

**e-Yantra Robotics Competition**

**<Team ID>**

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| --- | --- |
| **Team leader name** |  |
| **College** |  |
| **e-mail** |  |
| **Theme assigned** |  |
| **Date** |  |

**Scope (5)**

**State the scope of the theme assigned to you.**

<Teams should briefly explain in their own words the theme assigned. What in your opinion is the purpose of such an application? You may use figures / diagrams to support your answer.

Answer format: Text - limit: 50-100 words>

**Building Modules (5)**

**Identify the major components required for designing the robotic system for the solution of the theme assigned to you.**

<Teams should classify the components into various categories for example; mechanical systems, electronic systems etc. and mention how these units will be used in the theme. You may draw some diagrams/figures to illustrate your answer.

Answer format: Bulleted form

1. Component 1

2. Component 1

3. Component ….etc.

>

**Actuators (10)**

**List all the actuators present on Firebird V robot. Besides the existing actuators, please mention the additional actuators that may be required for designing the robotic system in your theme if any.**

<Team should list all types of actuators they will need for making the complete system. Teams have to mention: (i) actuators that are already present on Firebird V robot and (ii) actuators that they need to interface with the robot.

You can also draw some diagrams/figures to illustrate your answer.

Answer format: Bulleted form

1. Actuator1

2. Actuator2

3. Actuator3…. etc.

>

**Explain the mechanism for controlling the actuators on your robot.**

< Write details about different actuators you propose to use in your theme. Mention how the actuators can be interfaced with Firebird V.

Answer format: Individual Actuators in bulleted form: Under each bullet write a paragraph. You can also draw some diagrams/figures to illustrate your answer.

1. Actuator1:

2. Actuator2:

3. Actuator3…. etc.

>

**Environment sensing (5)**

**Explain the functioning of environment sensing technique used by Firebird V robot in your theme.**

<Teams should mention the type of sensors they would need for their robot to sense the environment associated with their theme. Teams should also justify the need for each of the sensors. You can also draw some diagrams/figures to illustrate your answer.

Answer format: Bulleted form

1. Sensor1

2. Sensor2

3. Sensor3, etc.

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**Power Management (5)**

**Explain the power management system required for a robot in general and for Firebird V robot in particular.**

< Teams should mention the power requirement of their system with current rating and voltage requirement. You can mention the mode (auxiliary/battery) you prefer to use in your system with necessary justification.

You can also draw some diagrams/figures to illustrate your answer.

Answer format: Text

Word-limit: 100 words

>

**Navigation Scheme (10)**

**Explain in brief the basic navigation technique for path traversal in the arena. Explain the concept and list the components required for basic navigation.**

< Teams should explain the basic idea of how the robot would navigate in the arena fulfilling the task assigned in the theme.

You can also draw some diagrams/figures to illustrate your answer.

Answer format: Text

Word-limit: 100 words

>

**Testing your knowledge (related to rule-book and sensors) (15)**

**Note: *Kindly attempt these questions only after reading the Rulebook***

**What do you understand by “Preorders”? Define various parameters related to Preorders.**

<Please explain the answer in your **own words**. The answers copied directly from rule-book will not be considered for evaluation.

Answer format: Text

Word-limit: 100 words

>

**What do you understand by “Regular Orders”? Define various parameters related to Regular Orders.**

<Please explain the answer in your **own words**. The answers copied directly from rule-book will not be considered for evaluation.

Answer format: Text

Word-limit: 100 words

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**Refer to Section 3.2 in the Rulebook. You need to prepare one each of the Small, Medium and Large blocks which represent the pizzas as illustrated in Figure 4 in Section 3.2 in the Rulebook.**

**Interface the Seven Segment Module to the robot -- refer to the “Seven Segment Tutorial” in the Resources tab on the portal. Using the sharp sensor measure the height of each of the blocks (you may measure the heights of the blocks in any order) and display the corresponding values as given below on the Seven Segment Module:**

**Small block – display it as 006**

**Medium block -- display it as 009**

**Large block -- display it as 012**

**No block -- 000**

<

Fix the position of sharp sensor and place each of the blocks under the sharp sensor. You have to upload a **one-shot continuous video** **without changing the position of the sharp sensor** in which the block, the sharp sensor and the display on the Seven Segment Module are clearly visible -- for each of the 3 blocks and no block -- in any order.

Upload the video on youtube and make sure that the youtube link provided by you is unlisted. Paste that link on portal.

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**Challenges (5)**

**What are the major challenges that you anticipate in addressing this theme?**

<Answer format: Bulleted form

1. Challenge 1

2. Challenge 2

3. Challenge 3, etc.

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