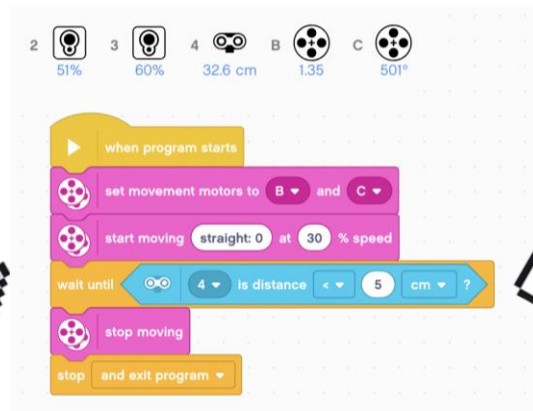
GAME MECHANICS



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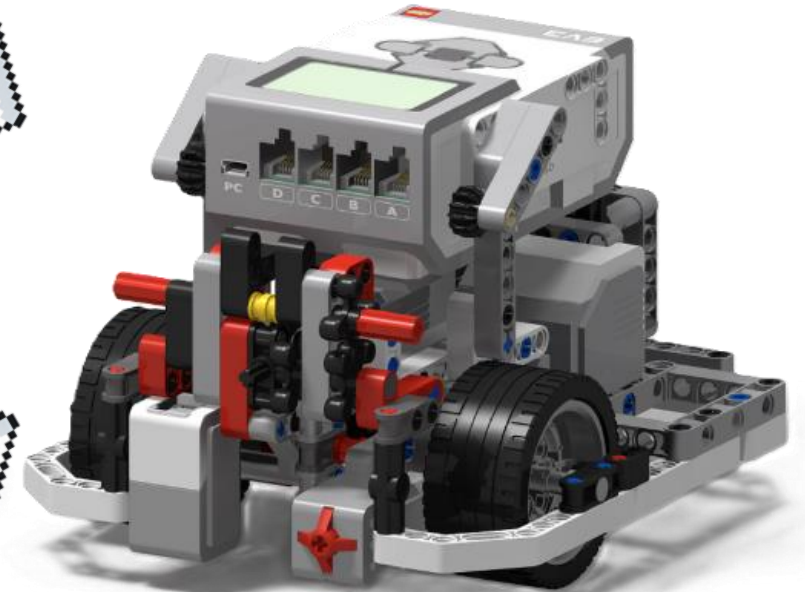
EV3 BRICK



PROGRAMMING



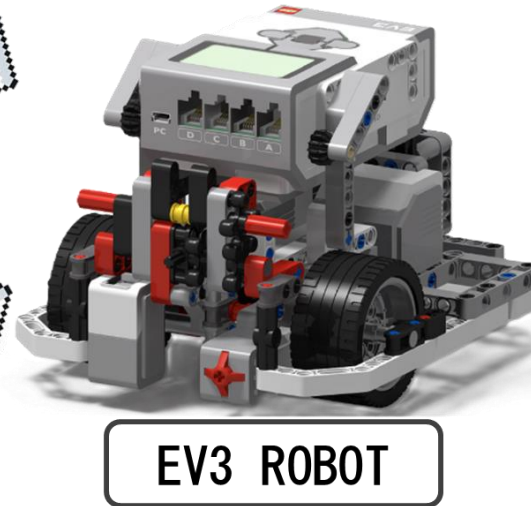
MODIFY PARTS



EV3 ROBOT

- Meet the EV3 BRICK, the brain of your robot!
- Your task is to attach parts and upload programs to your EV3 BRICK to create your very own mobile EV3 ROBOT!





2-DAY TRAINING



FEB 28 2026



MAR 7, 2026



MAIN EVENT - MAR 8, 2026

► This entire process of ASSEMBLY & PROGRAMMING will be covered in the 2-DAY TRAINING that comes with every successful registration, in preparation for the main competition.



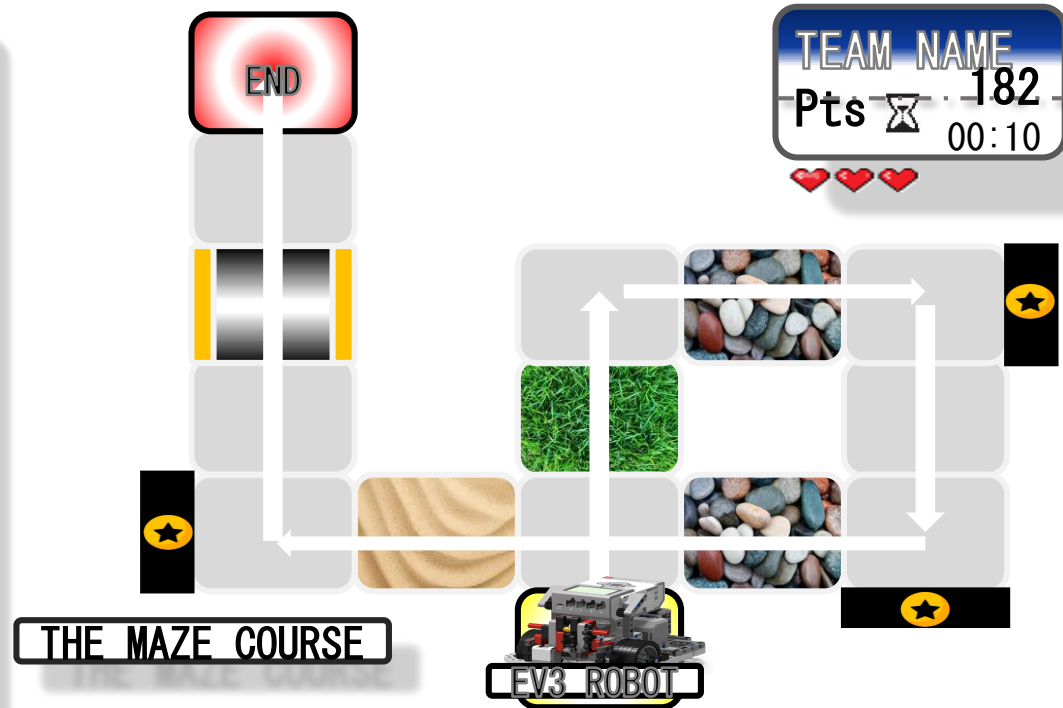
GAME MECHANICS



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LEGO TILE LEGEND

	Start Tile
	End Tile
	Normal Tile 10 pts
	Grass Tile 13 pts
	Pebble Tile 15 pts
	Sand Tile 17 pts
	Bridge Tile 12 pts
	Challenge Wall Tile 10 pts (20 pts w/ challenge)



PENALTY



RUNNING OUT OF LIVES
TRIAL ENDS

- ▶ The main objective is to let the EV3 ROBOT traverse the MAZE COURSE from START to END, following the prescribed route.
- ▶ The MAZE COURSE is made out of TILES, each TILE bearing an equivalent amount of POINTS
- ▶ As the EV3 ROBOT passes through each TILE, the TEAM gains POINTS associated with that TILE and is added to their point total.
- ▶ A team that runs out of LIVES automatically forfeits the current trial. Luckily, each team has 2 TRIALS per ROUND.
- ▶ The team may also lose POINTS if their EV3 ROBOT veers off-course. This corresponds to a demerit of -1PTS and -1 LIFE.
- ▶ The main competition consists of ROUNDS, each round having a unique MAZE COURSE.

