

Republic of the Philippines
Department of Education
REGION IV-A CALABARZON



August 31, 2023

In compliance with DepEd Order (DO) No. 8, s. 2013
this advisory is issued not for endorsement per DO 28, s. 2001,
but only for the information of DepEd officials,
personnel/staff, as well as the concerned public.
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**INVITATION TO THE 1ST DOST REGIONAL ROBOTICS
TOURNAMENT**

With reference to the invitation for the participation to the activity of the Department of Science and Technology Region IV-A titled "1st DOST Robotics Regional Tournament", attached is the copy of letter from the Regional Director, Emelita Bagsit which contains the details of the tournament.

For the information and guidance of all concerned.

cc:02/ROC8



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22 August 2023

ATTY. ALBERTO T. ESCOBARTE, CESO II

Regional Director

Department of Education Region IV-A

Gate 2, Karangalan Village,

Cainta, Rizal

Dear *Dir. Escobarte*:

Good day!

The Department of Science and Technology Region IV-A (DOST-CALABARZON) will be conducting its 1st Robotics Tournament with the theme *Igniting Imagination: Compete, Conquer, Inspire* as part of our 2023 Regional Science and Technology Week, in partnership with the Laguna State Polytechnic University (LSPU) and Ideation, Design and Development (IDD) Laboratory. The contest aims to showcase the participants' skills in programming, robot designing, and control systems. The tournament also aims to bring together faculty, students, and enthusiasts across the region.

In line with this, may we humbly request the support of your good office to issue a Memorandum inviting all interested junior and senior high schools to join our competition.

May we also invite you or your representative to be part of our Panel of Judges for all three Categories: (1) Line Tracing Category, (2) Sumobot Battle, and (3) Poster Making Contest.

Please see attached draft of Contest Guidelines for more information.

Our staff, Engr. Jenny Ann Lawas / Mr. Raphael San Antonio, will be coordinating with your office regarding this matter. For inquiries/clarifications, your staff may contact us via email at jahnjaja@yahoo.com / drm@ro4a.dost.gov.ph.

Thank you very much.

Sincerely yours,

EMELITA P. BAGSIT

Regional Director

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2023 RoboClash
1st DOST Regional Robotics Tournament
Igniting Imagination: Compete, Conquer, Inspire

Contest Guidelines

1. Rationale

The 1st DOST CALABARZON Robotics Tournament will be a regional contest organized by the Department of Science and Technology-CALABARZON (DOST-CALABARZON) in partnership with the Laguna State Polytechnic University (LSPU) and IDD Laboratory. This contest aims to showcase the participants' skills in programming, robot designing and control systems. The tournament also aims to bring together faculty, students and enthusiasts across the region.

- Imagine:** Enable participants to envision new and inventive ideas to entail thinking beyond boundaries, explore new potentials and visualize creative solutions to problems.
- Ignite:** Enhance participant's problem-solving and technical skills, foster interest in science, technology, engineering, and mathematics (STEM) fields, particularly robotics.
- Inspire:** Foster collaboration and teamwork by providing exciting and one of a kind opportunities to compete and showcase the participants' skills in programming, robot designing and control system; and generate interest in robotics research and development, and establish collaborative culture for future researches and academe-industry partnerships.

2. Categories

The competition will be composed of three categories namely: (1) Line Tracing; (2) Sumobot Battle; and (3) Poster Making Contest.

- Line Tracing Category:** It is a competition which uses autonomous robots that shall accurately trace or navigate path or tracks by following a line at a specified time limit.
- Sumobot Battle:** It is also known as sumo - robotics which is inspired by sumo wrestling whereas the autonomous robots oppose in a ring or arena with the goal of pushing their opponents out of the ring or disabling them within a particular time limit.
- Poster Making Contest:** to encourage visual presentation which will showcase their inventions in a descriptive/ narrative medium so that basic robotics concepts are easily conveyed even by just reading the content of their posters.

Entries for all categories will be recognized with their affiliated School/University. However, all participants must join in one (1) category AND one (1) group ONLY.

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3. Judging and Criteria

The Panel of Judges will be composed of representatives from the following agencies:

- DOST MIRDC
- Department of Education Region IV-A (DepEd CALABARZON)
- LSPU-IDD Laboratory

See mechanics for the categories criteria for judging.

The decision of the Panel of Judges shall be final and irrevocable. The final score of the winners will be announced during the awarding. Any part of the scorecards or rating sheets are NOT for public scrutiny and may only be provided upon the request of the participant.

