

2024 WIT Creative Technology Competition

- Robot Competition -

I Purpose

- Promote the advancement of cutting-edge technology and encourage creative problem-solving through innovation and challenges in robotics.
- Develop participants' problem-solving skills and practical technology through real-world problem-solving experiences.
- Understand the importance of teamwork and enhance robot design and programming skills through cooperation and competition.

II Schedule

Category	Date	Details
Competition Overview	2024. 8. 21. (Wed)	• wit-world.org
Application Submission	2024. 8. 21. (Wed) ~ 2024. 9. 25. (Wed)	• Submission of application for participation forms.gle/E743TA2nNXLHcxDt9
Duration of the contest	2024.11.02. (Sat) ~ 2024.11.03. (Sun)	• Competitions held for each category
Awards Ceremony	2024. 11. 3. (Sun)	• Ceremony for awarding the selected winning teams

III Method and contents of application

- Accepted via online platform
 - Required information such as participants' personal data, age, and experience level will be collected.
 - For other inquiries, please contact wit202411@gmail.com

IV**Team composition**

- Maximum number of participants: 4 members per team
- Grade: Junior club (10-13 years old), Senior club (14-19 years old)

V**Competition Categories**

- Line Tracing
 - Various courses with different levels of difficulty, including simple straight lines and complex curves and intersections, will be provided. (The Junior Division will have relatively simple courses, while the Senior Division will face more complex ones.)
 - Robots must automatically follow the designated path, and the participant with the fastest time will win.
- Obstacle Avoidance
 - A course with obstacles of various sizes and shapes will be provided. (The Senior Division will face more complex and densely arranged obstacles.)
 - Robots must avoid as many obstacles as possible within the given time and reach the target point.
- Shoving Sumo
 - The competition takes place in a circular ring of a set diameter, where robots must push the opponent's robot out of the ring.
 - There are restrictions on the weight and size of the robots, and matches will be conducted in a tournament format.

VI**Competition Operation**

- Participant Preparation: Participants will be provided with robot assembly kits, programming tools, and competition rules in advance.
 - Line Tracing - Includes pre-competition workshops and hands-on sessions to experience the course beforehand.
 - Obstacle Avoidance - Educational sessions will be provided to help participants program obstacle recognition.
 - Shoving Sumo - The competition rules and tournament brackets will be explained, and preparation time will be given accordingly.

- Judging Criteria: Performance (speed, accuracy), creativity, and stability will be evaluated for each competition.
- Awards: In addition to the winners of each competition, awards will be given in various categories such as Creative Design, Excellent Teamwork, and Technical Innovation.

VII

Awards

Sports	Sports	Number of Teams	Kinds	Participants
Line Tracing	Gold prize	1 teams	Award certificate	1st Place Team
	Silver prize	2 teams	Award certificate	2nd and 3rd Place Teams
	Bronze prize	5 teams	Award certificate	4th to 8th Place Teams
Obstacle Avoidance	Gold prize	1 teams	Award certificate	1st Place Team
	Silver prize	2 teams	Award certificate	2nd and 3rd Place Teams
	Bronze prize	5 teams	Award certificate	4th to 8th Place Teams
Shoving Sumo	Gold prize	1 teams	Award certificate	Winning Team
	Silver prize	2 teams	Award certificate	Runner-up Team
	Bronze prize	5 team	Award certificate	Semifinal Losers
	Participation prize	4 teams	Award certificate	Quarterfinal Losers

VIII

Evaluation Criteria

- Line Tracing
 - Completion Time (45%): The time taken for the robot to complete the track from start to finish. The robot with the shortest time receives the highest score.
 - Track Adherence (15%): Evaluation of how well the robot follows the track. Points may be deducted if the robot deviates from the track.
 - Stability (10%): Evaluation of the robot's stability during operation. Robots that follow the track smoothly without unnecessary vibrations or sharp turns will receive higher scores.
 - Creativity (10%): Evaluation of the creativity of the robot design and the algorithm used to follow the track. New approaches different from existing methods may receive higher scores.
 - Resilience (20%): Evaluation of the robot's ability to automatically return to the track

if it temporarily deviates. This is considered an important indicator of the robot's intelligence.

○ Obstacle Avoidance

- Obstacle Avoidance Efficiency (40%): Evaluation of how quickly and accurately the robot avoids obstacles. Maintaining an appropriate distance from obstacles while adjusting the path is crucial.
- Completion Time (30%): Evaluation of the time taken to reach the target point from the start. Although a fast completion time is important, efficient obstacle avoidance takes priority.
- Stability and Durability (20%): Evaluation of the robot's stability and durability during obstacle avoidance. Robots that move smoothly without sudden direction changes or unnecessary stops will receive higher scores.
- Creativity and Technical Perfection (10%): Evaluation of the creativity and technical perfection of the robot's design, sensors used, and algorithm. Efficient obstacle avoidance strategies and innovative solutions will receive higher scores.

○ Shoving sumo

- Efficiency and Strategy (40%): Evaluation of the time taken and the efficiency of the strategy used to push the opponent out of the ring. Robots using fast and intelligent strategies will receive higher scores.
- Mobility and Responsiveness (30%): Evaluation of the robot's speed, ability to change direction, and response time to the opponent's movements. Robots that react quickly and agilely will receive better evaluations.
- Stability and Durability (20%): Evaluation of the robot's stability and durability during the match. Robots that maintain structural stability and avoid functional damage during intense battles will receive higher scores.
- Creativity and Design (10%): Evaluation of the creativity of the robot's design, structure, and strategic elements. Robots with unique and creative approaches will receive higher scores.