

NATIONAL ROBOTICS COMPETITION

Welcome to National Robotics Competition 2022

Main Organisers:



Operational Partner:



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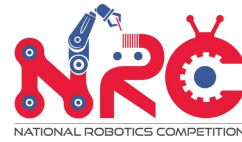


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Held live on-site at Science Centre Singapore from 23 August to 10 September 2022



Main Organisers:



Operational Partner:



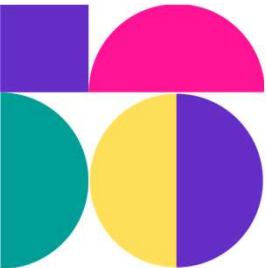
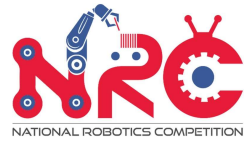
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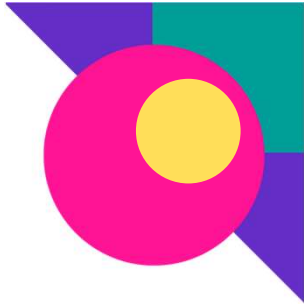
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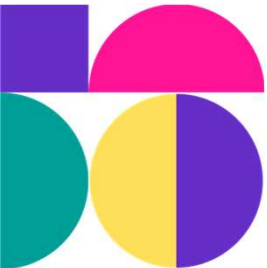


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NRC Preschool 2022

Mission based competition



Main Organisers:



Operational Partner:



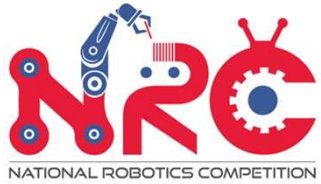
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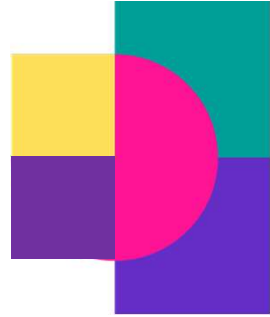
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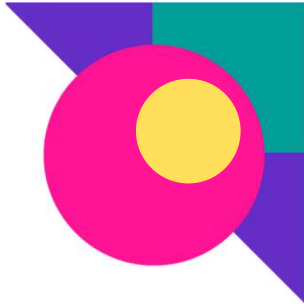
Agenda for the webinar



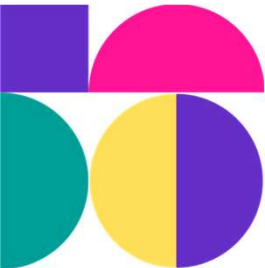
- Introduction to the NRC Preschool Category
- Online Presentation
- Introduction to Gameplay
- Onsite Competition
- Scoring
- Important Dates



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NRC Preschool Category



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Operational Partner:



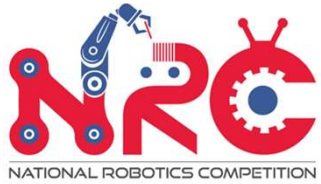
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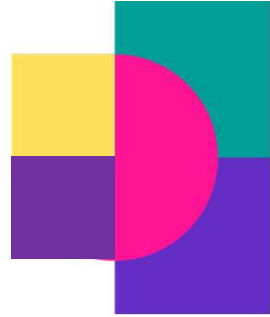
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NRC Preschool Category



- Mission-based competition
- Code and design KUBO robot for the competition
- Theme: My Robot, My Friend
- Complete missions around the community

Main Organisers:



Operational Partner:



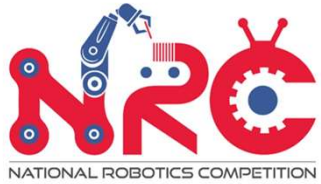
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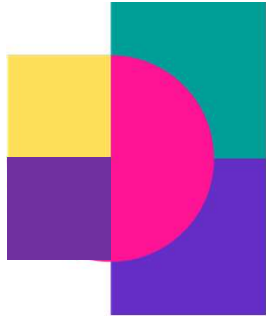
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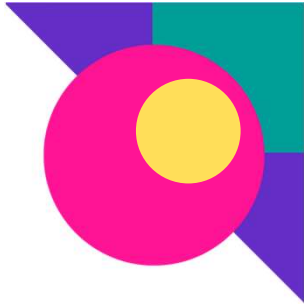
NRC Preschool Category