4. Schedule of Activities

Below is the timeline of activities from call for submission of entries to the awarding proper:

Date	Activity
August 21	Call for Submission of Entries
August 22- September 6	Registration Period / Acceptance of Entries
September 8	Preliminary Competition
September 19	Final Tournament
September 22	Announcement and Awarding of Winners (RSTW 2023)

5. Announcement of Winners / Awarding of Prizes

Only three (3) winners (1st Place, 2nd Place and 3rd Place) shall be selected per category. In case of tie, the Panel of Judges shall convene to break the tie.

The winners shall receive the following prizes during the DOST-CALABARZON's Regional Science and Technology Week (RSTW) Awarding Ceremony:

Line Tracing Category	
First Prize	Php 15,000 + Plaque of Recognition
Second Prize	Php 10,000 + Plaque of Recognition
Third Prize	Php 5,000 + Plaque of Recognition
Participating Entries	Certificate of Appreciation
Sumobot Category	
First Prize	Php 15,000 + Plaque of Recognition
Second Prize	Php 10,000 + Plaque of Recognition
Third Prize	Php 5,000 + Plaque of Recognition
Participating Entries	Certificate of Appreciation
Poster Making	
First Prize	Php 5,000 + Plaque of Recognition
Second Prize	Php 3,000 + Plaque of Recognition
Third Prize	Php 2,000 + Plaque of Recognition
Participating Entries	Certificate of Appreciation
Special Award	

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Best Robot Design	Php 5,000 + Plaque of Recognition
Best Presenters	Php 3,000 + Plaque of Recognition
Best Coach	Php 2,000 + Plaque of Recognition

NOTE: Cash prizes will be subject to 20% tax based on the Final Withholding Tax Guidelines.

6. Requirements and Mechanics

- Interested participants must register first at tinyurl.com/2023RoboClashReg. Registration period will be from August 22, 2023 to September 6, 2023
- Successful registered participants will receive an email from the organizing team acknowledging their interest and providing the contest guidelines.
- By joining the contest, all participants agree to release and discharge DOST-CALABARZON and LSPU officials and employees from any claims, losses, or damage arising from their participation.
- Participants must agree that their names and their school/division being represented may be released to the public for the purpose of announcing the contest finalists and winners.

Categories

I. LINE TRACING CATEGORY

Robots per Team:	One (1)
No. of Team:	Two (2) per Province
No. of Players:	3 players per team
Robot Control:	Autonomous
Event Summary:	Robot navigation is a modern day problem. Providing lines to follow allows a robot to reach its destination. Participants must work around the problem and complete the task.

A. Objectives

The objective of this contest is for a robot to follow a black line on a white background, without losing the lines. The robot to complete the course in the shortest period of time while accurately tracking the course line from start to finish wins.

B. Mechanics

- Course Time:** time is measured from the time the robot crosses the starting line until the time it crosses the finish line. A robot is deemed to have crossed the line when the forward most wheel, track, or leg of the robot contacts or crosses over the line.
- Time Limit:** a maximum of 2 minutes is allowed for a robot to complete the course. A robot that cannot complete the course in the allotted time shall be disqualified.
- Timekeeping:** time shall be measured by a digital clock/timer and shall be verified by the panel of judges. The recorded time of the judges shall be final.
- Autonomous Control:** The robot must be fully autonomous and self-contained, operating on battery power. Once a robot has crossed the starting line it must remain

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- fully autonomous, or it will be disqualified. External remote control, wireless or wired is **STRICTLY PROHIBITED**.
5. **Arena Edges:** a robot that wanders off of the arena surface will be disqualified. A robot shall be deemed to have left the arena when any wheel, leg, or track has moved completely off the arena surface.
 6. **Losing the Line:** any robot that loses the line course must reacquire the line at the point where it was lost, or at any earlier (e.g. already traversed) point.
 7. **Second Attempt:** any robot that loses the line course and fails to reacquire it will be allowed a single reattempt. The robot must start the course again from the beginning, and if it loses the line course on its second attempt it will be disqualified. A penalty of 2 seconds is added to the runtime for every human intervention.
 8. **Power of Officials:** the decisions of all officials regarding these rules and the conduct of the event shall be final.
 9. **Robot Dimension, Specifications and Restrictions:**
 - 9.1. A maximum of 20cm x 20cm x 20cm size is allowed throughout the whole run.
 - 9.2. A maximum of 1kg is allowed.
 - 9.3. Any type of microcontroller, sensors (IR sensors, cameras, etc.) and actuators (wheels, servos, etc.) are allowed.
 - 9.4. Any strong light, like lasers, that can damage human eyes are NOT allowed.
 - 9.5. The robot shall NOT damage the race track in any way, deliberate or not.
 - 9.6. All robots must be safe to operate and meet basic safety guidelines.
 10. **Playing Field/Track Design**
 - 10.1. A maximum of 20cm x 20cm x 20cm size is allowed throughout the whole run.
 - 10.2. The size of the playing field is approximately 4m x 8m.
 - 10.3. The black line is approximately 18 to 25 mm. in width on a white background.
 - 10.4. The sample playing field is shown on Figure 1. The actual playing field will be revealed on the day of the contest. The track will include straight segments, curves and intersections to challenge the robots' navigation abilities.

