Republic of the Philippines
Department of Education
Region VII, Central Visayas
DIVISION OF CEBU PROVINCE
IPHO Bldg., Sudlon, Lahug, Cebu City

October 8, 2019

Division Memorandum
No. 625, s. 2019

2019 DIVISION SCIENCE FAIR AND COMPETITION - SECONDARY LEVEL

To: Assistant Schools Division Superintendents
Chiefs, SGOD & CID
Education Supervisors/ Coordinators
District Supervisors/ OIC
Secondary School Heads

1. This office announces the conduct of the 2019 Division Science Fair and Competition- Secondary Level with a theme " Science for the People: Enabling Technologies for Sustainable Development " on October 18, 2019 (Friday) at Argao National High School, Argao, Cebu.
2. Only the First place winners of the following categories in every district is eligible to participate:
   -Slogan Writing
   - Poster Making
   - Science Quiz (Written)
   - Science Quiz (Oral)
   -On the Spot Presentation of Science Process and Practices
   -Science Intervention Material (SIM) (Teacher Category- any grade level as long as it addresses the Least Mastered Competency)
   - MRT – Soccer -team of three members
   - Volleyball – team of two members
   - Push-Push- individual
   Note: MRT Games are exclusive to ten recipient schools only
   - Robot Games-Line Tracing (direct from school to division level)
   - Somobot Games (direct from school to division level.)
3. Parents' Consent signed by both father and mother or guardian allowing their child to participate the competition is needed.
3. Registration fee for the 2019 Division Science Fair and Competition-Elementary Level is 50php/participant, 70php/coach and 250php/ municipality to defray the expenses for the certificates, medals, simple decoration and honoraria and food of judges that are chargeable against School Club Funds/ Local School Board/ SEF/ PTA Funds, while transportation and other related expenses to be used in the contest with official receipts and per dime incurred in connection to the activities shall be chargeable to Local/School

MOOE or any available funds subject to the usual accounting and auditing rules and regulations.

4. Attached is the final list of 2019-Division Science Fair and Competition Working Committees-Secondary Level and the criteria for judging.

5. Austerity measures must be observed in this activity.

6. This Memorandum serves as **AUTHORITY TO TRAVEL** of the participants, coaches, School Heads, Working Committees, Officers and PSDSs in the2019 Division Science Fair and Competition-Secondary Level.

7. PSDSs and School Heads are directed to minimize the no. of teachers to go with the district delegation for the Area Level and to ensure that **NO classes** will be left unattended due to the attendance /participation of the teachers to these activities .

8. Immediate and wide dissemination of this Memorandum is desired.

RHEA MAR A. ANGTUD, ED.D.
Schools Division Superintendent

2019-DIVISION SCEINCE FAIR AND COMPETITION -SECONDARY LEVEL

Date: October 18, 2019

Venue: Argao National High School, Argao, Cebu

- WORKING COMMITTEES -

POSTER MAKING		
Chairman	Rogene Estipona	Aloguinsan NHS
Members	Clemente Abcede	Carmen NHS
	Francisca Ditan	Bitoon Vocational
SLOGAN WRITING		
Chairman	Christina Cinco	Carmen NHS-Day
Members	Louren Ong	Boljoon NHS
	Ledwina Giangan	Carmen NHS
STRATEGIC INTERVENTION MATERIALS		
Chairman	Jeaneth Menoras	Buanoy NHS
	Jessica P. Zoilo	Compostela NHS
	Mayada Landao	Santa Fe NHS
	Suzette Quindao	Nangka NHS
ON THE SPOT SCIENCE PROCESS		
Chairman	Rumell Engbino	Vito NHS
Members	Jade Bacon	Minglanilla Science HS
	Cris De La Pena	Carmen NHS
	Arkyn Millan	Sogod NHS
MRT Games		
Chairman	Rowena Espinoas	Badian NHS
Members	Charle Magne M. Laurence	Carmen NHS
	Jean Morales	Minglanilla Science HS
ROBOT Games -LINE TRACING and SOMOBOT Games		
Chairman	Romin Sanchez	Minglanilla Science HS
Member	Fatima Joy Masong	San Remigio NHS
	Rima Joy D. Tejam	Buanoy NHS
	Cleofe Villanueva	Boljoon NHS

2019 DIVISION SCIENCE FAIR AND COMPETITION
SECONDARY LEVEL
October 18, 2019
Argao National High School

COMMITTEES

SCIENCE QUIZ (WRITTEN) GRADE 7		
Chairman	Anselma D. Undalok	Sibonga NHS
Members	Clarissa Belarmino	Badian NHS
	Neizl Garcesa	Calape NHS
SCIENCE QUIZ (WRITTEN) GRADE 8		
Chairman	Rizalina Sambola	Argao NHS
Members	Michelle Famor	Argao NHS
	Esmeralda Rufin	Consuelo NHS – San Francisco
SCIENCE QUIZ (WRITTEN) GRADE 9		
Chairman	Crispina Ambrad	Calape NHS
Members	Meryl Jarina	Guindaruhan NHS - Minglanilla
	Althanena Sayson	Argao NHS
SCIENCE QUIZ (WRITTEN) GRADE 10		
Chairman	Fidela Doroon	Oslob NHS
Members	Mitchyl Basaca	Catmon NHS
	Loida Avellana	Vito NHS – Minglanilla
SCIENCE QUIZ (ORALS) GRADE 7		
Chairman	Misphat Xylph Miral	Santander NHS
Members	Mary Jean Sigayla	Compostela NHS
	Delia Gerundio	Looc Norte NHS

SCIENCE QUIZ (ORALS) GRADE 8		
Chairman	Ronald Dale Arioja	Compostela NHS
Members	Leah Bugtai	Arcelo MNHS
	Jesusa Ramirez	San Remigio NHS
SCIENCE QUIZ (ORALS) GRADE 9		
Chairman	Alvin Gerald Malig-on	Sangat NHS – San Fernando
Members	Marylen Concepcion	Panares MNHS – Barili
	Geraldine Almirante	Argao NHS
SCIENCE QUIZ (ORALS) GRADE 10		
Chairman	Merlinda Lorenzana	Compostela NHS
Members	Elisarie Tanjay	Compostela NHS
	Nori Bautro	Buanoy NHS

PROGRAM, DOCUMENTATION AND AWARDS

Chairman: Rizalina Sambola
Members: All Argao NHS Science Teachers
Registration
Chairman: Daylinda Cabatingan (Treasurer-SedSS)
All Science Educators of Secondary Schools Officers (SedSS)-Cebu Province
Over-all- Chairman : Juvimar E. Montolo
Education Program Supervisor-Science
Vice-Chairman : Rumell E. Engbino (Vito NHS- Minglanilla 1)
President, Science Educators of Secondary (SedSS) Cebu Province
Members: All Committee Chairmen

Noted:

JUVIMAR E. MONTOLO
Education Program Supervisor – Science

SLOGAN WRITING CONTEST MECHANICS

1. The participants should be officially registered by the registration committee. There should only be one (1) participant / entry from each district/municipality.
2. The materials required are

One-half lengthwise white cartolina	pencil	eraser
Craypas/oil pastel	black my gel ballpen	
Black pentel (for borders only)		

3. The following are the guidelines
   - The slogan consists of seven (7) words ONLY . Hyphenated IS ONE WORD. Punctuation not counted. words.
   - One inch (1-inch) all-around margin (pre-made) using pentel pen
   - Plain background

   Optional My gel black ballpen is used for outlining the words and the black pentel pen for making the border. Colored pens not allowed for tracing.
4. Criteria for Judging

Relevance to the Theme	30%
Creativity / Style	30%
Technical Skill	20%
Visual Impact	10%
Neatness and Correctness	10%
TOTAL	100%

5. NO bringing of copies (actual illustration, etc) of their slogan, or else the entry will be disqualified.
6. The contest is good for one (1) hour.
7. The decision of the Board of Judges is final and irrevocable.

POSTER MAKING CONTEST MECHANICS

1. The participants should be officially registered by the registration committee. There should only be one (1) participant/entry from each district/municipality.
2. The materials needed are

One (1) whole white cartolina	Pencil
Ruler	Eraser
Craypas/oil pastel	

3. The following are the guidelines
   - One inch (1-inch) all-around margin (pre-made)
   - Abstract and NO additional texts is allowed in the poster made. All spaces must be filled with colors even if it is intended to be white.
   - Use only the prescribed materials.
4. Criteria for Judging

Relevance to the Theme	30%	
Creativity / Style	30%	
Technical Skill		20%
Visual Impact		10%
Neatness		10%
TOTAL		100%

5. NO bringing of small (actual illustration, etc.) copy of their poster.
6. The contest is good for two (2) hours.
7. The decision of the Board of Judges is final and irrevocable.