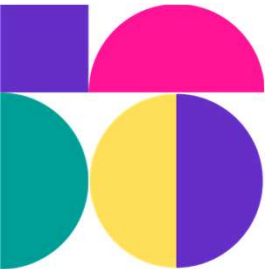
- Age: 5 - 6 years old (as of 31st December 2022)
- Team size: Maximum 5 participants led by 2 mentors
 - 1 participant and 1 mentor does not constitute a team
- Hardware/Software: KUBO



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Online Presentation



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Operational Partner:



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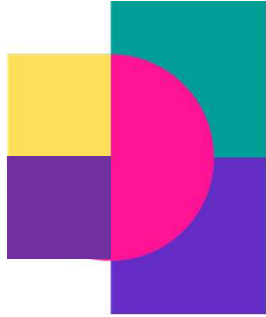
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Presentation details



- Design of KUBO
- Learning and reflection process
- 8 minutes per team
 - 5 minutes for presentation
 - 3 minutes for Q&A
- 10 slides maximum

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Operational Partner:



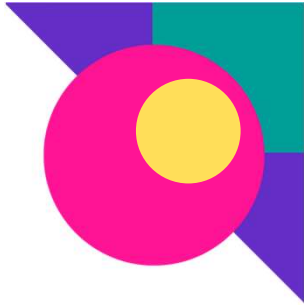
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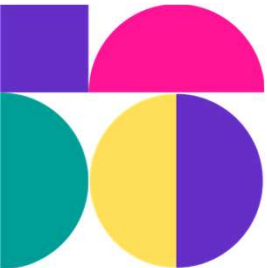
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Onsite Competition



Main Organisers:



Operational Partner:



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Gameplay for NRC Preschool



Missions based competition

Missions

1. Rescue Grandma
2. Transport groceries
3. Pick up trash
4. Save the community cat

Main Organisers:



Operational Partner:



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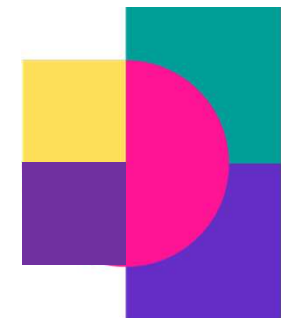
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Allowed robot systems



KUBO Coding Starter Set

KUBO Coding+

*Use of KUBO Coding++ is not allowed



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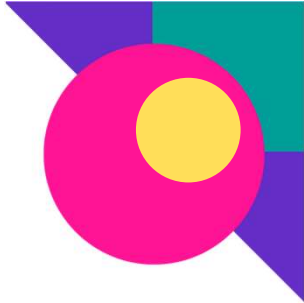
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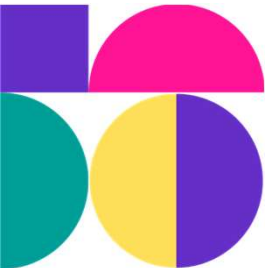
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Scoring



Main Organisers:



Operational Partner:



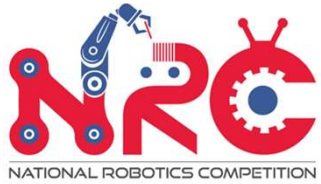
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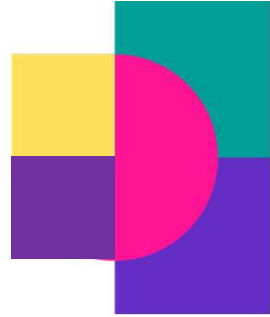
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Scoring of Presentation