GAME MECHANICS

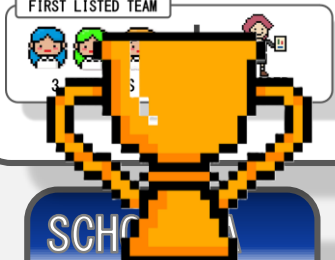


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SCHOOL A



FIRST LISTED TEAM



SCHOOL A

Pts **182**

00:10

VS

SCHOOL B



FIRST LISTED TEAM



SCHOOL B

Pts **154**

00:38

SCHOOL F



FIRST LISTED TEAM



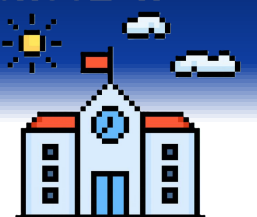
SCHOOL F

Pts **182**

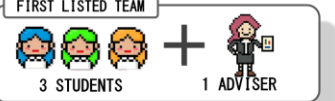
00:10

VS

SCHOOL H



FIRST LISTED TEAM



SCHOOL H

Pts **182**

00:20

- ▶ The team with the highest TOTAL POINTS wins the competition.
- ▶ In the event of a TIE, the team with the better completion time will be declared the winner.



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RUN ROBOT RUN

LINE FOLLOWER

Outline

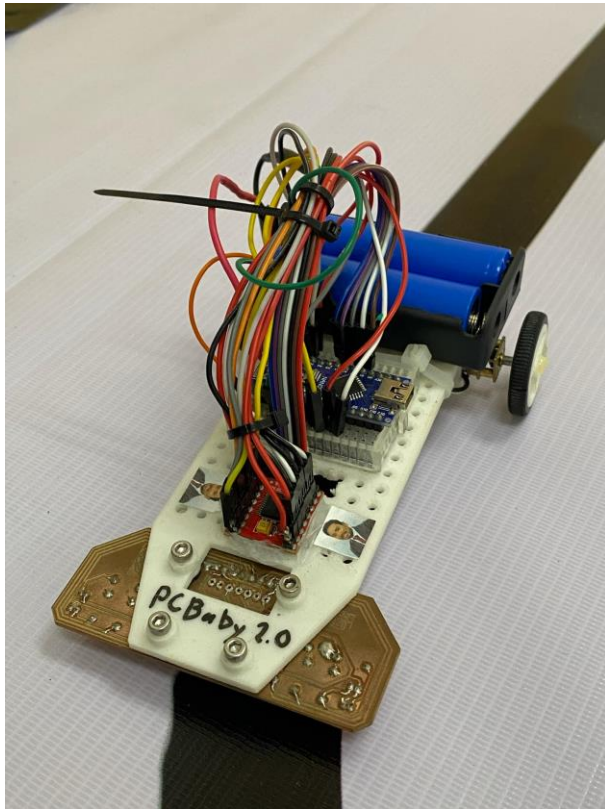
- A.Event Description
- B. Robot Specifications
- C.Track Specifications
- D.General Rules
- E. Violations and Penalties

Event Description (Line Follower Robot)

- a robotics competition event in the **USC RoboCon 2026**
- design an autonomous robot capable of traversing along and around an established line path
- robot must maneuver the path accurately in the shortest amount of time
- showcase the participants' programming and hardware design skills

Event Description (Line Follower Robot)

The Robot



The Track



Robot Specifications

A. Dimensions

- 25 cm x 25 cm x 25 cm
- the robot shall undergo dimensions checking prior to start of the competition
- a penalty time of 1 second will be given for every centimeter of excess measurement or a fraction thereof

Robot Specifications

B. Control

- robot should be completely autonomous
- while on the track, wired/wireless connection to the robot is not allowed

Robot Specifications

C. Power Source

- power source should be mounted on the robot
- external power sources are not allowed

Robot Specifications

D. Control Unit

- any type of controller such as microcontroller, developments boards, among others, may be used

Track Specifications

A. Line Width

- 4 centimeters

B. Color

- Line: black
- Background: white

C. Track

- Material: Tarpaulin
- Dimensions: 3 meters x 5 meters

D. Checkpoint

- several checkpoints will be specified along the path
- robots may be returned to the last completed checkpoint in the event it veers off the correct path

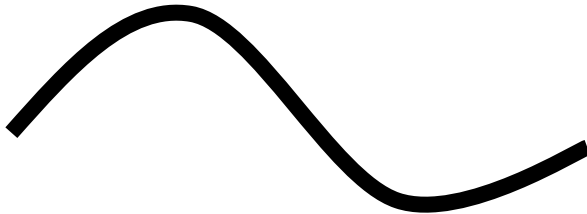
Track Specifications

D. Path Types

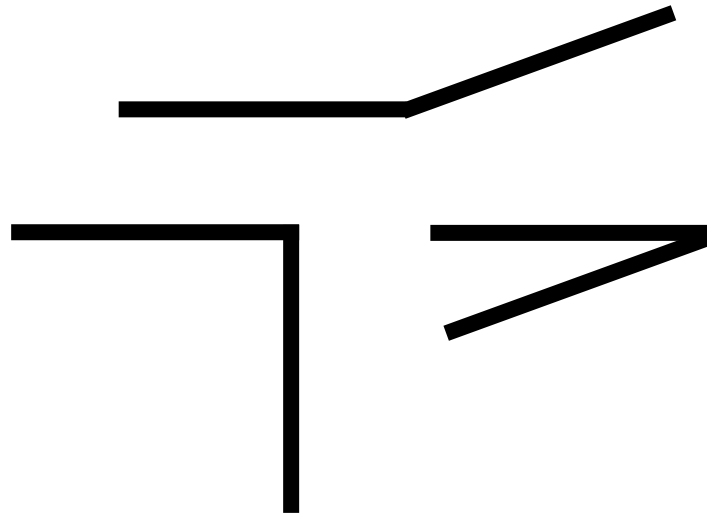
- Straight line



- Curved line



- Angled turn



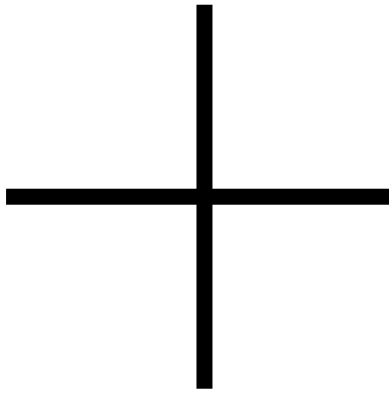
- Broken line



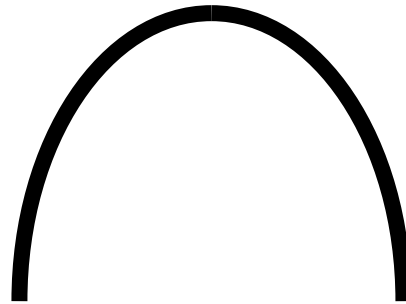
Track Specifications

D. Path Types

- Crossover



- Hairpin turn



Track Specifications

Note:

Actual path to be used for the competition will be disclosed 1 week before the event.