7. The decision of the Board of Judges is final and irrevocable.

SCIENCE QUIZ WRITTEN MECHANICS

4. The participants should be officially registered by the registration committee. There should only be one (1) participant from each year level from each school.

2. The materials needed are
   Ballpen (black/blue)
   Clean paper for scratch only

3. The following are the guidelines
   - Contestants will answer 40 ITEMS test for 40 minutes.
   - In case of tie, CLINCHER will be facilitated.
   - Calculators are NOT allowed.

   * Coverage is First and Second Quarter.

6. The facilitators are the only authorized persons to check the test papers and record the scores.
7. After checking and recording, return the test papers to the contestants.

CRITERIA FOR STRATEGIC INTERVENTION MATERIALS (SIM)-Teacher Category

Note: Be prepared beforehand. Prepare a soft copy of the SIM to be presented within 3 to 5 minutes. MOVs of usability/functionality/classroom use- LP, Form 14 and Ass with a minimum of 30 pupils for elementary and 40 students for secondary.

		ENTRIES					
AREA		1	2	3	4	5	6
1.Subtasking	**15%**						
-Competency-based	5						
-Bloom's Taxonomy followed	6						
-SMAR-C (Specific, Measurable, Attainable, Relevant and Concise)	4						
2.Congruence	**15%**						
-Activities in line with content and skills	5						
-Assessment in line with content and skills	10						
3.Usability/Functionality	**45%**						
a.Language	3						
b.Title Card	2						
c.Guide Card	4						
d.Activity Card	14						
e.Assessment Card	3						
f.Enrichment Card	3						
g.Reference Card	3						
h.Answer Card	2						
i.Packaging	8						
j.Functionality	3						
4.Replicability	**25%**						
-Validated before classroom use	5						
-Developed Material based on least learned learning competency	5						
-Materials used improved mastery level	10						
-Handy and easy to copy	3						
-Cost	2						
TOTAL	**100%**						

Note : Items a,b,h, &I of no.3 no rubrics in attached separate page.

Enclosure No. 7 to Regional Memorandum No. _____, s. 2017

CRITERIA FOR SCIENCE INTERVENTION MATERIAL

AREA	PERCENTAGE
1. Subtasking • Competency-based • Bloom's Taxonomy Followed • SMAR-C	**15 %** 5% 6% 4%
2. Congruence • Activities in line with content and skills • Assessment in line with content and skills	**15 %** 5% 10%
3. Usability/Functionality • Language • Title Card • Guide Card • Activity Card • Assessment Card • Enrichment Card • Reference Card • Answer Card • Packaging	**45 %** 3% 2% 4% 14% 4% 4% 4% 2% 8%
4. Replicability • Validated before classroom use • Developed material based on least learned competency • Material used improved mastery level • Handy and easy to copy • Cost	**25 %** 5% 5% 10% 3% 2%
TOTAL	**100%**

Enclosure No. 6 to Regional Memorandum No. ____, s. 2017

MECHANICS FOR THE SCIENCE QUIZ

1. There shall be three (3) rounds for all categories: Easy, Average and Difficult. There shall be ten (10) easy questions, five (5) average questions and five (5) difficult questions. All contestants shall answer all questions in the 3 rounds. Each correct answer in every round will be given corresponding points, to wit:

Easy	-	1 point
Average	-	2 points
Difficult	-	3 points

2. Each contestant shall be provided with chalk and answer board.
3. Each question must be answered within the time allocated for it. Ten (10) seconds for non-computational and forty-five (45) seconds for computational.
4. The quizmaster shall read each question twice and the time shall start only after the quizmaster says, "go."
5. The contestants may begin to answer only after the quizmaster says "go"
6. All answers must be spelled correctly to be considered correct. If the answer is a proper noun, capitalization of the first letter of the word is also a basis in declaring the answer, correct.
7. Use of calculators shall NOT be allowed.
8. After, the time limit has elapsed, each contestant must show his/her answer to the audience/judges before the quizmaster reads the correct answer. The proctors shall read and acknowledge whether the answer of each contestant is correct or not.
9. If the proctor cannot determine the validity of an answer, the Board of Judges must decide on the matter. The decision of the Board of Judges is **FINAL**.
10. Solutions may be checked by the Board of Judges, if needed.
11. The total score of a contestant after three rounds shall be his/her score.
12. The contestant with the highest final score shall be declared as the first place winner, the second highest, second place winner, the third highest as the third place winner and so on.
13. In case of a tie, a Clincher Questions shall be given. It shall be a knockout system between or among the contestants with equal scores until a winner emerges. The first one who can answer correctly will be the winner.
14. The duly registered coach of the contestant is the only person authorized to file a protest. All protests should be referred to the Board of Judges before the quizmaster reads the next question. No protest shall be entertained by the Board of Judges when the quizmaster started reading the next question.
15. Any DepEd personnel related by affinity or consanguinity (up to the third degree) to any contestant shall be disqualified in any of the committees involved in the planning and preparation of questions for the quiz nor can they act as coach of any contestant.
16. Any violation of the aforementioned rules shall cause the disqualification of the contestant concerned.

Implementing Guidelines on the 2020 National On-the-Spot Science Competition

Areas for Science Competition

Areas for Skills Exhibition	No. of Participants Per Region	No. of Coaches Per Region	Time Allotment (excluding Interview)
1.	2	1	6 hours
TOTAL	**2**	**1**	
	3		

2020 National On-the-Spot Science Competition

Component Area	**Science, Technology and Mathematics**	
Grade Level	**Junior to Senior High School enrolled in Public, Private schools and ALS**	
Event Package	**On the S.Pp.O.T. (Science Processes and Practices On-Site Test)**	
No. of Contestants	**Two**	
Time Allotment	**Six (6) Hours**	
Description	**The competition enables learners to apply science and mathematics thinking skills to solve problems that have local, national and global impact. It allows the contestants to become problem solvers by addressing social, scientific and environmental issues through the application of 21st century skills.**	
Criteria for Assessment	**Criteria (Part I)**	**Percentage**
	Discussion/Arguments (based on scientific, technological and other valid assumptions, Feasibility of the proposed solution	60%
	Clarity of presentation (ability to effectively communicate solutions)	30 %
	Evidence of effective collaboration	10%
	TOTAL	**100 %**
	(Part II)	
	Organization/Discussion/Arguments (based on scientific, technological and other valid assumptions, Feasibility of the proposed solution)	50 %
	Relevance of data used	20 %
	Clarity of Presentation • Written • Oral	 15 % 10 %
	Evidence of effective collaboration	5 %
	TOTAL	**100 %**

A. Contest Mechanics

General Guidelines

Part I – One-Minute Presentation

1. The first part of the contest is the One-Minute Presentation of the project proposal where the teams shall develop and present their proposal to the panel of judges of their solution about a real-world problem/scenario of local or global importance. The situation containing the problem shall be given on-site on the day of competition.

2. The contestants are given 2 hours to conceptualize and prepare their slides for presentation. All presentations shall not bear any markings that identify their regions. The contestants may use the internet and other printed resources in developing their presentation, however, the teams are not allowed to confer with their coaches while the contest is on – going. Any form of communication between

the contestants and other parties (coach, parents, classmates, teachers, etc.) shall warrant automatic disqualification.

3. The presentations may consist of the following:
    a. Detail key features of the proposed solution.
    b. Challenges to resolve in order to effectively implement the proposed solution.
    c. Proposed solution maybe similar or different from existing practices, technologies and solutions. If so, the presentation shall include on how the proposed solution would build up from the existing practices, technology and solutions.

4. At the end of two hours, all presentations shall be submitted to the assigned facilitators.

5. During the presentation, each team shall be given one minute to present. The time shall start as the contestants start to speak.

6. Draw lots shall be done to determine the order of presentation. While one team is presenting, all the other teams shall be at the holding room.

7. A timer board shall show the public as well as the contestant the time remaining for their presentation.

8. A buzzer shall signal that the time for presentation is up and the contestants shall immediately stop presenting. At the end of one minute, the mic of the contestants shall be turned off and advised to stop the presentation.

9. After the deliberation of the members of the panel of judges, the top eight teams shall be determined and announced to the public. The top eight teams shall move to the final round. The finalists shall not be allowed to leave the contest venue during the break. They can take their meals and snacks in the contest venue.

Part II – Developing the Proposed Solution

10. The Final round of the competition shall include developing the written description of the proposed solution and the oral presentation. Similar to part I the teams are allowed to use internet and other print resources. There shall also be no markings that will identify the regions of the contestants. They shall develop and print their proposals within 4 Hours. The scores in the preliminary round shall have no bearing in the final round.

11. The proposed solution shall have the following components:
    a. Title
    b. Summary (100 – 200 Words)
    c. Background and Problem (200 – 300 Words)
        - Describe the challenges and how the proposed solution address the problem presented.
        - Scientific Principles and Technology applicable to the resolution of the problem.
        - Beneficiaries
    d. Proposed Solution to the Problem Presented (300 – 500 words)
        - Methods/Details of the proposed solution including the Cost - Analysis
        - Include illustrations, figures and charts.
    e. References

- May use any format as long as consistency is observed.