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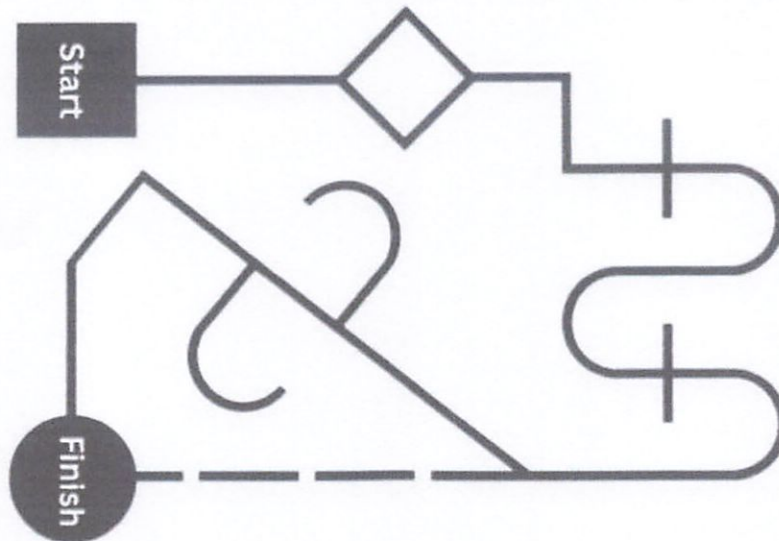


Figure 1. Sample Track

11. Game proper

- 11.1. The whole body of the robot will be placed behind the starting line.
- 11.2. When the referee blows the whistle, it indicates to run the robot.
- 11.3. Each team will be given **3 running rounds**. The one running round consist of 1 practice run and 2 actual runs to get the fastest time. The better time from the two runs will be considered for scoring.

12. End of Game

- 12.1. When the robot reaches the finish line or the player decides to stop the game.
- 12.2. After three minutes, time elapses.
- 12.3. When the robot is deemed malfunctioned and can no longer continue the game.

13. Scoring:

Completion Time: Teams will be ranked based on the time taken to complete the course.

Penalties: Points will be deducted for rule violations (e.g., touching the robot during the run, straying off the line or missing checkpoints).

14. Presentation:

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- 14.1 Each team must provide a brief presentation (5 minutes max) explaining their robot's design, sensors, algorithms, and strategies.

15. Code of Conduct:

All participants, organizers, and spectators must adhere to a code of conduct promoting sportsmanship, respect, and fair play.

II. SUMO BOT CATEGORY

Robots per Team:	One (1)
No. of Team:	Two (2) per Province
No. of Players:	3 players per team
Robot Control:	Autonomous
Event Summary:	Two robots compete in a head-to-head match following the basic system of traditional human sumo matches. Robots are NOT ALLOWED to have weapons, and are not allowed to flip each other. The sole purpose is a pushing match between the two robots to force the other from the arena.

A. Objectives

The objective of this contest is for a robot to follow a black line on a white background, without losing the lines. The robot to complete the course in the shortest period of time while accurately tracking the course line from start to finish wins.

B. Requirements for the Dohyo (Sumo Ring)

A match is fought between two teams, each team having one or more contestants. Only one team member may approach the ring; other team members must watch from the audience. In accordance with the game rules (hereafter referred to as "these rules"), each team competes on a Dohyo (sumo ring) with a robot that they have constructed themselves to the specifications in Section 3. The match starts at the judge's command and continuous until a contestant earns two points. The judge determines the winner of the match.

C. Requirements for the Dohyo (Sumo Ring)

- Dohyo Interior:** The Dohyo interior is defined as the playing surface surrounded by and including the border line. Anywhere outside this area is called the Dohyo exterior.
- Dohyo Specifications:**
 - The ring shall be oblong/circular in shape and of the appropriate dimensions for the given size class.
 - Shikiri lines (starting lines) consist of two painted parallel black lines centered in the ring with appropriate width and spacing for the given class. The separation distance between the lines is measured to their outside edges.
 - The border line is marked as a white ring of a width appropriate for the given class on the outer edge of the playing surface. The ring area extends to the outside edge of this circular line.