- Scoring sheet on page **16**
- **30 points** for presentation

| Criteria | Score |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|
| Coding and Design of KUBO Robot <ul style="list-style-type: none">• What are some special tiles used to to solve the missions• How they have designed KUBO robot's attached carriers or equipment to solve the missions | 10 |
| Reflection <ul style="list-style-type: none">• What they have learnt during the process• What was their favourite part of the process | 10 |
| Presentation <ul style="list-style-type: none">• Clarity of presentation• Creativity of presentation• Q&A | 10 |



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Scoring of Missions

- Scoring Sheet on page 18
- 70 points for scoring of missions

| Missions | Score | Total / Max |
|------------------------------------------------------------------------------------------------|-------|-------------|
| 1. Helping Grandma | | |
| Go to Grandma (Grid I9 or R17) from Grid A1 | 1 | |
| Transport Grandma from original position (Grid I9 or R17) to place of worship (Grid N12 - O14) | | |
| - Any part Grandma is within the grids of the place of worship | 2 | |
| Transport Grandma hands-free throughout mission | 2 | |
| Finish mission within duration: | | |
| <2 minutes: 8 pts | | |
| 2 - 4 minutes: 6 pts | | |
| >4 - 6 minutes: 4 pts | | |
| >6 - 8 minutes: 2 pts | | |
| >8 - 10 minutes: 1 pt | 8 | |
| No interference from teachers | 2 | 15 |
| 2. Getting Groceries (Start from M12) | | |
| Travel to Supermarket (E13) for 1st grocery bag | 1 | |
| Delivered Grocery Bag 1 (E13) to bus stop (Grid I13 - J13) | | |
| - Base of Grocery Bag 1 is within the grids of HDB Block 1 | 2 | |
| Go to Shopping Mall (R13) for 2nd grocery bag | 1 | |
| Delivered Grocery Bag 2 (R13) to bus stop (Grid I13 - J13) | | |
| - Base of Grocery Bag 2 is within the grids of the shopping mall | 2 | |
| Deliver Grocery Bag 1 hands-free | 1 | |
| Deliver Grocery Bag 2 hands-free | 1 | |
| Finish mission within duration: | | |
| <2 minutes: 8 pts | | |
| 2 - 4 minutes: 6 pts | | |
| >4 - 6 minutes: 4 pts | | |
| >6 - 8 minutes: 2 pts | | |
| >8 - 10 minutes: 1 pt | 8 | |
| No interference from teachers | 2 | 18 |
| 3. Picking Up Rubbish (Start from I13) | | |
| Go to metal can 1 (J4) | 1 | |
| Bring Metal Can 1 (Grid J4) into the recycling bin (Grid J8-K8) | | |
| - Base of Metal Can 1 is within the grids of the recycling bin | 2 | |
| Go to metal can 2 (C9) | 1 | |
| Bring Metal Can 2 (Grid C9) into the recycling bin (Grid J8-K8) | | |
| - Base of Metal Can 2 is within the grids of the recycling bin | 2 | |
| Bring Metal Can 1 hands-free | 1 | |
| Bring Metal Can 2 hands-free | 1 | |
| Finish mission within duration: | | |
| <2 minutes: 8 pts | | |
| 2 - 4 minutes: 6 pts | | |
| >4 - 6 minutes: 4 pts | | |
| >6 - 8 minutes: 2 pts | | |
| >8 - 10 minutes: 1 pt | 8 | |
| No interference from teachers | 2 | 18 |
| 4. Save the Community Cat | | |
| *Pass by fire station (Grids O9 - S10) | 5 | |
| Go to the tree (within 1 grid radius from Grid I19) | 2 | |
| Bring the community cat down from the tree (Grid I19) | 3 | |

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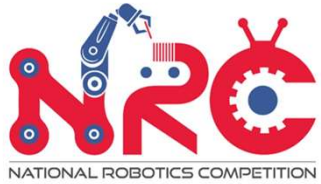
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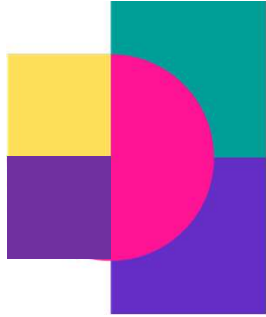
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Overall Scoring



