

# Robot @Home Open Platform Challenge

Thailand 2025 Rule

Service Robot for Future Living



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# Introduction

The Robot @Home Challenge is a competition designed to advance the development of artificial intelligence for household tasks. These tasks such as finding and sorting garbage into the correct bin, getting the order and getting drinks to the guest, helping carry objects, and recognizing faces etc.

The competition has two stages and a final round. Each stage includes a series of tests set in a daily life environment. The qualified teams from Stage I move on to Stage II, which features more challenging tests. The competition concludes with the Final, where the two highest-ranked teams from each league compete to determine the winner.

For the Stage 2 qualification conditions are your team have to participate in GPSR task and get some point in Stage 1. If your team doesn't want to participate in State 2, you can select one task from Stage 1 to do that task again in time slot of GPSR task (After the GPSR task is finished) and the best score will be counted.

The tasks for the 2025 competition are outlined as follows:

- **Stage 1**
  - Carry My Luggage
  - General Purpose Service Robot
  - Receptionist
- **Stage 2**
  - Restaurant
  - Sticker for the Rules

## Competition Field



Figure 1: Competition field

Figure 1 shows the competition field map. This map is a draft and may be **changed** on the setup day. After the setup day, the competition field will not change anymore (*some furniture location might be changing a little bit by human error. By the way all of the furniture will have a mark for its location, if you see any change of furniture location, you can **tell the referee** to adjust the location.*)

# Rulebook

All rules mainly follow the RoboCup @Home Rulebook version 2024.2 : [Rulebook URL](#).  
Additional information for each task will be provided in this document.

<https://github.com/RoboCupAtHome/RuleBook/releases/download/2024.2/rulebook.pdf>

*\*\* All rules can be modified only in Team Leader Meeting time with all team leaders agree if anyone disagree the rules will not be change.*

## Robot

In this league, your team can use any kind of robot to attend, but the organizer will not provide any robot for you, you need to bring your robot by yourself. For the international team, if you want to send the robot to the venue, please contact iMAKE staff as soon as possible.

The total price of the robot is 60,000 baht, it means including the price of robot body, electrical part (including the battery), and sensors but don't count for the laptop. If your team gets a discount for any part, please provide the evidence (receipt or tax invoice) to the referee in your robot inspection time slot, the total price will be calculated from that amount after discounted.

## Robot Inspections

Every team has to pass the robot inspection to attend the Stage 1 and Stage 2 task. If your team does not pass the robot inspection in the robot inspection time slot, your team can try the robot inspection after each task is finished (*you cannot participate in that task, and the Not attending penalty will not count*) and you can attend the next task after you pass the robot inspection.

## Final

This year final theme is "Service Robot for Future Living"

# Tasks Additional Information

## Stage 1

### Carry My Luggage

Demo Video : <https://youtu.be/dzyJ1dHTulc>

*Noted: This demo video is for reference only, the rules can change each year*

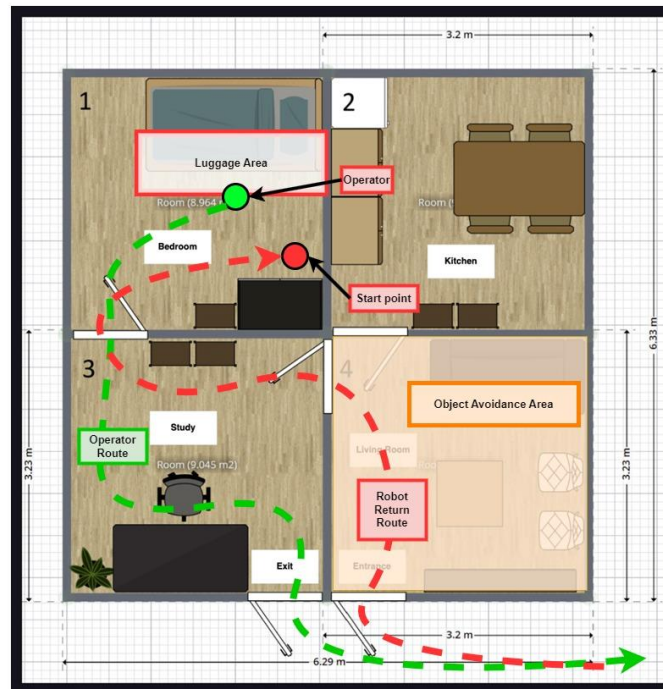


Figure 2: Carry My Luggage information

In Figure 2, The green line is the operator route (*depending on operator desired path*) that the robot has to follow the operator from starting point to outside the house by the Exit door and go to unknown location as the car location. After the robot arrives at the car location (*by person tell something to the robot*), the robot has to give the luggage to the person and navigates back to the start point (*the roughly locations are acceptable*) by using the Entrance door (*the Exit door **can be closed**, depend on your team decision*) and the robot has to avoid the objects that in the object avoidance area (orange area in the Living room).

## General Purpose Service Robot

Demo video: <https://youtu.be/Hmcg-QO8Nso?si=Y2rX05ONDpZqaU1S>

*Noted: This demo video is for reference only, the rules can change each year*



Figure 3: General Purpose Service Robot information

From Figure 3, the start point is outside the house and in front of the entrance door. The robot needs to navigate from start point to instruction point to get the command, the instructor will be around there (*depending on robot facing location, please make sure that the instructor can stand **in front of** the robot*), and the instructor will not stand in this point (*If the instructor is in the navigation path, the robot has to avoid them*).

Any team that wants to get a higher score from Stage 2 task, your team has to participate in this task to qualify to pass to Stage 2.

## Receptionist

Demo video: <https://youtu.be/EMUIId0pJVg8?si=EooYWIAL8nahru2c>

*Noted: This demo video is for reference only, the rules can change each year*



Figure 4: Receptionist information

From Figure 4, the robot start point is in the Living room. In the living room will be at least 3 seats for the host and guest. The host will randomly sit in one of the seats (*the seat might be chair or sofa*) The chair and sofa will be provided to you on the setup day.



## **Stage 2**

### **Restaurant**

Demo video: [https://youtu.be/Yiu\\_lwT0-IU?si=9jYWCr4hGB7m17uP](https://youtu.be/Yiu_lwT0-IU?si=9jYWCr4hGB7m17uP)

*Noted: This demo video is for reference only, the rules can change each year*

For this task, the task will be running outside the area in an unknown location. The referee will bring every team to the restaurant 30 minutes before the task starts. Every team is not allowed to collect the map before your time slot is started (*If the referee or another person report about the map that your team collect before the competition, the score in this task will be 0 and your team will get penalty*).

*\*\* if your team and another team have the same score, who has less penalty will be get higher rank*

## Stickler for the Rules

Demo video: <https://youtu.be/3MXXbclmCNI?si=PbCaoVrE83CuovMX>

*Noted: This demo video is for reference only, the rules can change each year*



Figure 5: Stickler for the Rules information

From Figure 5, the robot will start in the Living room and the bedroom is the Forbidden room. The robot has to navigate around the area to find the person that is not following the rules, the robot has to tell them which rules that they break, and which action they need to do. The robot has to make sure that person will not break the rules again.