General Rules

A. Team Composition

- Up to 3 members
- Open Category
 - Elementary
 - Secondary
 - Tertiary
- 1 coach

General Rules

B. Robot Checking

- robot will be subjected to checking by competition officials prior to the start of the competition
- after the checking, the robot will be placed on a designated display area or location
- robot may only be removed from the display location during its turn on the track or after the competition

General Rules

C. Robot Display Area/Location

- no more source code modification will be allowed on the robot
- battery or power source replacement may be allowed between rounds (*supervised by a competition official*)
- battery or power source replacement is not allowed in between runs

General Rules

D. Competition Rounds

- A. Round 1 (Elimination Round)** - All participating robots will compete for the top 8 spots according to fastest track completion time.
- B. Round 2 (Semi-Final Round)** – The top 8 robots from the previous round will compete for the top 4 spots according to fastest track completion time.
- C. Round 3 (Final Round)** – The top 4 robots from the previous round will compete for the top 3 spots (Champion, 2nd Place and 3rd Place) according to fastest track completion time.

Note: In each round, every participating robot will be given 2 runs and the best time between the 2 runs will be recorded as the official completion time.

General Rules

E. Robot Ranking

- robot ranking will be determined based on fastest completion time
- time from start to finish shall be measured using an automated timer and a stopwatch
- if ranking cannot be determined according to completion time, the farthest distance reached in the fastest time according to completed checkpoints will be used to rank the robots.

General Rules

F. Robot Handling

- each team will designate a member to handle the robot during runs
- a robot may be returned by the handler to the last completed checkpoint, up to 3 times within a run, in case it veers off the track

General Rules

G. Battery / Power Source Replacement

- 5 minutes between each round will be given to every team to replace robot battery/power source
- supervised by competition official
- source code modification is not allowed

General Rules

H. Tie Breaker

- a Tie Breaker Round will be conducted in the event that there is a tie in the completion time between two or more robots
- will be conducted in the same manner as any other round (*every participating robot will be given 2 runs and the best time between the 2 runs will be recorded as the official completion time*)

General Rules

I. Track Safety

- robot must not cause any damage to the track

General Rules

J. Competition Results/Decision

- decision of the competition judges, officials and organizers regarding the rules and the conduct of the event shall be deemed final

Violations and Penalties

Violation

Excess on specified dimension.
(25 cm x 25 cm x 25cm)

Penalty

1 second additional time to the completion time for every 1 cm excess dimension or a fraction thereof.

Violations and Penalties

Violation

Giving a robot initial momentum at the start of a run.

Penalty

Disqualification from the current run.

Violations and Penalties

Violation

Code modification after submission for dimension checking.

Penalty

Disqualification from the competition.

Violations and Penalties

Violation

Damage to the track caused by robot or a team.

Penalty

10 seconds additional time to the completion time.



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LINE FOLLOWER

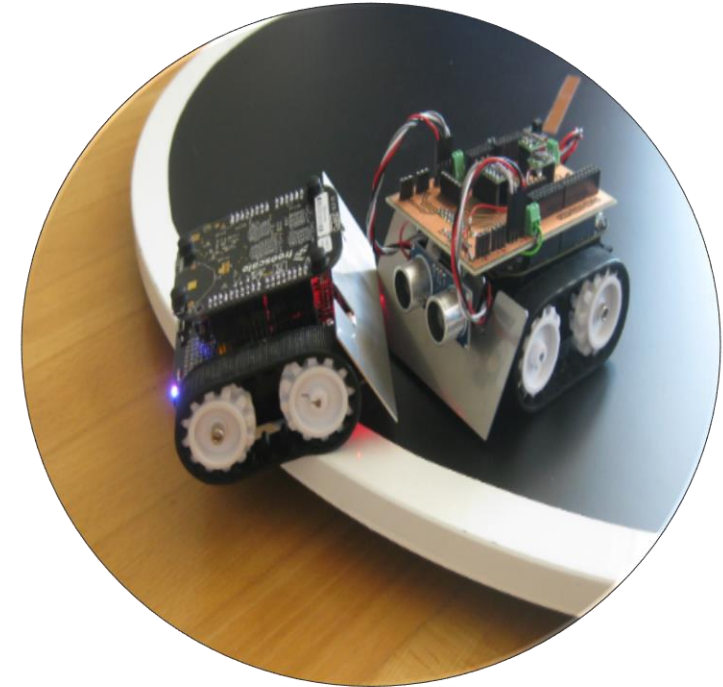


DESCRIPTION

- **SumoBot** competition is a robotics competition event which is played with two autonomous robots competing in a **head-to-head match** analogous to traditional human sumo matches.

DESCRIPTION

- The sole objective of the pushing match between two robots is to force the other out from the arena.



Guidelines (Robot Physical Design)

- Robot must fit within a box of the appropriate dimensions.
- Robot must not exceed with the maximum weight.

Guidelines (Robot Physical Design)

- Robot may expand in size only during the match, but must not physically separate in pieces, thus, must remain a singular robot at all times. Any parts falling off from a robot's body during the match shall cause loss of the current round.

Guidelines (Robot Physical Design)

- Robot must not contain any weaponized mechanisms (e.g., hammering, electrocuting, flipping) that intentionally destroy the other robot.

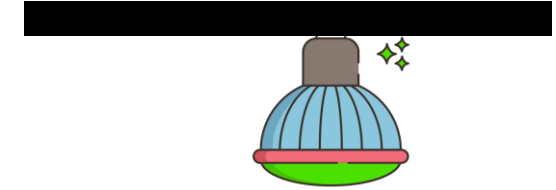
Guidelines (Functional Design)

- Sensors in the robot are allowed for the purpose of actively searching opponent, detect the borderline to stay inside the arena, or both.
- Robot may contain up to two (2) types of sensors only (e.g., color sensor, ultrasonic sensor).



Guidelines (Functional Design)