12. The teams shall encode their proposals in word processing software, double spaced using Bookman Old style font size twelve set in A4 size paper. Margins shall be 1 inch in all sides of the paper. Within the 4 hours, the teams shall submit their printed proposals (three copies) to the panel of judges.

13. The proposals shall be subjected to a plagiarism check. Any proposals which exceeds 15% similarity index (uncited) shall be deducted 2 points from the total score for every percent in excess. However, cited references shall be excluded from the 15% tolerance.

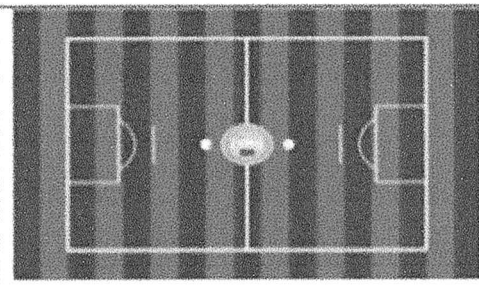
14. There shall be an oral presentations limited to **3 minutes** for each team without the use of slide decks. During the presentations, the team shall not identify themselves and the regions they are representing. Questions may be asked by the judges after each presentation. There shall be another drawing of lots to determine the order of presentation.

I. Resource Requirements

	Contestants	**Host School/Venue**	**Host Division/ Region**
Attire	NFOT T-shirt or Plain White Shirt (Finalized on the day before the competition)		-
Tools and Equipment	Computer/ Laptop/ Notebook/ Printer, books and other printed resources, pocket wifi, extension cords	Timer, 2 multimedia projectors, fast internet connection, Sound System, Adequate electrical outlets, plagiarism checker	-
Physical Facilities		Hall with stage, one holding room,	
Others		2 Bond paper A4	Utility expenses

4) Soccer (Junior Skill)

Age	7-12
Team	Team 3 VS 3
Robot Kits	MRT Series & HUNA educational robot kits (not include My Robot Time Toy series and MRT Soccer Robot)
Mission	Soccer match using remote control
Robot Building	Remote Control programmed robot
Game Method	Tournament



1.0 Objective

Test student ability to construct a robot with high stability and controlling skill to play soccer game.
Teamwork is the key to success.

2.0 Robot Dimensions and Weight

The size of the robot at the starting box shall not exceed 25cm (H) by 25cm (W) by 25cm (L).
However, robot is not allowed to expand larger than the size 25cm x 25cm x 25cm after the game starts.

3.0 Restrictions on Robot design

3.1 Only MRT Series & HUNA educational robot kit (not include My Robot Time Toy series and MRT Soccer Robot) parts are to be used to build the robot. There is no limitation to the amount of blocks used to build the robot. You are allowed to cross use the parts from the above mentioned systems for the robots.

3.2 May use maximum up to 2 DC motors, 2 servo motors and 1 mainboard are allowed to use for the competition.

3.3 Robot built is not allow to modify its mechanical parts (painting/folding) and electronic parts. The player would be IMMEDIATELY disqualified if found guilty.

3.4 Robots shall not damage any part of the field or obstacles deliberately.

3.5 Robots are not allowed to have any power supply above 9V DC (Volt of Direct Current). VAC (Volt of Alternating Current) power supplies are strictly prohibited for safety reasons.

3.6 Robots shall not cause any danger to the arena and surroundings in anyway whatsoever.

3.7 Robots RC receivers will need to be protected from any outside interference.

3.8 Robot cannot be design in a closed structure to handle the ball. The judge will check the robot structure before the competition start.

4.0 Game Rules

4.1 Length of a Match

Each game is stipulated for **3 minutes**.

Starts from Round of 16, first half (1.5 minutes), participants are required to change ends follow the judge instructions.

4.2 Building of Robot

Prebuilt and programmed

4.3 Starting the Robot

4.3.1 Whistle will be blown as a sign of start of the match.

4.3.2 The participant who remote controls the robot shall keep distance with the game field area without touching or disturbing the game field.

4.4 Competition Tasks

4.4.1 All the games will be based on "knock out" system. All the teams will be distributed in opposing pairs by IYRC committee randomly.

4.4.2 Each team shall consist of 3 robots and 3 students with each student controlling one robot.

Teams can choose between two roles variants:

Eg: 1 defender + 2 strikers or 2 defenders + 1 striker.

Defender

- cannot leave his area (his half of the field), therefore cannot enter opponents area.
- allowed to enter own penalty area with non-stop movement to protect the gate, but not more than 10 seconds

Striker

- allowed to enter both own and opponent's area
- allowed to enter opponent's penalty area to hit the gates, but stay there not more than 10 seconds.
- Not allow to enter own penalty area.

4.4.3 During the match, the participants who control their robot please keep distance with game field, and don't touch or damage the field.

4.4.4 The team should distribute the roles prior the game and provide this information to referee. Roles cannot be changed during the match, but can be changed between the matches.

4.4.5 A robot is not allowed to purposely block the ball against the side of the field and not moving. If doing it more than 2 times, the participant will be removed and isolated for 1 minute.

4.4.6 Upon removal of a robot from the playing field, it can only re-enter the game upon referee's approval.

4.4.7 Robots can deploy any tactics or maneuvers, as long as it does not constitute a foul.

4.4.8 An offender will be issued a yellow card. Upon receiving 2 yellow cards, the player will be removed and being isolated for 1 minute before it can reenter the game field.

4.4.9 Extra time of 1 minute shall be played only in the event of a draw.

4.4.10 Penalties ball will be placed on a certain point (white dot). Robot which making a shot should start its movement behind the white dot to hit the ball and any part of robot body cannot push the ball exceed the white line.

4.4.11 All robots will be collected by referees before the competition begin, cannot share the same robot with other participants.

4.4.12 The parts which are fallen or broken from the robots cannot be fixed back onto the robots during the match.

4.4.13 While the match is in progress, at any time the referee whistles, the participants should stop the robot.

4.4.14 During the match, if both defender and striker enter into opponent's area, even if score a goal but the goal is not valid.

4.4.15 During the match, if the ball is holding by a robot and not moving (stalemate) for more than 5 seconds, It is consider as "Dead Ball". Referee will blow whistle and all robots must stop moving. Referee will place the ball accordingly and the game will resume with referee's instruction. If more than 3 times, ball will put at the middle field and all robots back to their start point. Game resume with whistle blow.

4.4 Deciding the Winner

4.5.1 Within 3 minutes, the team with highest goals will be the winner.

4.5.2 The 'knock-out' stage shall not consist of any points and the winner of the game shall proceed to the next round.

4.5.3 The time limit for extra time shall be 1 minute.

4.5.4 In the event of a DRAW by the end of extra time, a penalty shoot-out shall decide the match with each team being allocated 3 penalties.

4.5.5 'Sudden death' penalty shall decide the match in the event both teams are still tied for score. The team that misses the penalty with the other team scoring their penalty, losses the game. If still tied for score, then 1 vs 1 game starts, the one who score the first goal will be the winner team.

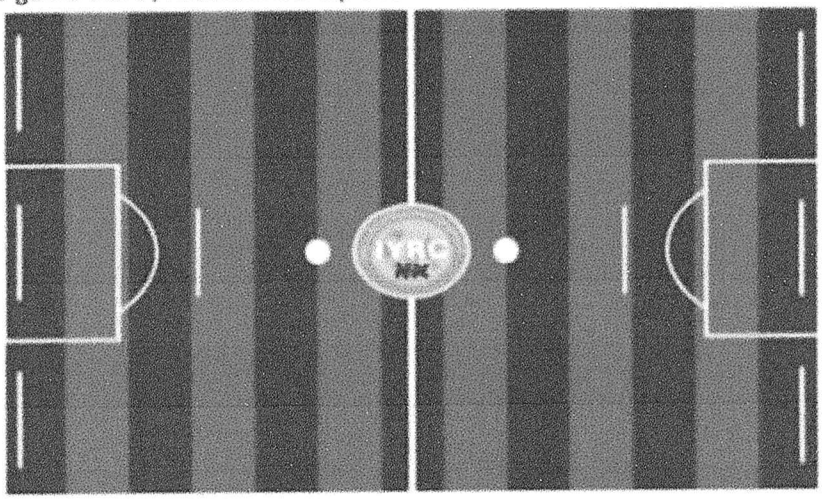
4.6 Disqualification

A team shall be disqualified if it commits any of the following during the match:

