



The Rule of 2026 FIRA

“Aibot Voice Command Challenge”

(Version 5.0)



Prepared By:

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1) TEAM

- a. Each team shall consist of **TWO (2) students** only.
- b. Each team is limited to **ONE (1) robot** only.

2) ROBOT SIZE LIMITATION

- a. Maximum robot size is **281 × 306 × 141 mm (L × W × H)**.
- b. Measurement is taken during **Robot Inspection**.
- c. Any robot exceeding the size limit is **NOT allowed** to compete.
- d. Robot size includes all mounted parts (e.g., LiDAR mount, camera mount, speaker casing).

3) ROBOT REQUIREMENTS

The robot used **MUST FOLLOW** below requirements:

- a. **ROS (Robot Operating System)**
- b. **LiDAR (Light Detection and Ranging)**
- c. **SLAM (Simultaneous Localization and Mapping)**
- d. **Voice Recognition System** (for voice navigation commands)
- e. **Speaker / Audio Output** (*mandatory for Task 5*)

4) AUTONOMY & CONTROL RULE

- a. Robots must operate in **AUTONOMOUS MODE** using **VOICE RECOGNITION SYSTEM** and must **NOT** be manually controlled,
- b. Once the robot starts, participants are **NOT allowed** to directly control or interfere with the robot movement.
- c. Prohibited actions include:
 - i. teleoperation / joystick / keyboard driving,
 - ii. pushing/pulling the robot,
 - iii. blocking sensors intentionally,
 - iv. any direct intervention to change robot motion.
- d. Violation may lead to **DISQUALIFICATION** (referee decision).

5) EVALUATION STANDARD

- i. Each team is given a **maximum of 20 minutes**, including **preparation** and **two trial** attempts, to **complete** the mission.
- ii. Final ranking is based on:
 - a. **Mission Points + Driving Time Points – Deduction Points**
 - b. **Final score = BEST score achieved** from Trial 1 or Trial 2.
 - c. Robot must complete **FIVE (5)** tasks to accomplish

6) TASKS

The robot has **FIVE tasks** to accomplish. The **room entry sequence** is determined by the player, while voice commands must be selected from the **predefined command set provided**.

A. TASK 1

- i. **Voice command** to start robot entering the **FIRST** room without collision with the wall, obstacle, etc.
- ii. The robot must come to a complete **stop for at least 3 seconds** at the designated location.

B. TASK 2

- i. **Voice command** to start robot entering the **SECOND** room without collision with the wall, obstacle, etc.
- ii. The robot must come to a complete **stop for at least 3 seconds** at the designated location.

C. TASK 3

- i. **Voice command** to start robot entering the **THIRD** room without collision with the wall, obstacle, etc.
- ii. The robot must come to a complete **stop for at least 3 seconds** at the designated location.

D. TASK 4

- i. The robot must give status feedback confirming all rooms have been entered by announces via speaker **“ALL ROOM ENTERED. WHAT’S NEXT?”**
- ii. **Voice command** robot must navigate back to **START** without collision with the wall, obstacle, etc

E. TASK 5

- i. The robot must come to a complete **stop for at least 3 seconds** at the designated location.
- ii. **Robot announces via speaker: “ALL MISSION COMPLETED”.**

7) OFFICIAL ROOM NAME OPTIONS

- Before the match starts, each team must choose **ONE (1) Room Name Set only** (SET A or SET B).
- Teams must use the selected set consistently throughout the mission.
- TABLE 7.1: OFFICIAL ROOM NAMES (CHOOSE ONE SET ONLY) AND STANDARD ANNOUNCEMENT**

VOICE COMMAND		
ROOM/POINT	SET A	SET B
1	NEURAL HUB	QUANTUM CORE
2	VISION NODE	MOTION LINK
3	SENSOR GRID	CONTROL BAY
START POINT	RETURN TO START	GO TO START
STANDARD ANNOUNCEMENT		
ROOM 3	ALL ROOM ENTERED.WHAT'S NEXT?	
START POINT	ALL MISSION COMPLETED	

Notes:

- Only **ONE set** is allowed per match.
- Using mixed set names (e.g., NEURAL HUB then MOTION LINK) will be penalized.
- Referees may request a short voice test during prep time.