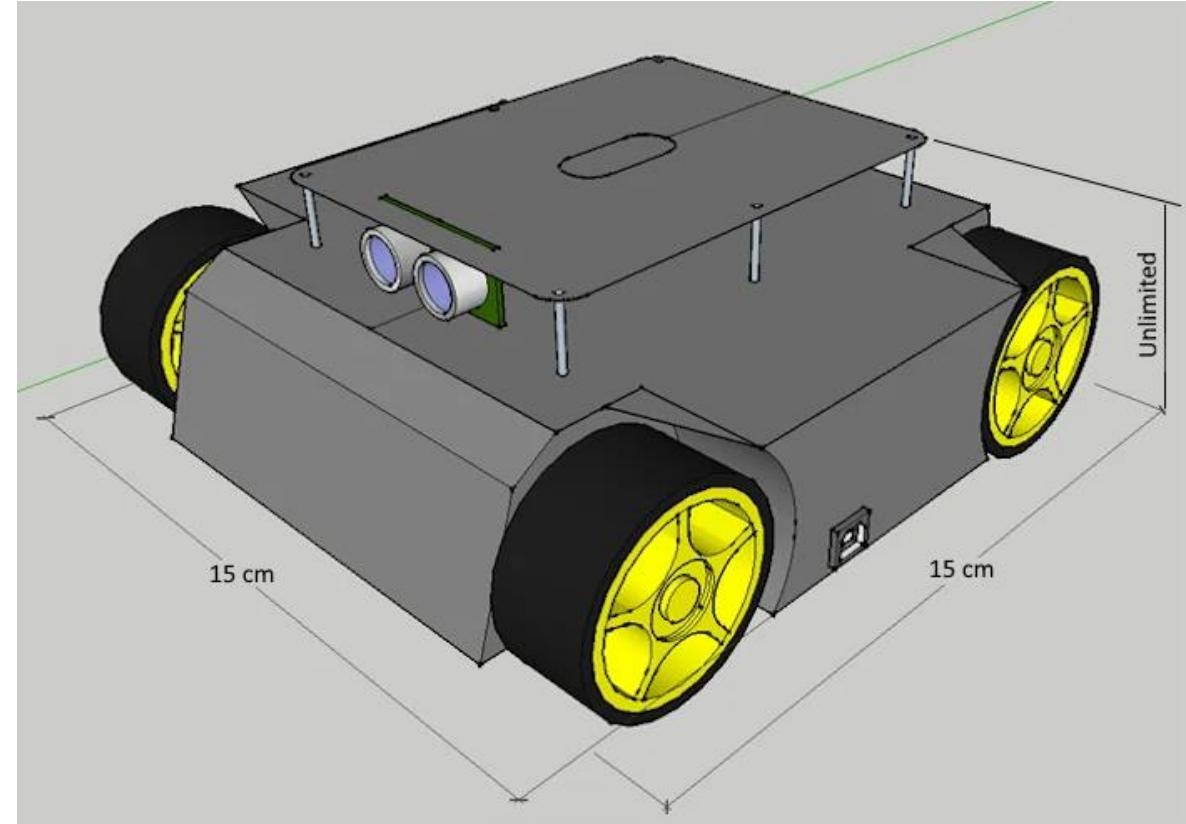
- Robot must also possess a form of mobility and use it during the match.
- Robot must integrate a light sensor that can differentiate green light (from halogen light) against natural room light. Detecting the light change, from green to natural light, triggers the transitioning of the robot from idle mode to “sumo-combat” mode. The light sensor must be placed properly above the robot facing upward and free from obstacles. This module can be provided by the organizer.



Guidelines (Non-Functional Design)

SumoBot Measurements

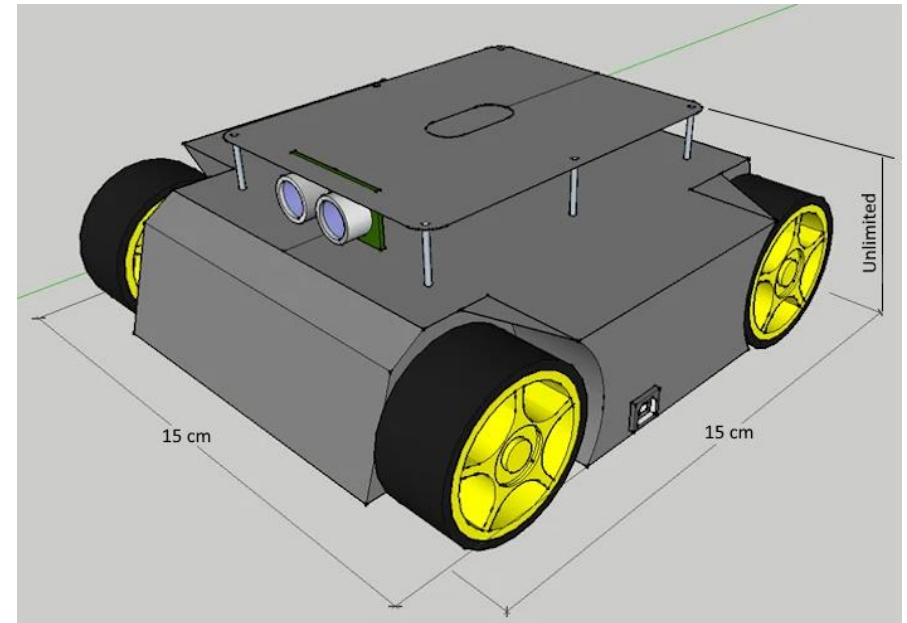
Height	Unlimited
Width	15 centimeters
Length	15 centimeters
Weight	500 grams



NOTE: dimensions and weight have at most *permissible excess* of 5 cm for length and width and 15 grams for the weight.

Guidelines (Non-Functional Design)

Robot must be in self-operating or autonomous mode at all times. Robot is not allowed to receive any unauthorized external signals or directions (e.g., remote control, human, etc.)



Other Guidelines

- Teams must submit their robot within 30 minutes before the main event begins.
- No robot will be accepted once the competition has commenced.
- During registration, each robot will undergo an evaluation to ensure its functional and non-functional design requirements.

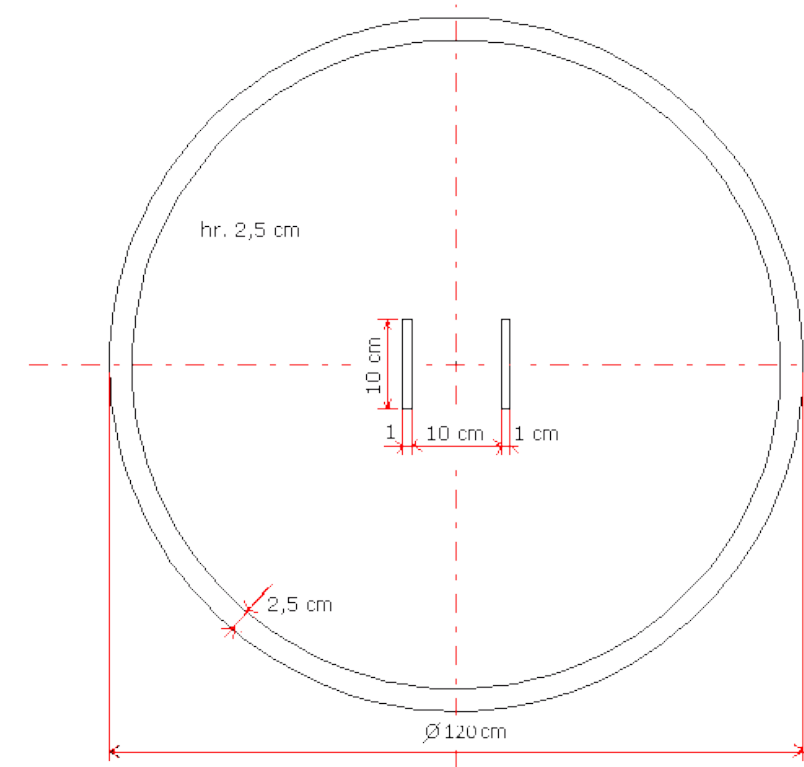
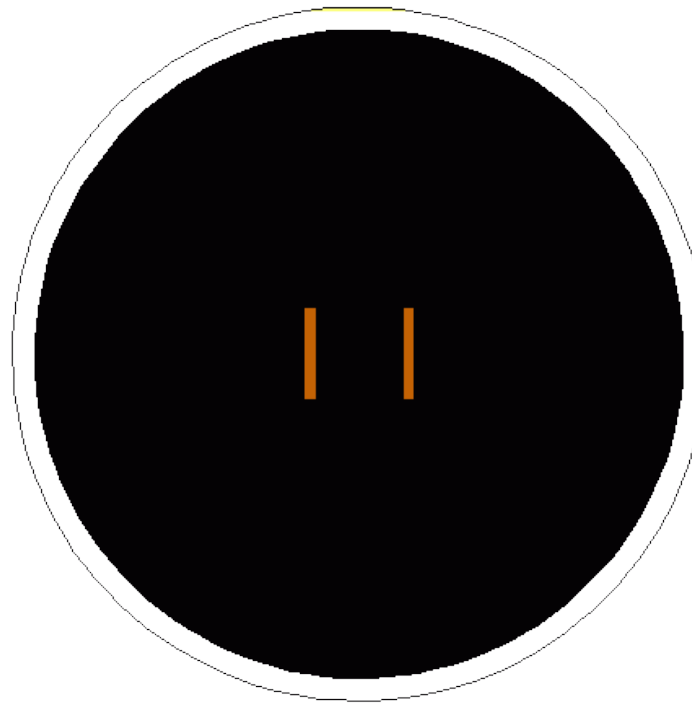
Other Guidelines