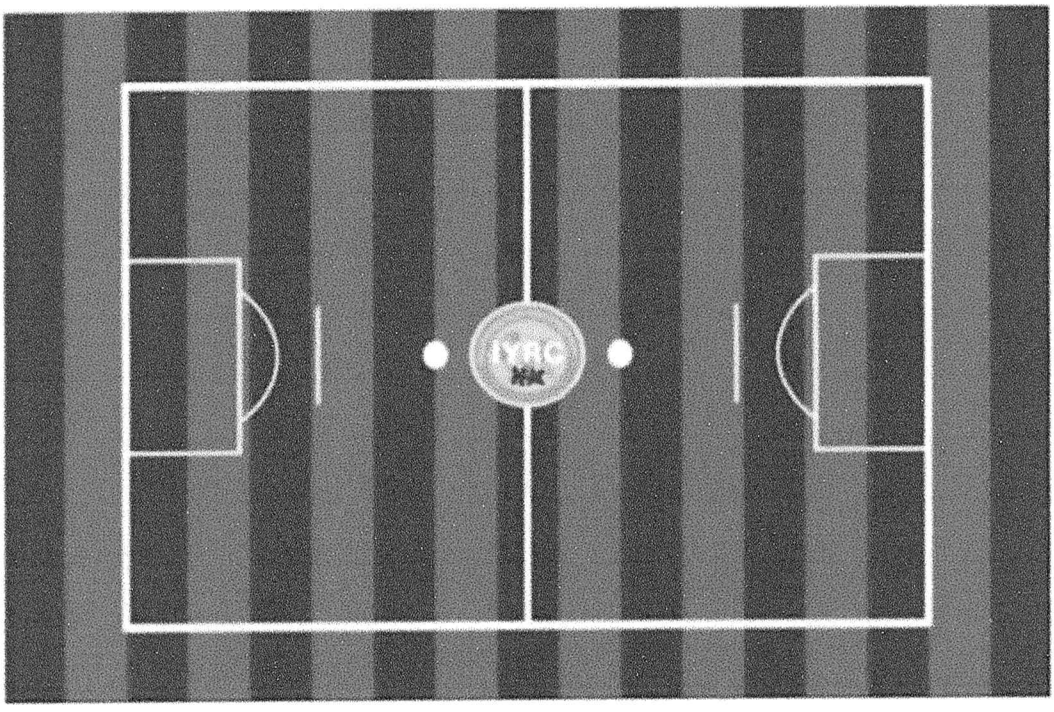
- Touching the robots while the match is in progress.
- Robot does not comply with the size restrictions.

4.7 Soccer Robot Placement

4.7.1 Before game start , robots should place in front of the white line at each ends as per figure below.



5.0 Game Field



2) Volleyball Senior (Senior Skill)

Age	13-17 years old
Team	Team (2 vs 2)
Robot Kits	MRT Series, MRT-X & HUNA educational robot kit (not include My Robot Time Toy series and MRT Soccer Robot)
Mission	Remote control robot to transfer table tennis ball into opponent's field
Robot Building	Remote Control programmed robot
Game Method	Tournament

1.0 Objective

Volleyball Senior is a game that 2 robots work as a team to collect all table tennis balls from two towers from their own game field and throw or place on the opponent game field. It is essential to understand own robot fully, dynamics and physical laws about robot, sensor control techniques, and programming in order to construct and program it. This game test student ability to construct a robot with high stability and controlling skill to throw as much table tennis ball as possible to the opponent's side.

2.0 Robot Dimensions and Weight

2.1 The size of the robot at the starting box shall not exceed 25cm (H) by 25cm (W) by 25cm (L). However, robots are allowed to expand to any size after the game starts.

2.2 Each robot must fully comply with the size restriction.

3.0 Restrictions on Robot design

3.1 Only MRT Series, MRT-X & HUNA educational robot kit parts are to be used to build the robot. There is no limitation to the number of blocks used to build the robot. You are allowed to cross use the parts from the above mentioned robot kits for the robots.

3.2 However, ONLY maximum **2 DC motors, 2 servo motors and 1 mainboard** are allowed to use for the competition.

3.3 Modification of electronic part is not allow. If found guilty, the participant would be IMMEDIATELY disqualified.

3.4 Robots shall not damage any part of the field or obstacles deliberately.

3.5 Robots are not allowed to have any power supply above **9V DC (Volt of Direct Current).** VAC (Volt of Alternating Current) power supplies are strictly prohibited for safety reasons.

3.6 Robots shall not cause any danger to the arena & surroundings in anyway whatsoever.

3.7 Robots will need to protect their sensors if necessary from any outside interferences.

3.8 Robots RC receivers will need to be protected from any outside interferences

4.0 Game Rules

4.1 Length of a Match

4.2 Building of Robot

4.2.1 Prebuilt and programmed robot.

4.3 Starting the Robot

4.3.1 Whistle will be blown as a sign of start of the match.

4.3.2 All robots must place at the 4 corners of the game field before the referee start the game.

4.4 Competition Tasks

4.4.1 All the games will be based on "Knock out" system. All the teams will be distributed in opposing pairs by IYRC committee randomly.

4.4.2 Each team will have 2 students and each student need to control their own robot.

4.4.3 Each team will have 20 table tennis balls placed on top of two different height towers in their own field.

4.4.4 Each team can deploy any tactics or maneuvers to grab or collect the table tennis balls from the tower and transfer them into the opponents' field.

4.4.5 If the table tennis ball is thrown outside the field, the ball will be put back on the lower tower immediately by the referee.

4.4.6 No extra time shall be played in the event of a draw.

4.4.7 All teams will compete based on a 'knock-out' system with only the winning teams will proceed to the next round of competition.

4.4.8 Upon removal of a robot from the playing pitch, it can only re-enter the match upon referee's approval.

4.4.9 In case of technical problem such as robots are uncontrollable, the referee will pause the match and help participants to turn off and on the robot only. If the robots still cannot function, then the participants will be disqualified.

4.4.10 The parts which are fallen or broken from the robots cannot be fixed back onto the robots during the match.

4.4.11 While the match is in progress, at any time the referee whistles, the participant should stop the robot.

5.0 Deciding the Winner

5.1 Within 3 minutes, the team who successfully move the most number of balls into opponents' field in the match will be the WINNER.

5.2 If one of the team can transfer all of their balls into opponent's field during the match before 3 minutes of time limit, the opponent is considered "SUDDEN DEATH" and lost in the match.

5.3 In the event of a DRAW on FULL-TIME, PK Round (game filed in original state) will be played by selecting one robot from each team to compete in 30 seconds to determine the final result.

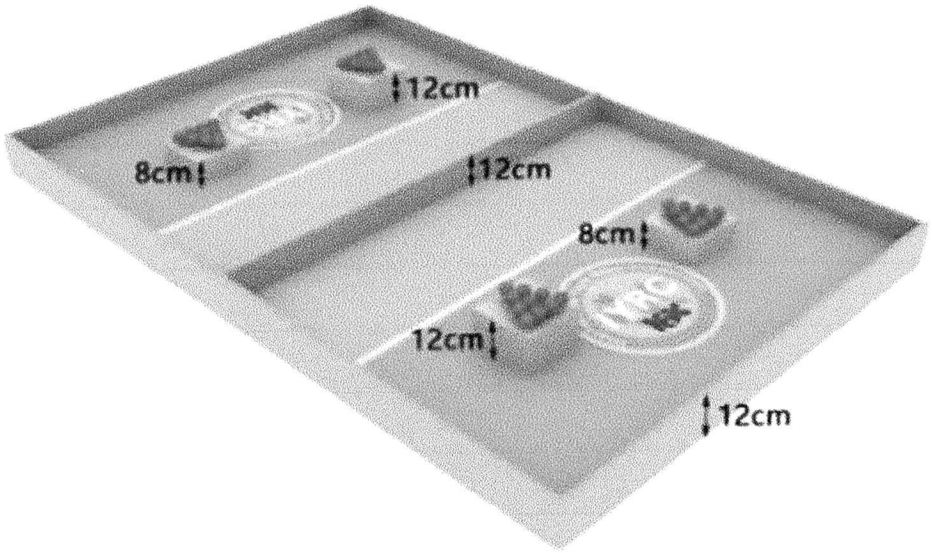
6.0 Disqualification.