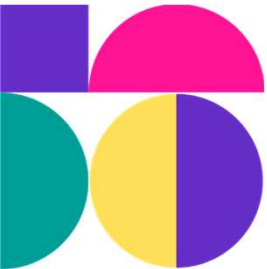
- Overall scores are comprised of presentation + missions
 - Presentation (30%)
 - Missions (70%)
 - Note that only scores from the presentation and missions will be counted to the overall championship award



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Awards and Prizes



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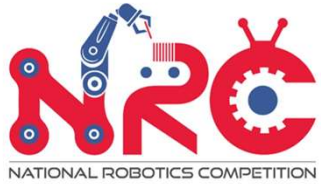
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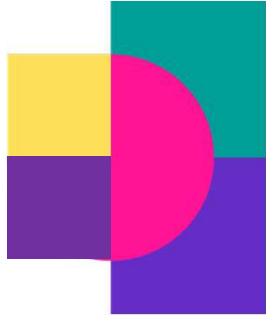
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Awards & Prizes



- **Overall Championship**
 - 1st Place - \$500, trophy & banner (per team), medals (per participant)
 - 2nd Place - \$300, trophy & banner (per team), medals (per participant)
 - 3rd Place - \$200, trophy & banner (per team), medals (per participant)
- **Best Presentation**
 - Top 3 - Trophy (per team), medals (per participant)

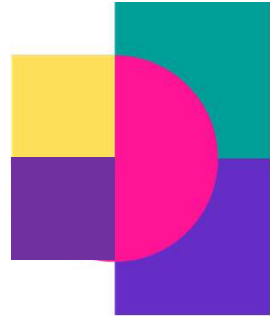


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Awards & Prizes

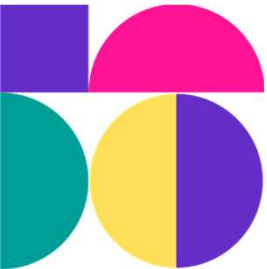
- **Best KUBO Robot Design**
 - Trophy (per team), medals (per participant)
- **Best Teamwork**
 - Trophy (per team), medals (per participant)



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Important Dates



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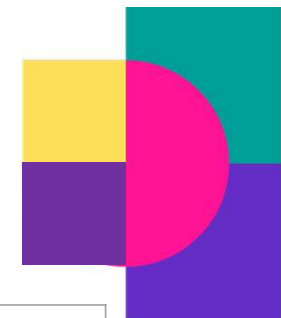
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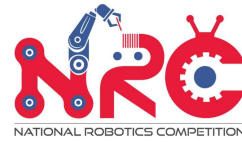
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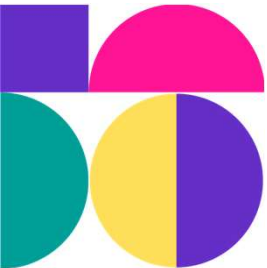
| | Dates | Time | Remarks |
|---------------------|-------------------|-----------|----------------------------------------------------|
| KUBO Training | 22 July 2022 | 2 - 5 PM | Training will be conducted onsite at Newton Room |
| Online Presentation | 23/24 August 2022 | 10 - 5 PM | Date and time slot will be released closer to date |
| Onsite Competition | 31 August 2022 | 9 - 5 PM | Time slot will be released closer to date |



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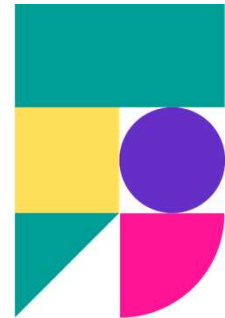
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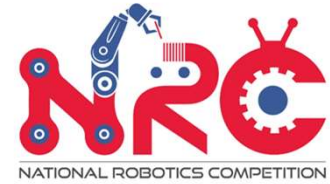


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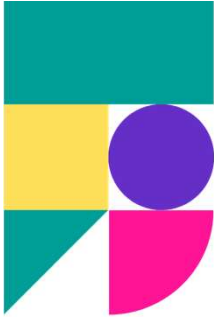


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