- Through the competition, all robots must remain on a designated table(s).
- Teams are strictly prohibited from reprogramming or making any adjustments during the event.
- Changing battery and minor mechanical fixes in the robot are allowed upon approval from technical committee and with the supervision of an event organizer representative.

SumoBot Arena (Doyo)

Doyo Measurements

Height	2.5 centimeter
Diameter	120 centimeter
Starting Lines	
Width	1 centimeter
Length	10 centimeter
Separation	10 centimeter
Border	
Width	2.5 centimeter



COMPETITION MECHANICS (Tournament Structure)

- Elimination round shall follow a round-robin competition.
- Eight (8) teams shall proceed to the semi-final round. In semi-final round, the match shall follow a double elimination.

COMPETITION MECHANICS

(Tournament Structure)

- Top four (4) teams in the semi-final round will qualify for the final round.
- The final round, top 1 shall be match with top 3, and top 2 shall be match with top 4. Winners of the match shall proceed to the championship match.

NOTE: *The tournament style shall be subjected to changes depending on the circumstances.*

COMPETITION MECHANICS (Match Structure)

- A match shall consist of three (3) rounds, within a total of three (3) minutes, unless extended by the technical committee.
- In the event where robots do not make contact with each other for twenty (20) seconds at every round, as determined by the judge(s)/referee(s), the round shall reset in a running time.

COMPETITION MECHANICS (Match Structure)

- Every match is a race to two (2) wins, within the three (3) minutes game time. If a team wins two (2) rounds before the end of the time, such team will be declared winner and the match ends.
- Otherwise, if the time limit is reached, the team with more wins shall be declared winner.
- In case that the match is not won by either team within the time limit, the winner of the match shall be decided by the judges/referee based on the following aspects:
 - Mobility of the robot, Initiate contact, and strategy.

COMPETITION MECHANICS (Peri-Match)

- Before the start of the match, a random placement generator shall be executed. The initial position and orientation of the robot shall strictly follow the generated placement. The ring judge/referee will signal the start of the match by turning off the halogen, at which the robots transition from idle mode to “sumo-combat” mode.

COMPETITION MECHANICS (Peri-Match)

- Upon activation to “sumo-combat mode”, the robots shall engage in wrestling. A robot shall be considered “incapacitated” and lose the round if any of the following conditions are met:
 - The robot falls of the arena cause **either by another robot** or **by itself**. The first robot that fell out the arena loses the round.
 - If a robot is hanging (e.g., one side of the wheel falls off the arena) and incapable to return its entire body within the arena, as deemed by the judges/referee, it will be considered “removed” and lose the round.

COMPETITION MECHANICS (Peri-Match)

- Any parts falling off from a robot's body during the match will result in loss of the current round.
- If the robot shows no movement for 10 seconds and not in contact with the other, as determined by the judge(s)/referee(s), the robot shall be considered incapable and lose the round.

COMPETITION MECHANICS (Peri-Match)

- In case of deadlock or entanglement (robots are in contact), the judge(s)/referee(s) will call for a reset after 10 seconds. During reset, the clock shall be paused, and the robots shall be placed back in the starting position. The robots will then be reactivated, and the clock starts from where it left off.

COMPETITION MECHANICS (Peri-Match)

- Team members are not allowed to touch the robots while the round is ongoing, unless instructed by the judge(s)/referee(s).

VIOLATION & PENALTIES

Violations	Penalties
Robot Physical Design (weaponized mechanism)	Disqualification
Non-Functional Design (unauthorized external signal e.g., remote control)	Disqualification
Non-Functional Design (SumoBot Measurements)	Rank demotion (depending on the number of violations)

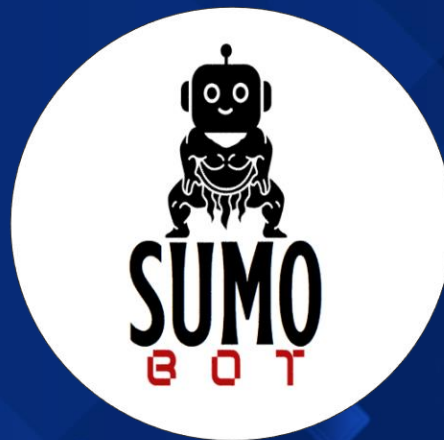
VIOLATIONS & PENALTIES

Violations	Penalties
Other Guidelines	Rank demotion (depending on the severity of the violation)
Competition Mechanics – Peri-Match (touching robot w/o instruction)	Loses the round
Team member utters insulting words to the opponent or the judges.	Disqualification

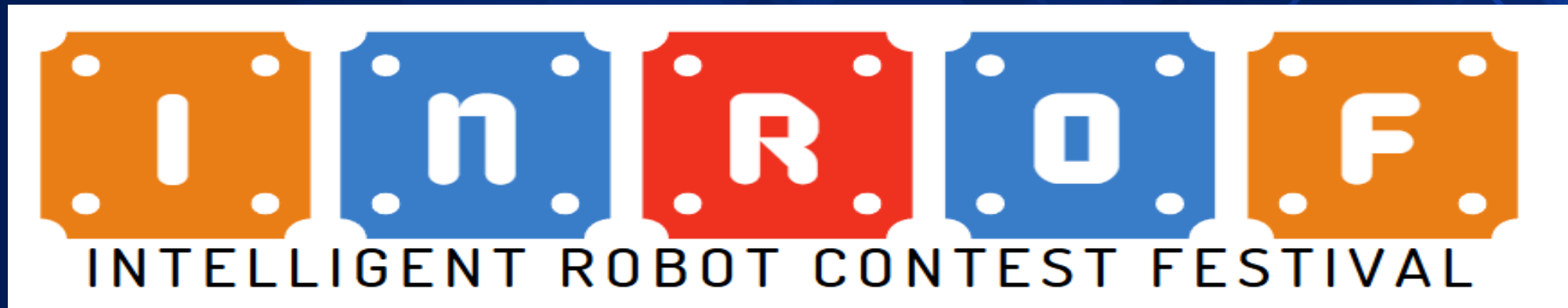
NOTE: The implementation of these sanctions/penalties shall be carried out as deemed appropriate by the technical committee. The committee's decision is final and irrevocable.