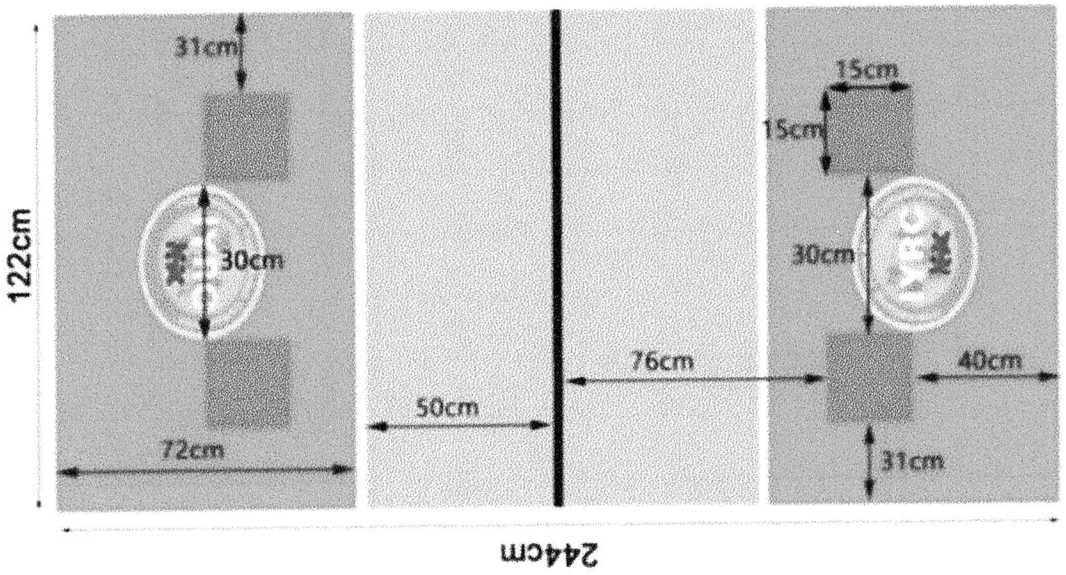
A team shall be disqualified if it commits any of the following during the match:

6.1 Touching the robot while the match is in progress.

6.2 Robot does not comply with the size restrictions.

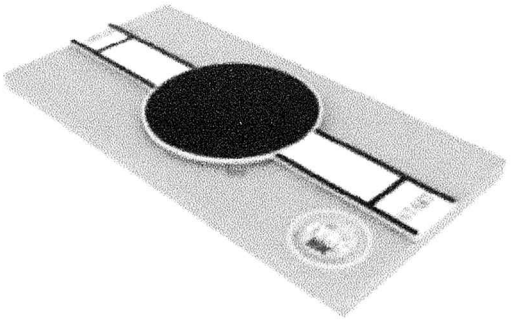
5.0 Game Field





Age	13-17
Team	Individual
Robot Kits	MRT Series, MRT-X & HUNA educational robot kit (not include My Robot Time Toy series and MRT Soccer Robot)
Mission	Require participants to use remote control robot to pass through the runway and push opponent outside of the black ring
Robot Building	Pre-build
Game Method	Mission completion

Push-push



1.0 Objective

The goal of this game is to test and challenge student ability to construct and program a robot with high stability and controlling skill to pass through the runway and push opponent out of the ring (The black ring).

2.0 Robot Dimension and Weight

The size of the robot at the starting box shall not exceed 20cm (H) by 20cm (W) by 20cm (L).

Robot is allowed to expand to any size after the game starts.

The maximum weight of the robot is 800 grams (Including batteries)

3.0 Restriction on Robot Design

3.1 Only MRT Series, MRT-X & HUNA educational robot kit (not include My Robot Time Toy series and MRT Soccer Robot) parts are to be used to build the robot. There is no limitation to the amounts of block used to build the robot. You are allowed to cross use the parts from the above mentioned robot kits for the robots.

3.2 May use maximum up to 2 motors, 2 servos motor, 1 mainboard only. No restriction on other electronic parts.

3.3 Participant is not allow to modify electronic parts. If found guilty, the player would be IMMEDIATELY disqualified.

3.4 Robots shall not damage any part of the field or obstacles deliberately.

3.5 Robots are not allowed to have any power supply above 9V DC (Volt of Direct Current). VAC (Volt of Alternating Current) power supplies are strictly prohibited for safety reasons.

3.6 Must not cause any danger to the arena.

3.7 RC Receiver will need to be protected from outside interference.

4.0 Game Rules

4.1 First whistle, robot must pass through the straight path to enter the black ring and wait there. Second whistle only can start to attack opponent.

4.2 If the robot drop out of the straight path before enter the black ring, this round consider lose.

4.3 If after 10 seconds still not yet enter the black ring, this round consider lose.

4.4 -Push the opponent out of the ring w/in 1 min. If both drop out of the ring at the same time, consider draw.

4.5 If more than half of the robot body being push out of the ring onto the straight path(decision is on referee), or robot unable to go back into the ring, consider lose.

4.6 Game length is 3 minutes, there will be 3 rounds, each round 1 minutes.

4.6.1 Draw : Both robots still remain inside the ring or drop out of the ring at the same time (both get 1 point)

4.6.2 Win : Push opponent out of the ring or opponent's robot unable to get back to the ring after 10 seconds to continue the game (2 points)

4.6.3 Lose : More than half of robot body being push out of the ring, or unable to get back to the ring after 10 seconds (consider lose and no point)

4.6.4 Total points : Highest points after 3 rounds total will be the winner. If same point happen, both robot has to fight again in the ring (back to back).

4.6.5 If draw match, then will measure the center point to each robot after the game stop. Robot which nearer to the center point of the ring will be the winner.

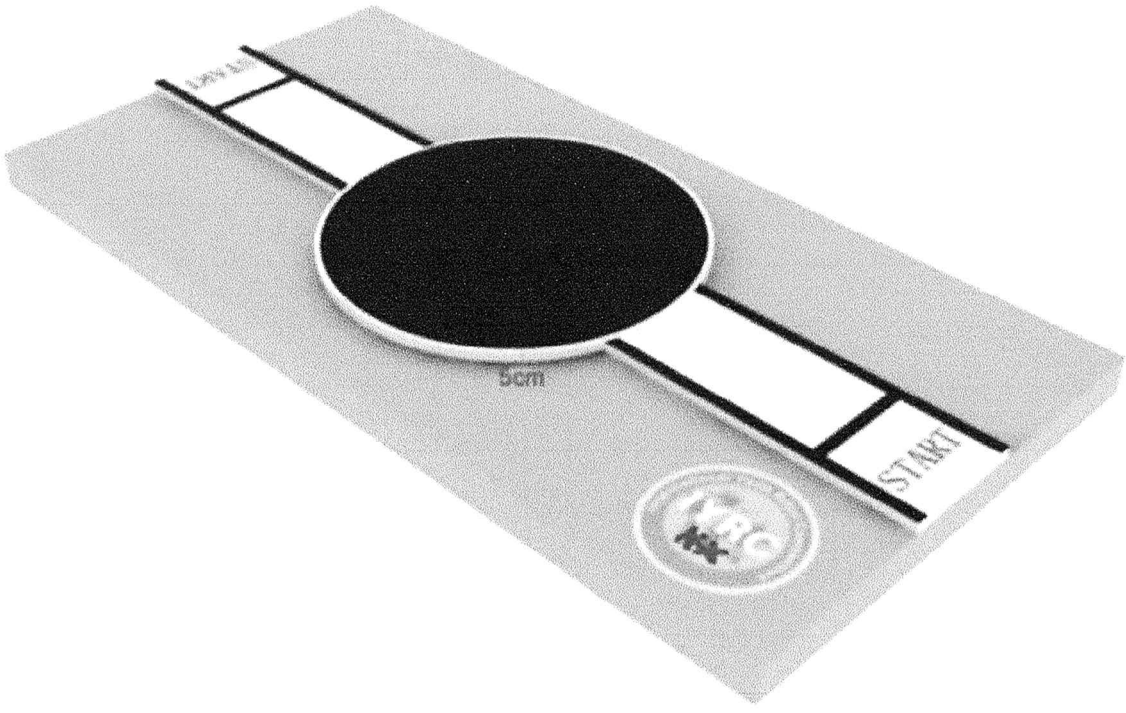
4.7 Before game start, robot has to place before the start line.

4.8 During the game, if whistle blow, robot has to be stop immediately.

4.9 Disqualify

- Touch the robot during the game
- Stop more than 5 seconds
- 2 fouls will led to game stop and opponent win

5.0 Game field



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LINE TRACING
OFFICIAL GAME RULES

1. OBJECTIVE:

The objective of Line Tracing is for your autonomous robot to complete the course in the shortest period of time while accurately tracking the line from START to FINISH. A game is played by one robot per team having 2 members. Only one team member may approach the playing field. Playing field consists of different obstacles with corresponding points. Your aim is to surpass the obstacle while moving on the line. The team who approach the finish line in the shortest period of time will win the game.