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3. **Dohyo Exterior:** There should be a space appropriate for the given class outside the outer edge of the ring. This space can be of any color, and can be of any material or shape as long as the basic concepts of these rules are not violated. This area, with the ring in the middle, is to be called the "ring area". Any markings or parts of the ring platform outside the minimum dimensions will also be considered in the ring area.

D. Requirements for Robots

1. **Autonomous classes:** Autonomous robot operation must begin automatically no less than five seconds after being started by the user. The robot must have a name or number for registration purposes. Display this name or number on your robot to allow spectators and officials to identify your robot.
2. **Robot Dimension and Specifications:**
 - a. A maximum of 20cm x 20cm x 20cm size is allowed throughout the whole run.
 - b. A maximum of 1Kg is allowed.
3. **Robot Restrictions:**
 - a. Jamming devices, such as IR LEDs intended to saturate the opponents IR sensors, are not allowed.
 - b. Parts that could break or damage the ring are not allowed. Do not use parts that are intended to damage the opponent's robot or its operator. Normal pushes and bangs are not considered intent to damage.
 - c. Devices that can store liquid, powder, gas or other substances for throwing at the opponent are not allowed.
 - d. Any flaming devices are not allowed.
 - e. Devices that throw things at your opponent are not allowed.
 - f. Sticky substances to improve traction are not allowed.
 - g. Devices to increase down force, such as a vacuum pump or magnets are not allowed.
 - h. All edges, including but not limited to the front scoop, must not be sharp enough to scratch or damage the ring, other robots, or players. Judges or competition officials may require edges that they deem too sharp to be covered with a piece of tape.

E. How to Carry Sumo Matches

1. One match shall consist of 1 round, within a total time of 2 minutes, unless extended by the judges.
2. The team who wins the round shall receive two points.
3. When the match is not won by either team within the time limit, an extended match may be fought. Alternatively, the winner/loser of the match may be decided by judges, by means of lots, or by a rematch.
4. One point shall be given to the winner when the judges' decision was called for or lots were employed.

F. Start, Stop, Resume, End a Match

1. **Start:** Upon the judge's instructions, the two teams bow to each other in the outer ring, approach the ring, and place a robot within their half of the ring on or behind the

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Shikiri line. (A robot or a part of a robot may not be placed beyond the front edge of the Shikiri line toward the opponent. Note that it is not required that a robot be placed directly behind the Shikiri line; it may be offset to the side, as long as it is behind an imaginary line collinear with the Shikiri line.) When the judge announces the start of the round, the teams start their robots. During these five seconds, players must clear out of the ring area.

2. **Stop, Resume:** The match stops and resumes when a judge announces so.
3. **End:** The match ends when the chief judge announces so. The two teams retrieve the robots from the ring area.

G. Time of Match

1. One Match will be fought for a total of 2 minutes, starting and ending upon the judge's command. The clock shall start ticking five seconds after the start is announced.
2. An extended match, if called for by the judge, shall last for a maximum of 1 minute.

H. Point System

1. One point shall be given when:
 - a. A team legally forces the body of the opposing robot to touch the space outside the ring, which includes the side of the ring itself.
 - b. One point is also given in the following cases:
 - i. The opposing robot has touched the space outside the ring on its own.
 - ii. Either of the above takes place at the same time that the end of the Match is announced.
 - c. When a wheeled robot has fallen over on the ring or in similar conditions, points will not be counted and the match continues.
 - d. When judges' decision is called for to decide the winner, the following points will be taken into considerations:
 - i. Technical merits in movement and operation of a robot.
 - ii. Penalty points during the match.
 - iii. Attitude of the players during the match.
 - e. The match shall be stopped and a rematch started under the following conditions:
 - i. The robots are entangled or orbiting each other with no perceivable progress for five seconds. If it is unclear whether progress is being made or not, the judge can extend the time limit for observable progress for up to 30 seconds.
 - ii. Both robots move, without making progress, or stop (at the exact same time) and stay stopped for five seconds without touching each other. However, if one robot stops its movement first, after five seconds it will be declared as not having the will to fight. In this case the opponent shall receive a point, even if the opponent also stops. If both robots are moving and it isn't clear if progress is being made or not, the judge can extend the time limit up to 30 seconds.
 - iii. If both robots touch the outside of the ring at about the same time, and it cannot be determined which touched first, a rematch is called.