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INtelligent RObot Festival (INROF)



Ball Collecting Robot

Contents

- Description
- Mechanics
 - Robot Design Constraints
 - The Arena
 - The Mission
 - Balls and Points
 - Setup Time and Trial Runs

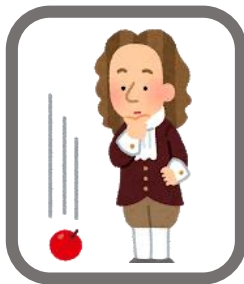
Intelligent Robot Festival: Ball Collecting Robot

Encourages participants to

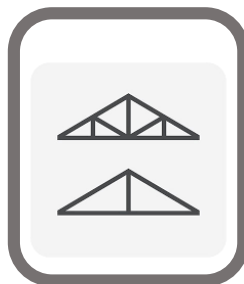


Intelligent Robot Festival: Ball Collecting Robot

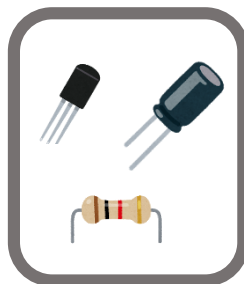
Encourages participants to



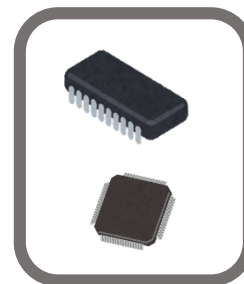
Physics



Mechanics



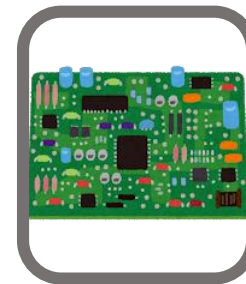
Analog Electronics



Digital Electronics



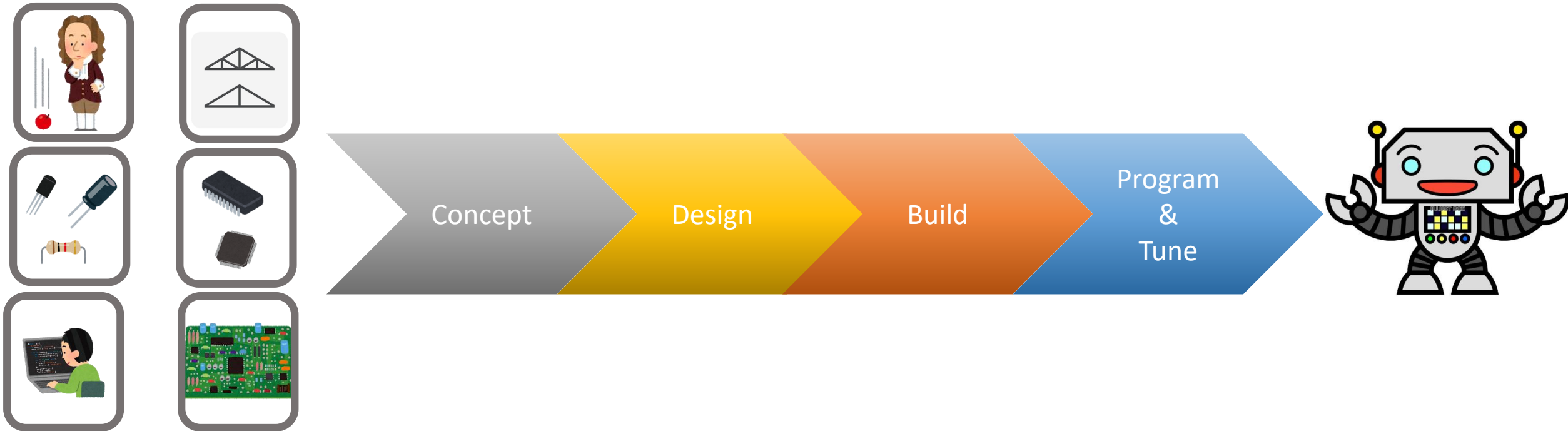
Programming



Embedded Systems

Intelligent Robot Festival: Ball Collecting Robot

Encourages participants to



INROF

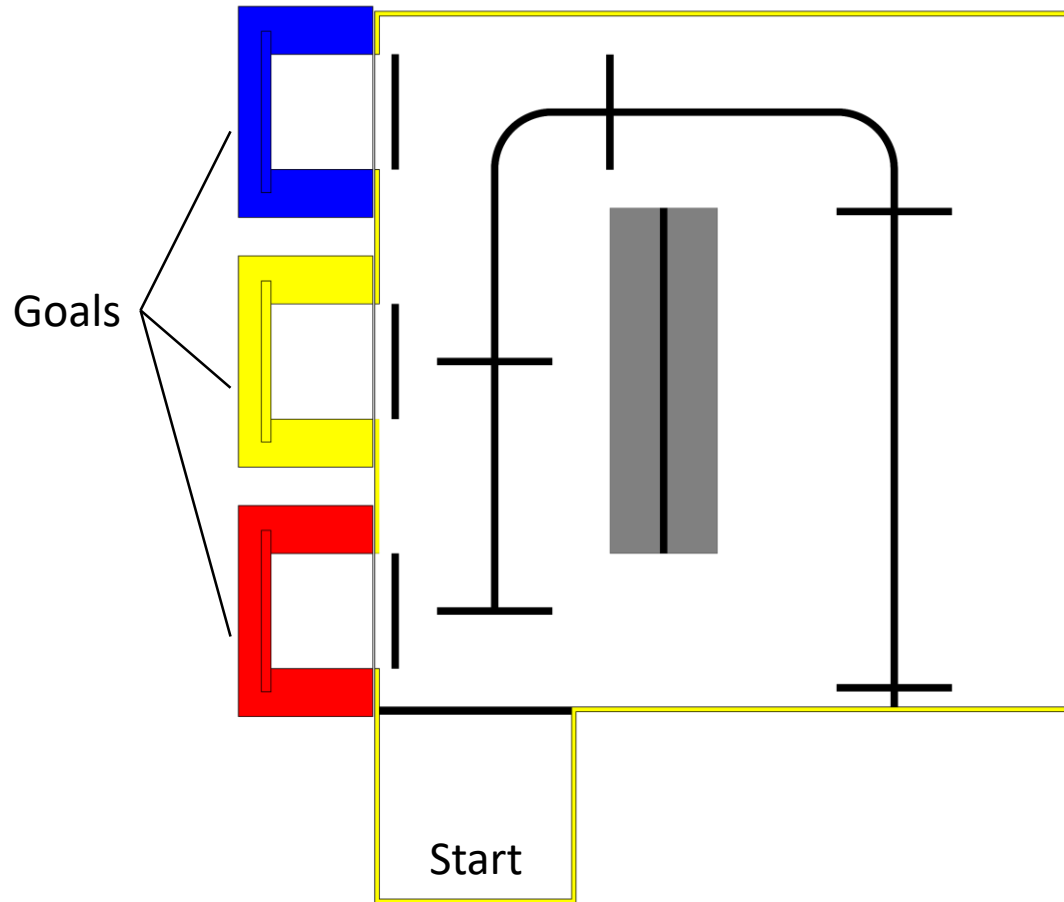
- Open to everyone! Even professionals!
- Open system design
 - Not constrained to a specific platform
- Fully autonomous
 - After turning on the switch, any form user input is not allowed
- Winners are selected based on points
- There is a well-defined task that the robot must perform