2. ROBOT:

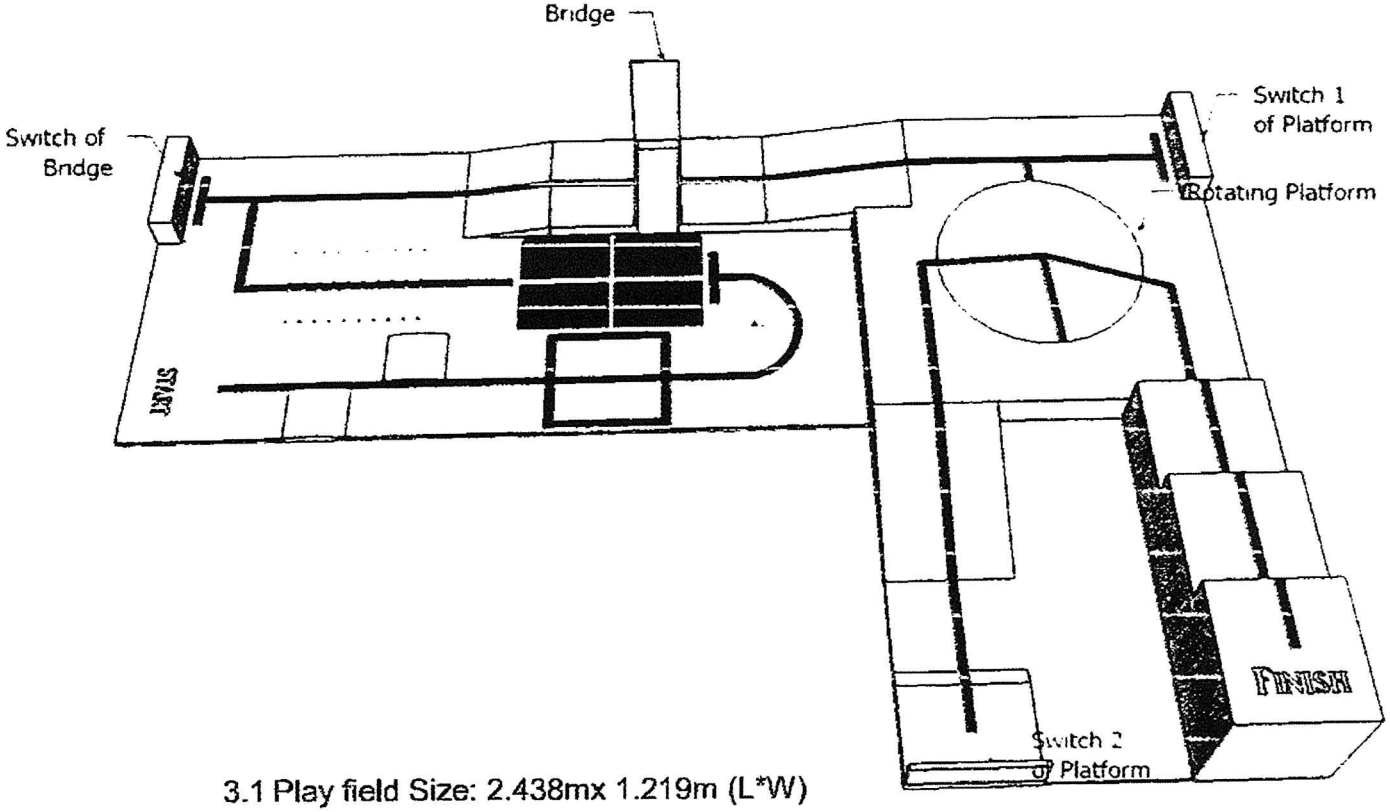
2-1. Robot type: No restriction

2-2. Construction

2-2-1. Pre-built: All robots must be pre-built before the competition

2-2-2. Size: Size of the Robot. The base of the robot should fit in the 24cm x 24cm cell without touching the adjacent obstacles on the side or the top. Note: Your robot can be larger at the top as long as it is higher than 4 inches or 10cm so as not to hit any obstacles. EXPANDING robots are NOT ALLOWED.

3. PLAYING FIELD



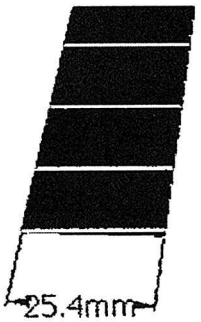
3.1 Play field Size: 2.438mx 1.219m (L*W)

3.2 Play field Floor: Vinyl sticker (Flat white)

3.3 Play field attachment:

3.3.1. Humps: 10mm height and 204.3mm width

3.3.2. Black line: 25.4mm width



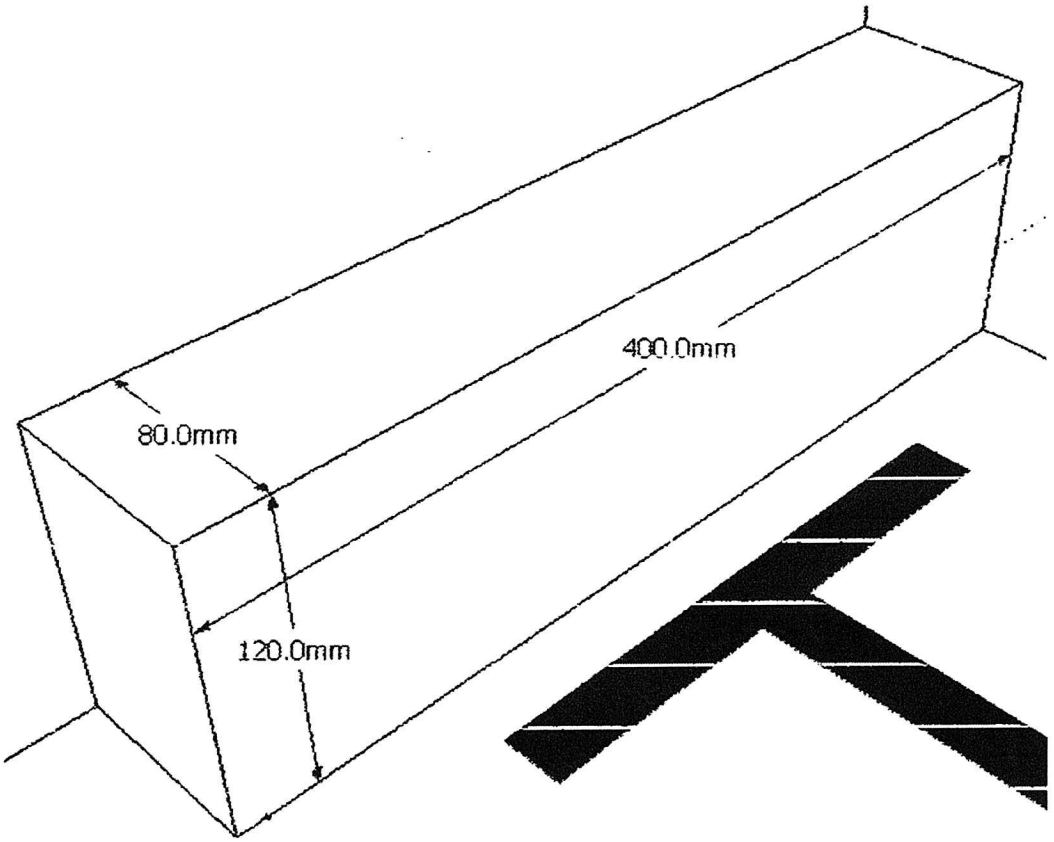
3.3.3. Black Intersection:

3.3.4. Curve Line:

3.3.5. White Intersection:

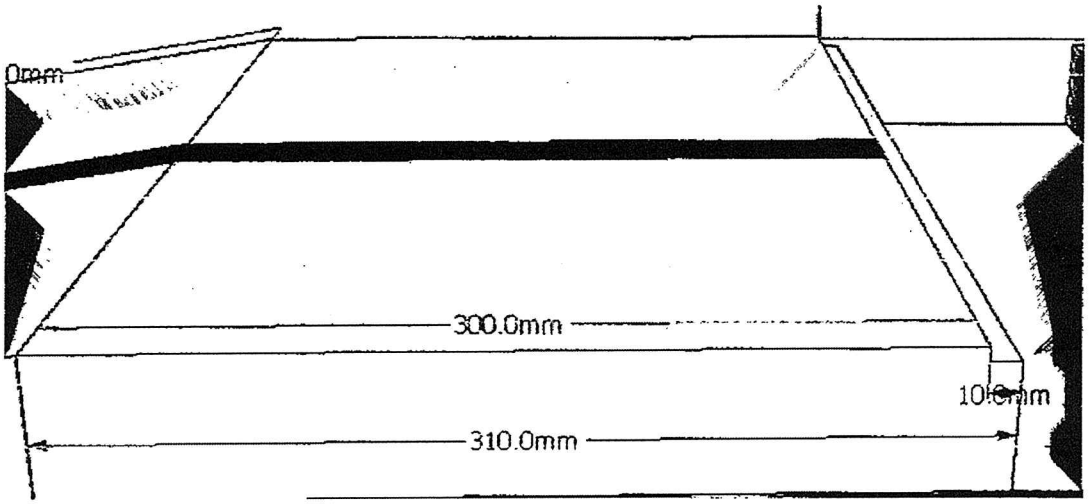
3.3.6. Stick:

3.3.7. First switch: The robot must push or bump the switch to activate the lever of the bridge. If the robot by pass this switch they can't pass the bridge.