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I. Violations

1. **Violations:** Players performing any of the deeds described in Articles 6, 16, or 17, shall be declared in violation of these rules
2. **Insults:** A player who utters insulting words to the opponent or to the judges or puts voice devices in a robot to utter insulting words or writes insulting words on the body of a robot, or performs any insulting action, is in violation of these rules.
3. **Minor Violations:** A minor violation is declared if a player:
 - a. Enters into the ring during the match, except when the player does so to take the robot out of the ring upon the judge's announcement of point or stopping the match. To enter into the ring means:
 - i. A part of the player's body is in the ring, or
 - ii. A player puts any mechanical kits into the ring to support his/her body.
 - b. Performs the following deeds:
 - a. Demand to stop the match without appropriate reasons.
 - b. Take more than 30 seconds before resuming the match, unless the judge announces a time extension.
 - c. Start operating the robot within five seconds after the chief judge announces the start of the match.
 - d. Does or says that which disgraces the fairness of the match.

J. Penalties

1. **Penalties:** Players who violate these rules by performing the deeds described in Articles 6 and 16 shall lose the match. The judge shall give two points to the opponent and order the violator to clear out. The violator is not honored with any rights.
2. Each occasion of the violations described in Article 17 shall be accumulated. Two of these violations shall give one point to the opponent.
3. The violations described in Article 17 shall be accumulated throughout one match.

K. Injuries and Accidents during the Match

1. **Request to Stop the Match:** A player can request to stop the game when he/she is injured or his/her robot had an accident and the game cannot continue.
2. **Unable to Continue the Match:** When the game cannot continue due to player's injury or robot's accident, the player who is the cause of such injury or accident loses the match. When it is not clear which team is such a cause, the player who cannot continue the game, or who requests to stop the game, shall be declared as the loser.
3. **Time Required to Handle Injury/Accident:** Whether the game should continue in case of injury or accident shall be decided by the judges and the Committee members. The decision process shall take no longer than five minutes.

L. Declaring Objections

1. No objections shall be declared against the judges' decisions.
2. The lead person of a team can present objections to the Committee, before the match is over, if there are any doubts in the exercising of these rules. If there are no

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Committee members present, the objection can be presented to the judge before the match is over.

M. Requirements for Identifications for Robots

Identifications for Robots: Some type of name or number, to identify the robot (as registered in the contest) must be easily readable on the robot's body, while the robot is in competition.

N. Miscellaneous

Flexibility of Rules: As long as the concept and fundamentals of the rules are observed, these rules shall be flexible enough to encompass the changes in the number of players and of the contents of matches.

Best Robot Design Criteria

Criteria	Percentage
Creativity	25%
Novelty	40%
Relevance to the theme	20%
Overall Design	15%
TOTAL	100%

Best Presenter Criteria

Criteria	Percentage
Appearance (Confidence and Appeal)	30%
Language and communication skills	40%
Overall Presentation	30%
TOTAL	100%

III. ROBOTICS POSTER DESIGN CHALLENGE

This activity is a great way to encourage creativity and raise awareness about the field of robotics.

A. Theme: "Igniting Imagination: Compete, Conquer, Inspire"

B. Submission Guidelines

1. **Poster Size:** Participants may create posters on standard A3 (4*8 inches) illustration board.
2. **Materials:** illustration board, water/poster color.
3. **Content:** Posters should visually and creatively depict the theme. Showcase how robotics is influencing various aspects of our lives, from industries to daily activities.

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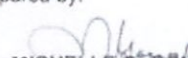



4. **Accompanying Text:** Include a short caption (not exceeding 50 words) explaining the concept behind the poster's design.

Best Poster Presentation Criteria

Criteria	Percentage
Creativity and Originality	30%
Relevance to Theme	40%
Visual Impact: Effective use of colors, images, and design elements.	20%
Overall Presentation	10%
TOTAL	100%

Prepared by:


MICHELLE C. GONZALES
Project Head, Robotics Education Center
Chairperson, ITSO


Engr. JENNY ANN N. LAWAS
Science Research Specialist II,
DOST CALABARZON

Recommending Approval:


EDILBERTO Z. ANDAL, EdD
Project Leader, IDD Laboratory

Engr. SAMUEL L. CAPERIÑA
Provincial S&T Director
PSTO Laguna

Engr. FRANCISCO R. BARQUILLA III
ARD for Technical Operations,
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Approved by:

EMELITA P. BAGSIT
Regional Director
DOST CALABARZON

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