Mechanics

Design Constraints

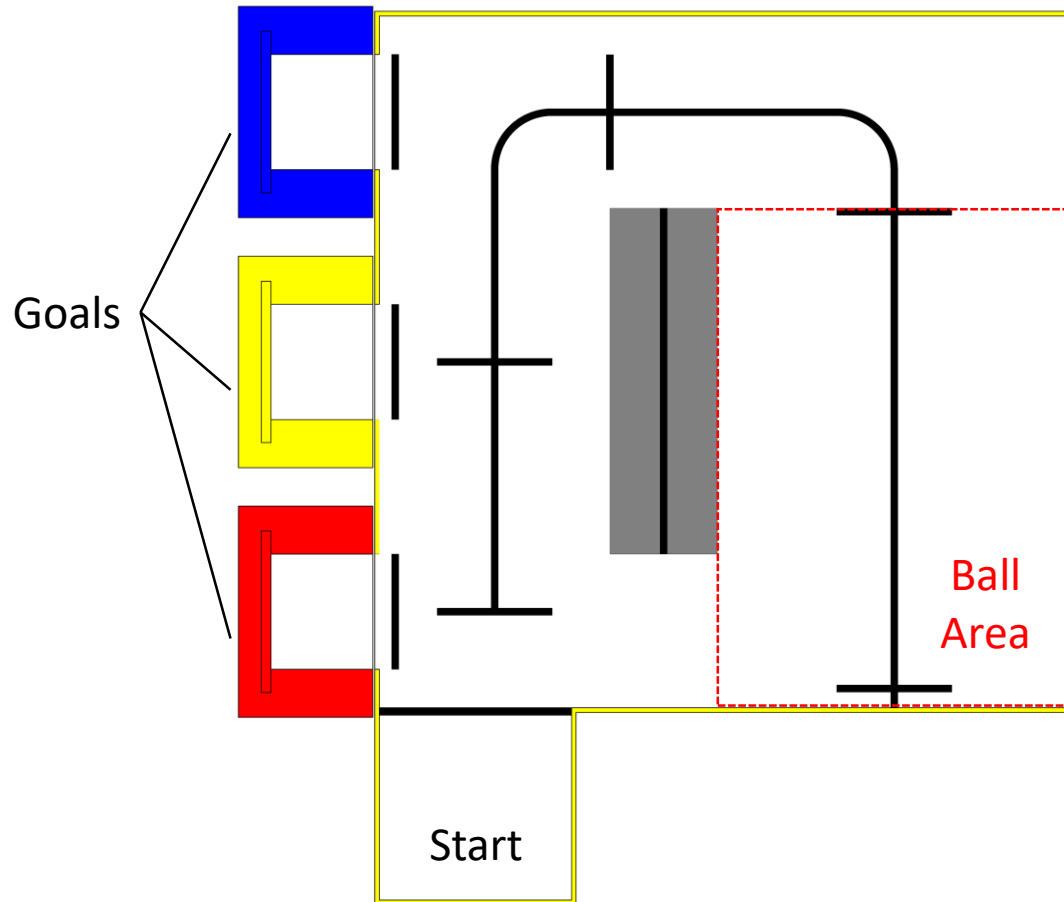
- Size
 - 900mm x 450mm x 450mm in its initial configuration
 - Robots are allowed to expand, transform, or break off into several pieces
- Weight
 - 20kg or less
- Control Method
 - Ideally any kind of computer
 - If no human intervention is involved, any controller can be used

The Arena



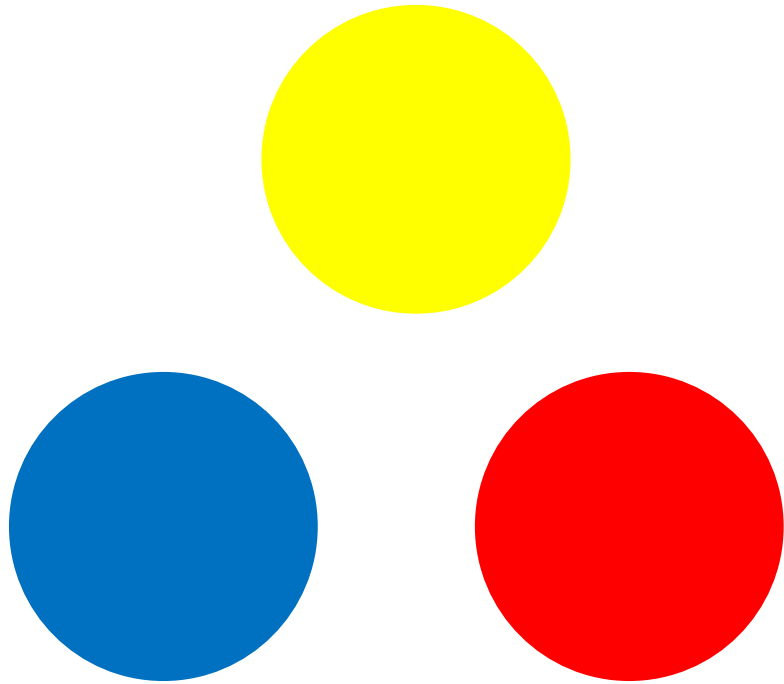
- All walls are yellow with a height of 40mm
- Traversable area
 - 1800mm x 1800mm
- Start platform
 - 500mm x 500mm
- Center platform (Island)
 - 900mm x 280mm x 40 mm
- Black lines
 - 19-20mm width (vinyl)

