IEEE Region 4 Design Competition

Purpose: The IEEE Region 4 Hardware Design and Build Contest offers the IEEE Student member opportunities to exercise and improve their engineering and teamwork skills. Throughout an engineer's career, he/she will be constantly called upon to work with others while designing and using their engineering knowledge. Designing, programming, and building a project with others provides Students with invaluable early engineering experience. Since this contest's primary function is to improve the Student's teamwork and engineering skills, no Student should be discouraged from entering the contest due to a false requirement of technical sophistication or prior experience. Although working in teams is encouraged, working independently is acceptable.

1. Eligibility
   1. An entrant must be an undergraduate student or graduate student in Region 4.
   2. And the entrant must have an active Student or Graduate Student membership within IEEE Region 4 prior to final contest submission
   3. An entrant may collaborate working on a project submission with additional students, all of whom must meet the above criteria.
   4. Recommended team size of 4-6 students, Team size should be limited to no more than 8 people (because anymore is too big for a byte).
2. Contest Run Time
   1. The contest will start on Jan 18th, 2021 and will accept submissions through April 18th, 2021.
3. Prizes
   1. Region 4 Student Activities Committee will provide prize money for the Region 4 Hardware Design and Build Contest in the form of Amazon Gift Cards, which shall be allocated as follows:
      1. First Place - $500
      2. Second Place - $300
      3. Third Place - $200
   2. Any Student Entries into the contest may receive recognition from Region 4 if considered exemplary.
   3. Any Student Branches represented by the Student Teams may receive recognition from Region 4 if considered exemplary.
   4. All teammates listed on a prize-winning submission for the Region 4 Hardware Design and Build Contest shall receive an equal portion of the prize.
   5. The Region 4 Student Activities Committee may request Contest winners to attend a Region Event to be recognized in person. Support for teams to attend,

including reasonable travel expenses, will be made available at the Region 4 Student Activity Committee's discretion.

4. Theme
   1. **Byte-Sized Electronics contest**
      1. The Theme of the IEEE Region 4 Hardware Design and Build Contest will be the **Byte-Sized Electronics Contest**. The goal will be to build or program something on a smaller scale then it would normally be at. This can be anything you can think of such as building a functioning dump truck the size of a toaster. Feel free to use creative freedom when coming up with your project idea!

5. Submissions
   1. The submitted project ideas do not need to be original in content since the primary function of the Region 4 Hardware Design and Build Contest is to improve the Student's Teamwork and Engineering skills. However, the project should be challenging for the relative size and experience of the team to complete. While a project does not need to be entirely original, it is expected that teams do not explicitly follow tutorials or step by step processes through the entirety of a pre-existing project. If a team is found to have submitted a project that violates the spirit of this condition, the submission will be disqualified from the competition.
   2. Submission Content
      1. Team Member Names
         1. All team member names and their IEEE Member Numbers should be included in the submission.
      2. Documentation and Explanation of Project
         1. The documentation should define the project, its purpose, how it functions, etc.
         2. The project should be able to be replicated using the documentation submitted.
         3. Documentation should include:
            a. Source Code - if applicable
            b. Schematics of project - if applicable
            c. Pictures of project
            d. Video and/or a write up explaining the project.

3. How to Submit
    1. All submissions should be entered by the end of the contest as stated in Section 2.
    2. Where to submit:
        1. Submissions should be sent in the form of a public GitHub or GitLab repository, or a link to a Google Drive Folder. Regardless of the delivery method all submission content should be downloadable by the IEEE Region 4 Student Activities Committee and Judges.
        2. Videos may be uploaded to Youtube in the Form of a Public or Private Video with the link submitted.
    3. Please double check all your submissions to make sure that everything is accessible to others not just the submitter.
        1. The Region 4 Student Activities Committee MAY email the team regarding required materials missing from submission, but it is not the Committee's responsibility to do so.

6. Judging
    1. Project submissions will be evaluated and judged based on criteria laid out in Section 7.
    2. Each of the criteria will be scored between 0 and 10. According to the following guidelines:
        1. 0 points = The team didn't submit anything in this category
        2. 1 point = The team didn't submit enough of the required material to judge their project
        3. 2 points = The project seems like the team only did the minimum amount of work
        4. 3 points = The project is rough but it works and has the required material for judging
        5. 4 points = Need some polish to smooth the rough spots, but the project is overall not bad
        6. 5 points = The Project is average, little to no exemplary work done
        7. 6 points = What is expected of someone of this level
        8. 7 points = Very smooth, good work
        9. 8 points = The team clearly put in effort into this project with notable achievements
        10. 9 points = The team has shown great accomplishments in their project
        11. 10 points = The team submitted an excellent project, no substantial faults
    3. Each submission shall be scored by multiple judges. The resulting average of the judges scores will be the submission's final score

4. The judges shall be selected from various disciplines in electrical, electronics and related fields of engineering.

7. Judging Criteria
    1. Engineering Principles -- 30 points maximum
        1. The project caused growth within the team's knowledge and understanding of Engineering Concepts
        2. The project pushed the Team to utilize Engineering Principles above and beyond what is commonly expected in the classroom
        3. The project was challenging for the size of the team
    2. Documentation -- 50 points maximum
        1. Does it have source code? (if applicable)
            1. The code is structured coherently
            2. The code is commented for easy understanding
        2. Does it have a circuit schematic? (if applicable)
            1. The circuit schematic is drawn with a computer program
            2. The circuit schematic is readable and understandable
        3. The documentation is concise and has an informative explanation
        4. The documentation is logical and with analytical descriptions of the project
        5. The documentation clearly states the goal and end result of the project.
        6. Compliance with Hardware Design and Build Contest guidelines
    3. Theme -- 20 points maximum
        1. The project follows the spirit of the theme
        2. The project accomplishes its goal while adhering to the theme
    4. Creativity -- 10 Extra Bonus points maximum
        1. (Extra points) The Project follows the theme while taking creative liberty to interpret the theme