3.3.8. First Incline:

3.3.9. Bridge Connector:



3.3.10. Bridge: If the switch one push or bump it will activate.

3.3.11. Second Incline:

3.3.11. Second switch: It activates the rotating circle. If this switch will not activate the robot cannot continue the game.

3.3.12. Rotating circle: If the second switch activate, it rotate clockwise and the line complete.

3.3.13. Third incline: Way to the third switch.

3.3.14. Third switch: This switch activate the rotating circle to rotate counterclockwise

3.3.15. Fourth incline: Way to the finish line.

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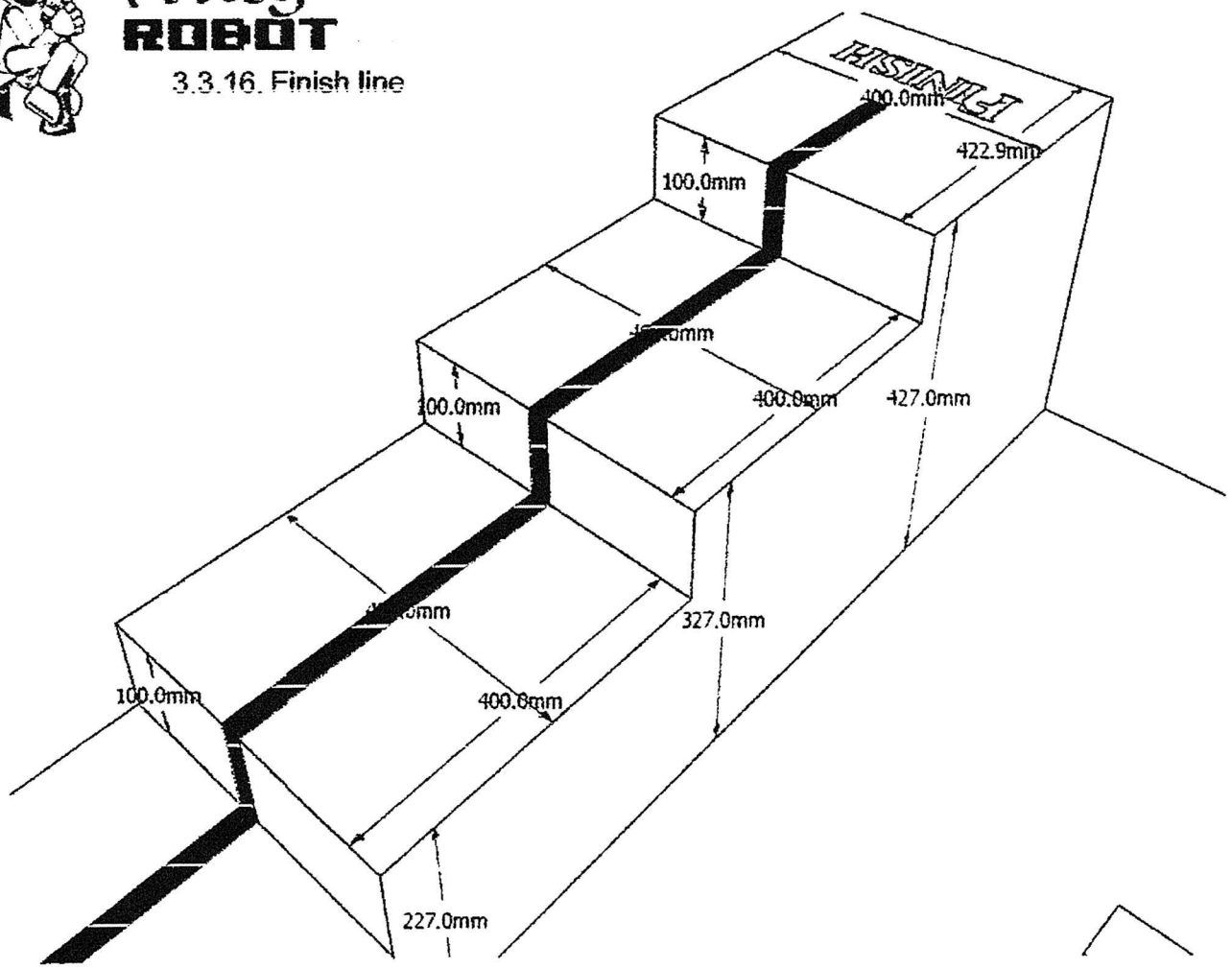
3.3.16. Finish line



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4. REGULATIONS

4.1. Place Robot behind starting line. Referee blows whistle to start. Press the Power switch.

4.2. Robots can be touched, lifted and rotated. It should remain in the same point in the line.

4.2.1. Maximum of 3 touches.

4.2.2. 10 second penalty for every touch

4.3. The game ends if the two wheels of the robot moves out of the center line.

5. Start, Stop and End of the Game

Start-When the referees blow the whistle. It indicates to run the robot.

Stop-When the robot reached the finished line.

End-The game stops when all wheels of the robot is outside the line.

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SUMOBOT
OFFICIAL GAME RULES

Date updated: August 31, 2016

The objective of Sumobot is for your robot to push the other robot out of the sumo ring. A match is fought between two teams; **EACH TEAM HAVING 1 MEMBER ONLY** will approach the ring. In accordance with the game rules each team competes on a Dohyo (sumo ring) with a robot that they have constructed themselves. The match starts at the judge's command and continuous until a contestant earns two Yuhkoh points. The judge determines the winner of the match.

Length of Match: 3 minutes, 1 minute per round

Robot Specifications

1. A robot must fit within a square tube of the appropriate dimensions for the given class.

2. The total mass of a robot at the start of a match must be under the designated weight.

Height	Width	Length	Weight
Unlimited	15 cm	15 cm	400g / 500g
Unlimited	20 cm	20 cm	1kg
Unlimited	20 cm	20 cm	3kg

3. A robot may expand in size after a match begins, but must not physically separate into pieces, and must remain a single centralized robot. Robots violating these restrictions shall lose the match. Screws, nuts, and other robot parts with a total mass of less than 5 grams falling off from a robot's body shall not cause the loss of match.

4. Robots must be autonomous. Any control mechanisms can be employed, as long as all components are contained within the robot and the mechanism does not interact with an external control system (human, machine, or otherwise).

5. Autonomous class robots must not start operating for a minimum of five seconds after initiation by the user.

6. 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.

Robot Restrictions

1. Jamming devices, such as IR LEDs intended to saturate the opponents IR sensors, are not allowed. ***Reflective materials to disrupt IR distance sensors or IR line tracing sensors are not allowed.***

   Scoopers/sweepers (expanding or not expanding) attached to any side of the robot must be colored black.

2. 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.
3. Devices that can store liquid, powder, gas or other substances for throwing at the opponent are not allowed.
4. Any flaming devices are not allowed.
5. Devices that throw things at your opponent are not allowed.
6. Sticky substances to improve traction are not allowed. Tires and other components of the robot in contact with the ring must not be able to pick up and hold a standard 3"x5" index card for more than two seconds.
7. Devices to increase down force, such as a vacuum pump or magnets, are only allowed in the 3 kg class. They are not allowed in all other classes.
8. 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. In general, edges with a radius of greater than .005", as would be obtained with an unsharpened .010" thick metal strip, should be ok. Judges or competition officials may require edges that they deem too sharp to be covered with a piece of tape.

How to Carry Sumo Matches

1. One match shall consist of 3 rounds with 1 minute each round
2. A team receives a "Yuhkoh" point when they win a round. The team with the larger yuhkoh points at the end of the match wins.
3. The judge can choose to give extension rounds are given during a draw. A maximum of 2 extension rounds is allowed. Alternatively, the winner/loser of the match may be decided by judges, by means of weight, lots or rematch.
4. The decision of the judge to resolve a draw is final and cannot be appealed.

Start, Stop, Resume, End a Match

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 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 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, and after a five second pause the robots may start operating. During these five seconds, players must clear out of the ring area. The robot does not start it consider as false start. The judges give another round to start the game.

Stop, Resume The match stops and resumes when a judge announces so.

End - The match ends when the chief judge announces so. The two teams retrieve the robots from the ring area, and bow.

Time of Match

1. Each round has a maximum of 65 seconds including the 5 second delay. When no Yuhkoh point is scored, a draw is called. Exception is when the robot is about to fall when the 65th second is reached. The referee can extend to a maximum of 5 seconds just to win the Yuhkoh point.
2. A single timeout of 30 seconds can be requested between rounds. Only one timeout per player. A player who extends beyond the 30 second timeout can lose the round depending on the referee's call.
3. Referee must continue each succeeding round without delay. Any player who causes a delay in starting the next round when no timeout is called will lose the round depending on the referee's call.
4. The total time of the match is extended when extension rounds are called.
5. There will be 3 rounds per match. For the finals and semi-finals, there are 5 rounds per match. The match can be extended to a maximum of 2 rounds only.