The Mission



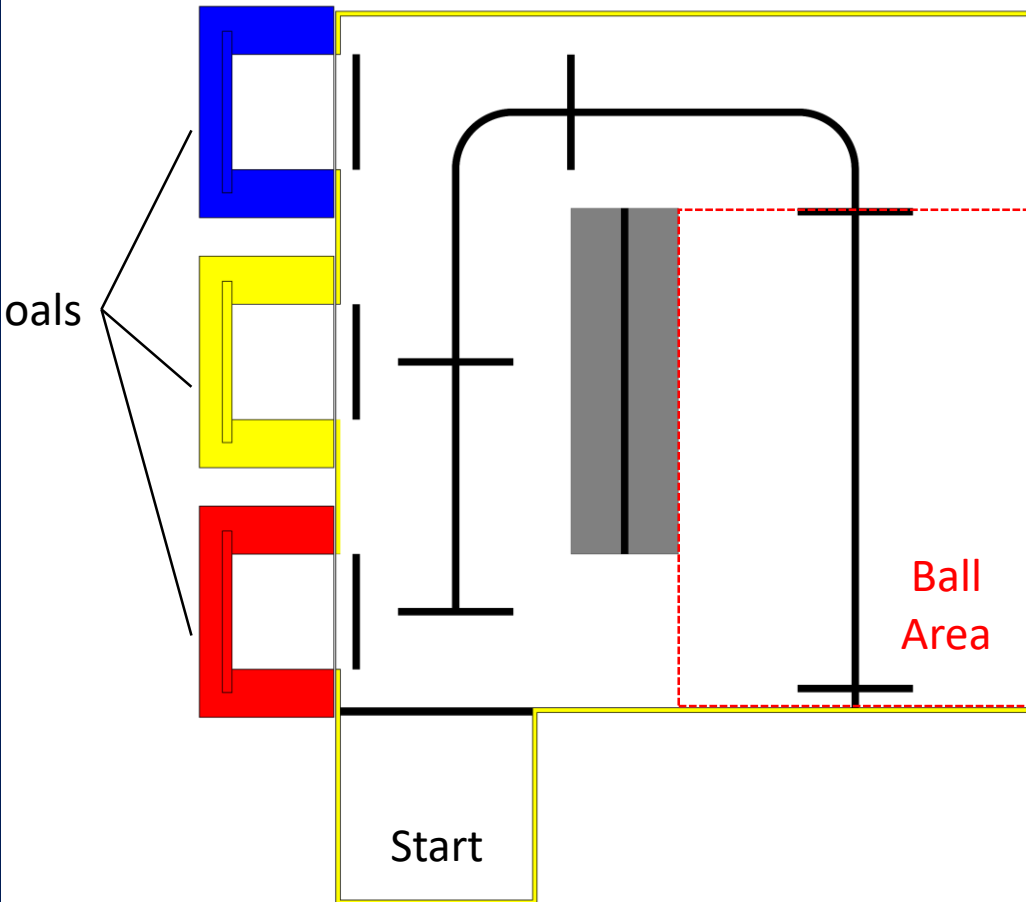
- Move from Start area to Ball Area
- Collect a ball
 - Pick the ball
 - Detecting its color
 - Blue, Yellow or Red
- Drop the ball in the corresponding goal
- Shortest completion time yields higher ranking

Balls and points



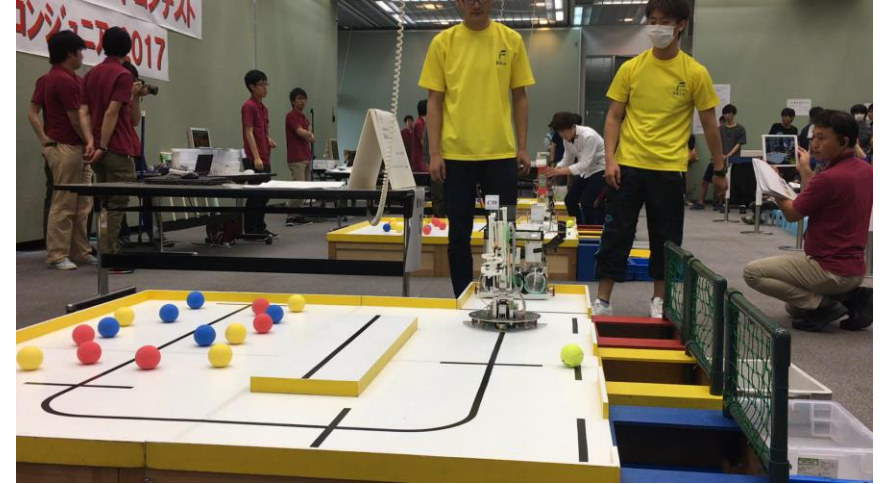
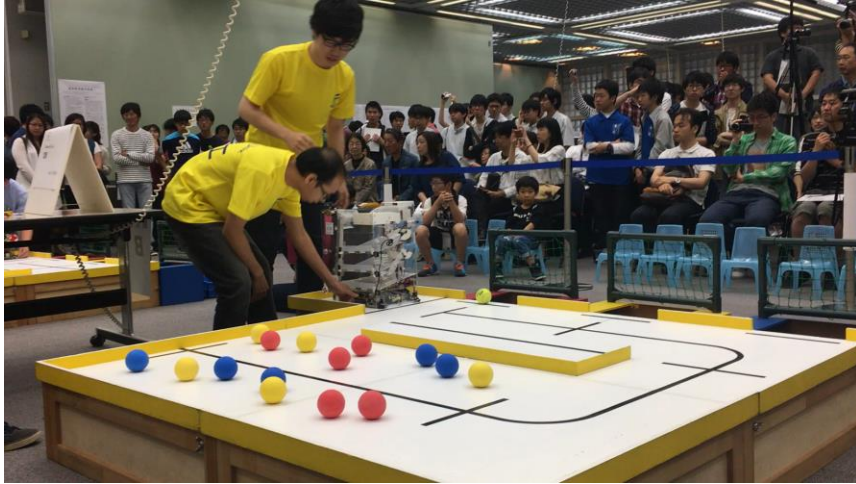
- 1 Free ball
 - 5 points regardless of which goal it is placed.
- Ball Specifications
 - Blue, Red and Yellow
 - 5 balls per color
- Scoring
 - Correct Goal: 3 points
 - Wrong Goal: 1 point
 - Perfect Score: 45 pts. + 5pts (free ball)

Setup and Trial Runs



- Setup time: 3 minutes
 - Opting to start a trial run before the 3 minutes is finished will start time trial measurement
 - Once 3 minutes is finished, time trial measurement automatically begins
- Time Trial: Max 12 minutes
 - 3 trials (2 Retry requests)
- Retry
 - Robots must return to the Start Platform
 - Ball placement reset (new random placement)
 - Temporary pause of time trial measurement until balls have been reset.
- Time Trial Stoppage
 - Last ball is placed on the bin
 - Preempted by the participant

Actual INROF Robots



Keyword :
知能ロボコン

Link:
<https://www.youtube.com/watch?v=-lOehWgU5JU>



After the Match



オツカレ(´・Д・)ノ(´Д` 疲)・サマ-



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INTELLIGENT ROBOT CONTEST FESTIVAL

Timeline of Activities for **USC RoboCon 2026**

Timeline of Activities

SCHEDULE	ACTIVITY	VENUE	REMARKS
February 28, 2026 9:00 AM – 12:00 NN 1:00 PM – 3:00 PM	Training Day 1 for Run Robot Run	USC-TC LB 285TC	<i>Assembly of Robots and Programming</i>
March 7, 2026 9:00 AM – 12:00 NN	Training Day 2 for Run Robot Run	USC-TC LB 285TC	<i>Assembly of Robots and Programming</i>
March 7, 2026 1:00 PM – 5:00 PM	Dry Run for All Event Categories	USC-TC L. Bunzel Lobby	<i>Dry Run of the competition</i>
March 8, 2026 1:00 PM – 5:00 PM	USC RoboCon 2026	Robinsons Galleria Cebu - Atrium	<i>Main Event</i>

Registration Details for **USC RoboCon 2026**

Registration Fees

EVENT CATEGORY	REGULAR FEE
Event 1: Run Robot Run	PhP 3,000.00/team
Event 2: Line Follower Event 3: Sumobot Event 4: INROF	PhP 2,500.00/team

- A team consists of 3 members and 1 adviser
- **Add-on (optional): USC RoboCon 2026 T-shirt** at PhP 300.00/head
- **Registration will close** on **March 6, 2026**

Thank you for your support!



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