

**e-Yantra Robotics Competition - 2017**

**Theme and Implementation Analysis – Chaser Drone**

**<Team ID>**

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| --- | --- |
| **Team leader name** |  |
| **College** |  |
| **Email** |  |
| **Date** |  |

**Scope and Preparing the Arena**

**Q1 a. State the scope of the theme assigned to you. (5)**

< 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: 100 words>

1. **Attach the Final Arena Images. (5)**

< Prepare the arena according to the steps given in preparing the Arena section in Rulebook. Please follow the arena configuration shown in figure 2 of rulebook.

Place the Caves in the cave locations and take 3 photos of the completed arena from different angles such that the entire arena is clearly visible in the photos.

The three image files should be uploaded along with this document.>

**Testing your knowledge (theme analysis and rulebook-related)**

**Q2. How will you ensure that while tuning the PID value, Drone will not crash? (5)**

< Explain the method (“juggad”) and/or code you will used to tune the PID without crashing.

Attach the picture of same.>

**Q3. How Chaser will detect that Runner has entered into the cave? What will be the action taken by the Chaser while Runner hides inside the Cave? (5)**

< Explain the algorithm to detect the Cave and action of drone. If runner is inside the Cave, Chaser can hover around it or can land somewhere -- you are expected to think, what you want the chaser to do and what can be its repercussions.>

**Q4. How you will interface and place the IR sensor on Runner to detect the successful landing of Chaser on the Runner. (5)**

<Explain the interfacing technique. Attach an image or drawing showing placement of sensor on Runner.>

**Q5. Let us consider a scenario: (5)**

**Runner is on first node and Chaser tried to land on Runner, but instead Chaser has landed on the Arena.**

**What will happen according to your algorithm (Considering theme rules specified in the rule book)?**

< Explain in detail how your algorithms will tackle this case. >

**Q6. What will be your strategy to earn maximum points in a run? (5)**

< Explain various cases you can think of and their possible outcomes. Read and understand the Judging and Scoring Parameters. >

**Algorithm Analysis**

**Q5. Draw a flowchart illustrating the algorithm you propose to use for theme implementation. (10)**

< The flowchart should elaborate on every possible function that you will be using for completing all the tasks in the assigned theme.

Follow the standard pictorial representation used to draw the flowchart. >

**Challenges**

**Q15. What are the major challenges that you can anticipate in addressing this theme and how do you propose to tackle them? (5)**

< Answer format: Bulleted form

1. Challenge 1

2. Challenge 2

3. Challenge 3, etc. >