UP CRC 2021 Robotics Ideathon Implementing Guidelines

General Guidelines

1. Contestants are to be grouped into teams of 5 people each. Contestants are encouraged to form teams on their own.
2. In the case that there are 5 people who prefer to be together in a team, they will be allowed to join, as that group. (There will be a deadline for requesting a custom team)
3. In the case that there are 4 people who prefer to be together in a team, they will be allowed to join, as that group plus one random member.
4. Groups of 3 or less will NOT be allowed to request to be together in a team.
5. Any remaining contestants will be randomly grouped together.
6. The contestants are advised to have attended at least two of the robotics and PCB design workshops before entering the competition.
7. At least one contestant from each group is advised to attend the orientation.
8. There will be two phases to the competition - proposal drafting and presentation. The presentation will happen after all proposals have been submitted.
9. Proposals should follow the format provided with IEEE style citations.
10. Proposals should include a quick introduction explaining the problem; an explanation of the design, design feasibility, and design fabrication and methods; a flowchart explaining the algorithm of any code used in the design; a bill of materials and sourcing for said materials; as well as references.
11. Proposals should include figures and schematics as appropriate, and may include other additional visual aids such as 3d View files or PCB layouts.
12. Contestants are encouraged but not required to include simulations and computations that support the feasibility of their designs.
13. Any contestants caught plagiarizing will be disqualified.
14. For the presentation stage, the contestants must submit a pre-recorded presentation explaining the problem, their design, design feasibility, design fabrication and methods, and sourcing of materials.
15. Presentations must not exceed 10 minutes. Any files submitted that exceed 10 minutes in length will be cut at the 10 minute mark.
16. Submissions of both the
17. The pre-recorded presentation will be played as-is to the audience and panel. Once the playback has started, no adjustments or clarifications may be made until during the question and answer phase.
18. Any uncited statements made or uncited figures used in the presentation will not be disqualifying but will incur a penalty.
19. A live question and answer phase will then follow with questions from the panel. All available contestants from each group must participate.
20. Each judge in the panel will be allowed at most five questions each.
21. Scoring for the competition will follow the rubrics listed below. The scores submitted by each judge will be added together to calculate the final score.
22. The team with the most cumulative points will be declared champion. Ranks will be determined in order of cumulative points earned.
23. The awarding ceremony will be held after the presentation stage.

24. Time will be given for any complaints/objections to the results to be addressed. Complaints/objections will not be addressed after the awarding ceremony has started.
25. Officials may change the rules prior to the event and will announce if so.

Documentation Format

- Title Page
    - Must contain the title and list of authors.
    - Note at the bottom that the document is a submission for the ideathon contest.
- Introduction
    - Explain the given problem.
    - Explain the basis for your design.
- Design
    - Description and Layout
        - Explain how the design works.
        - You may include schematics and figures to explain functionality.
        - Defend the feasibility of your design.
        - You may add simulations or calculations to defend the feasibility of your design.
    - Hardware Implementation
        - Explain the parts used as well as how they interact with each other.
        - Include a block diagram to show how the parts interact with each other.
        - You may include physical schematics and circuit diagrams as well.
    - Software Implementation
        - Do NOT include the code itself or pseudocode.
        - Use a flowchart to explain the algorithm. You may use shorthands for functions with a series of actions as long as you explain what said functions do below the flowchart.
- References
    - Use IEEE format.
    - Plagiarism will disqualify your submission.
- Appendices
    - Bill of Materials
        - The bill of materials is required.
        - Indicate sourcing as well.
        - If sourcing is difficult, defend your choices.
    - Pseudocode or actual code (optional)

Rubrics

- Hardware design - 120 pts
    - Feasibility - 50 pts
        - Is the design realistic/will the design work in real life?
        - Appropriateness to the original problem statement.
        - Part of the documentation should be dedicated to addressing this.

        - (Factor extra effort for simulations, calculations to back up claims at the discretion of the judge)
    - Innovation - 20 pts
        - Is the idea unique?
        - Are there any new ideas or techniques involved in the design?
    - Ease of Fabrication - 20 pts
        - Does the design specify the methods to fabricate it well?
        - Do the authors know how to manufacture the design in reality?
        - Part of the documentation should be dedicated to addressing this.
        - (Factor extra effort for schematics, measurements, detailed bill of materials at the discretion of the judge)
    - Cost - 30 pts
        - Is the design affordable?
        - Are the materials easily accessible?
        - Do the authors know exactly how much the design will cost to source materials for and fabricate?
        - Determined from the bill of materials and sourcing.
- Software design - 60 pts
    - Algorithm Accuracy - 15 pts
        - Would the provided algorithm run without bugs/issues?
        - Does the algorithm cover all feasible cases?
    - Algorithm Resilience - 15 pts
        - How well does the “code” deal with potential real-world issues? How well does it recover from disturbances?
        - Determined for how they account for non-idealities (like wheel sizes, gearing ratios, etc.)
    - Appropriateness to hardware - 30 pts
        - Does the code reflect the design choices made in hardware? Does the code make full use of the parts used?
- Documentation writing - 80 pts
    - Completeness - 20 pts
        - Does the documentation contain sufficient information to build the design?
        - Are the diagrams and figures enough to implement the design in real life?
    - Understandability - 20 pts
        - Can a beginner quickly understand the key concepts in the proposal (and build it themselves)?
        - Are visual aids used to make it easier to visualize the design?
        - Is the documentation concise and avoids dragging on too much?
    - Clarity - 20 pts
        - Does the documentation avoid ambiguity or vagueness in the provided information?
    - Organization - 20 pts
        - Does the documentation neatly line out the necessary information?
        - Does it clearly show citations and references made to other work?

        - Does it follow the specified format?
- Presentation - 100 pts total?
    - Conciseness - 20 pts
        - Can the presenters deliver all of the information within the allotted time? (10 minutes, no extensions)
    - Delivery - 20 pts
        - Do the presenters deliver the information in a professional manner?
        - Do the presenters deliver with enthusiasm/confidence? (avoiding monotonous voice, etc.)
        - Are all of the presenters contributing their thoughts in the presentation?
    - Organization - 20 pts
        - Do the components of the presentation flow in a logical manner?
        - Is the presentation laid out in a readable and easy to understand manner?
    - Content - 20 pts
        - Are visual aids and diagrams used to make the information easier to digest? Are said visual aids and diagrams appropriate?
        - Is the information in the presentation complete?
        - Is the idea clear/unclear?
    - Mastery - 20 pts
        - Are the team members able to demonstrate their understanding of the design decisions made in their proposal?
        - Can they answer questions raised about their proposal?