Time out

During a time out, repairs to the robot are made but BATTERIES CANNOT be changed. Major repairs and battery changes are done after the match.

Yuhkoh

One Yuhkoh point shall be given when:

1. The robot touches the space outside the ring or completely falls outside the ring. The robot can be falling on its own or being pushed by the other robot.
2. When **NO CONTACT** is made between the robots and one robot falls outside the

~~ring, **NO YUHKOH** is counted. The round is repeated. When the same robot falls with NO CONTACT for 3 consecutive rounds, the match ends and the robot that remained in the ring is declared the winner~~.

"NO CONTACT RULE" is SUSPENDED. When NO CONTACT is made between the robots and one robot falls outside the ring, YUHKOH is counted. The robot that remained in the ring wins the point.

3. ~~When a part of the robot falls off or separates from the body while in the ring, the other robot wins the point. {exception for nuts and screws}~~
4. ~~When a robot flips on its side or flips over; when a robot stops moving or spins around in the same location (no progress in movement) for 5 seconds; the other robot wins the point.~~
5. When all rounds of the match are completed and NO WINNER is found, the robot with the lighter weight gets the winning Yuhkoh.
6. ~~When a robot moves before the 5 second delay requirement, the other robot gets the Yuhkoh point. Referee advices the player to press the start button in a delayed manner so it will move after the 5 second "start call".~~

   Robots MUST HAVE a 5 second delay for every match. A robot that moves before the 5 second delay loses the round.
   Exception: Judges can decide to relax this rule ONLY during the first elimination round. In such exception, the robot without a 5 sec delay can only place the robot immediately behind the shikiri line with its back touching the shikiri line. Player will press their START button to match the correct start of the round.
7. ~~When the player touches any part of the playing field or any robot in the match~~ directly or indirectly during a round, the Yuhkoh is awarded to the other robot.

Draw

1. When 65 seconds has lapsed into the round.
2. When the referee cannot decide on which robot fell first.
3. When during a contact, both robots are in a **deadlock position** and there is no progress in the position, after 10 seconds, a draw is called.

False Start

1. When at the start of the round, the player accidentally was not able to properly put the robot ON, a False Start is called – NO points are called, the round is repeated. Referees observe false start carefully.

Penalties

Sportsmanly conduct is expected from players. Any misconduct, foul language or intentional action to harm the opponent or the robot shall be dealt with by the table officials with the recommendation of the referee. Penalties can range from losing a round, a match or being banned for the day.

Injuries and Accidents during the Match

[Unable to Continue the Match] When the game cannot continue due to player's injury, the team mate can replace the player. If there is no replacement, the other player is declared the winner.

Declaring Objections

Only players can state an objection to the call of a referee. COACHES CANNOT INTERFERE.

Procedure:

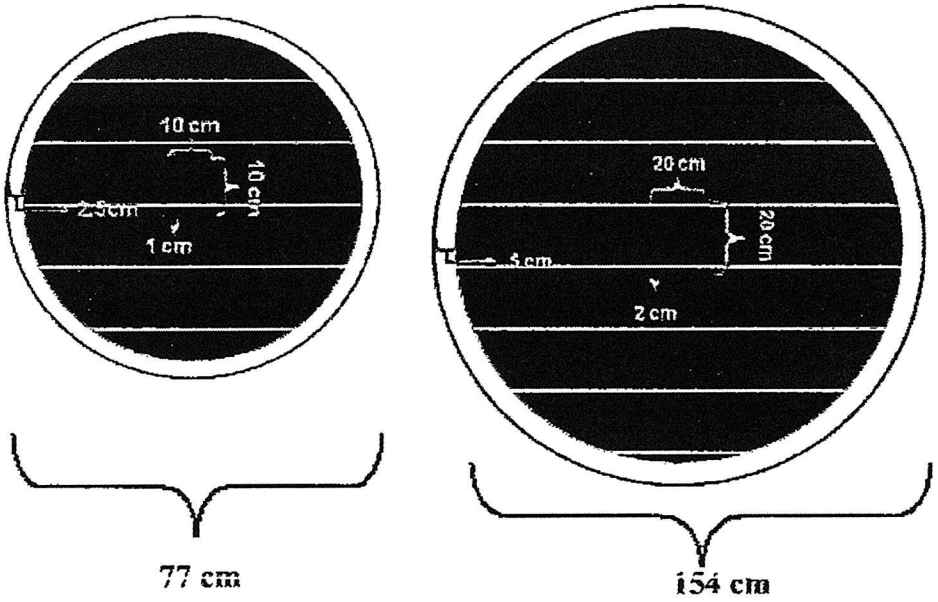
1. The player in the field calls the attention of the referee and states "Sir/Mam, I am objecting to a call".
2. A table official/judge is called to the field in front of the two players and the referee.
3. The objection is stated to the referee and judge witnessed by the other player.
4. The judge makes a FINAL DECISION within 60 seconds.

Playing Field

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.

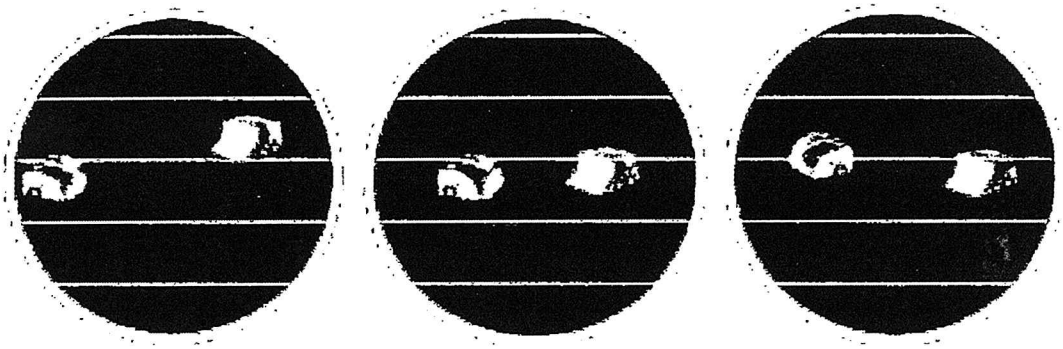
1. The ring shall be circular in shape and of the appropriate dimensions for the given size class.
2. Shikiri lines (starting lines) consist of two painted parallel brown (or equivalent for absorption of IR light) lines centered in the ring with appropriate width and spacing for the given class. The separation distance between the lines is measured to their outside edges.
3. The border line is marked as a white circular 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. 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.

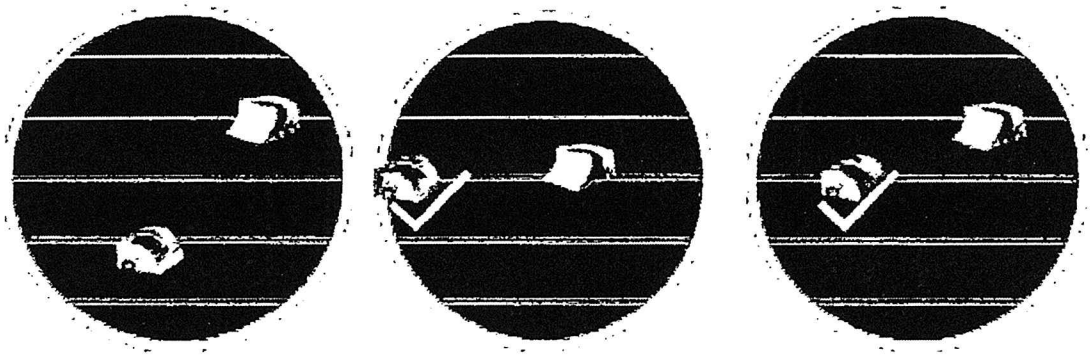


Sumobot Placing Guide

- Good Position



- Bad Position



Republic of the Philippines
Region VII, Central Visayas
DIVISION OF CEBU PROVINCE
Science Educators of Secondary Schools

2019 DIVISION SCIENCE FAIR AND COMPETITION

October 18, 2019
Argao National High School,
Argao, Cebu

ENTRY FORM

Name of Municipality:

Name of Municipal/District Science Coordinator:

Competitions/Events	Name of Contestants	Name of Coach	Name of School	Name of School Principal
ORAL GRADE 7				
ORAL GRADE 8				
ORAL GRADE 9				
ORAL GRADE 10				
WRITTEN GRADE 7				
WRITTEN GRADE 8				
WRITTEN GRADE 9				
WRITTEN GRADE 10				
POSTER MAKING				
SLOGAN WRITING				
SIM				
MRT				
ON THE SPOT SCIENCE PROCESS				

Prepared by:

Municipal/District Science Coordinator

Noted by:

Public Schools District Supervisor