8) MISSION POINTS

- Completed Task 1 – **15 points**
- Completed Task 2 – **15 points**
- Completed Task 3 – **15 points**
- Completed Task 4 – **20 points**
- Completed Task 5 – **25 points**
- Bonus completed all task – **10 points**

9) DEDUCTION POINTS

- WRONG room name used** (not in selected set) = **-5 points** each occurrence.
- MIXED set usage** (use SET A + SET B in same match) = **-5 points** each occurrence.
- TOUCHING the robot** after mission starts = **-5 points** per touch.
- ROBOT COLLISION** with wall or obstacle = **-5 point** for each occurrence.
- TELEOP / MANUAL CONTROL / INTERVENTION = DISQUALIFICATION** (referee decision).

10) DRIVING TIME POINTS

- a. The fastest completion time receives the highest time points, decreasing by 1 point based on ranking order.
- b. Example (15 teams):
 - ✓ 1st = 15 points, 2nd = 14 points, ... last = 1 point.

11) TIEBREAKER REGULATIONS

- a. If two or more teams have the same score, the tiebreaker is:
 - ✓ **Fastest completion time**, then
 - ✓ **Least deduction points**.

12) GAMEPLAY

A. Setup

1. Place robot at **START** line.
2. Setup PC/laptop at designated area only.
3. Teams must ensure the robot is ready for autonomous operation (voice recognition, SLAM, sensor readiness) before the match begins.

B. Start Signal

1. When referee signals start, time begins.
2. Robots move only after receiving **valid voice command**.

C. Mission Flow (Open Order)

1. Complete **three (3) rooms** in any order (Task 1–3).
2. After completing 3 rooms, the robot announces, “**ALL ROOM ENTERED.WHAT’S NEXT?**”. Return to **START** using voice command (Task 4).
3. The robot announces “**ALL MISSION COMPLETED**” via speaker (Task 5).

D. Trial & Failure Handling

1. Each team is allowed a maximum of TWO (2) trials within the allocated competition time.
2. The match ends when the time limit is reached or when Task 5 is completed successfully whichever comes first.
3. If the robot fails to accomplish a mission, teams may restart or reset the robot **only with referee approval** and subject to the remaining time.
4. The success of each task and mission completion is determined by the **referee**.
5. **Restart Point After Completing All Rooms:** If the robot has successfully completed Task 1–3 (all three rooms confirmed by referee) and then fails during Task 4 or Task 5, the team may restart (with referee approval) from CP1. The robot is not required to re-enter the last room again.

13) PLAYING FIELD & SIZE RESTRICTIONS

- Play Field Size (Internal / Clear Area): 3000 mm (W) $\times$ 3200 mm (L) (= 300 cm $\times$ 320 cm).
- Play Surface Material: Black carpet.
- Wall Color: White.
- Wall Height: 300 mm (= 30 cm).
- STOP POINT (CP1):** Circular area $\varnothing$ 300 mm (= 30 cm diameter).

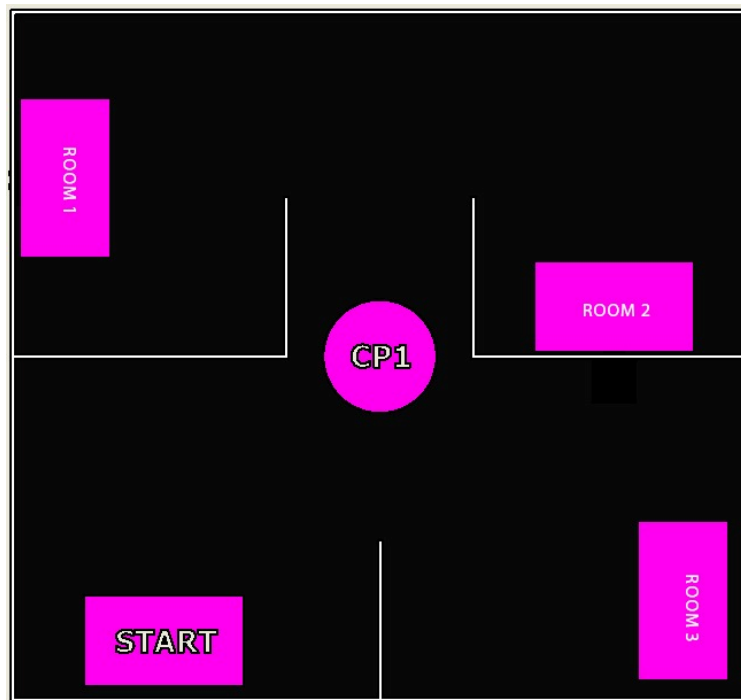


Figure 1. Playing Field Specification



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