ABOUT

Andhra TECK LEAGUE

Teck Team Solutions, established in 2014 in Visakhapatnam, Andhra Pradesh, is a renowned training and product development firm specializing in Industry 4.0 technologies. Over the years, we have made significant contributions to the field of technical education and development. Our commitment to innovation and growth has led us to organize various successful events in the past.

In 2016, 2017, and 2018, we organized the highly acclaimed technical event called **Mechatronics,** which provided a platform for students to showcase their skills and knowledge in the field of various technologies. Building on our previous successes, in 2023, we are thrilled to introduce the upgraded version of our event, known as **Andhra Teck League (ATL).** The ATL event is specifically designed for students, aiming to inspire, educate, and nurture their interest in emerging technologies.

CHITTI PRO

Transforming the future through intelligent machines

Indeed, **Humanoid Robots** hold great significance and value in today's world. Their ability to perform tasks that were traditionally reserved for humans, such as complex manipulation, social interaction, and navigating human-centric environments, opens up new possibilities across various industries.

With advancements in Robotics and Artificial Intelligence, humanoid robots are becoming increasingly versatile and capable of performing a wide range of tasks. As technology continues to evolve, we can expect to see even greater integration of humanoid robots in various industries, offering benefits that extend beyond what was previously imaginable.

Who Can Apply:

JUNIOR LEVEL

8th to 12th Standard

SENIOR LEVEL

Any Engineering Students

Levels of Competition:

This contest will be conducted in 3 different levels

Preliminary Level

Zonal Level

Final Level

Problem Statement

Designing a Chitti Pro, a human-like bodily structure, requires careful consideration of various factors. The humanoid robot can be designed with any material/components, but it is mandatory that it should do any variety of tasks like a human. Few examples are exercise, carrying an object, voice-based tasks, dance, etc. Here's a concept for a humanoid robot design:

Overall Structure :

The Chitti pro will have a symmetrical and proportionate body, resembling the general shape of a human. It will consist of a head, torso, two arms and two legs.

Head :

The robot's head will feature a humanoid face with expressive features such as eyes, eyebrows, and a mouth. It may have sensors and cameras for vision, enabling the robot to perceive and interact with its environment.

Torso :

The torso will serve as the central body structure, housing the robot's processing unit, power source, and various sensors. It should be flexible and capable of mimicking human-like movements, allowing the humanoid robot to perform tasks that require bending, twisting, or leaning.

Arms :

The robot will have two arms with multiple joints, providing a wide range of motion and dexterity. Each arm will have hands with fingers capable of grasping and manipulating objects with precision.

Legs :

The humanoid robot will feature two legs, enabling it to walk, run, and maintain balance. The legs should have joints that mimic the movement of human legs, including the hip, knee, and ankle joints.

Size of Chitti pro :

The height of the robot model should not exceed 2 feet, and the width should not exceed 1.5 feet, as specified in the requirements.

Materials Types :

Can be use Wood, Metal, Foamsheet, Pipes, 3D printed, and any Junk Material etc...

Rules of Levels

The competition is divided into three levels:

Preliminary Level:

1. Participants must submit an abstract for a humanoid robot model they intend to develop.
2. The abstract should include a sketch or image format and a description of the proposed model.
3. Detailed information about the materials to be used in constructing the robot should also be provided.
4. After evaluation by a panel of experts, selected participants will be notified through their respective schools via email.

Document Specifications:

Font Size :

- **Title:** The title of the abstract should be bold and in a slightly larger font size to make it stand out. A font size of around **14 to 16 points** is often suitable for titles.
- **Subheadings:** If applicable, use subheadings to organize different sections of the abstract. Subheadings can be bold and slightly larger than the main text, typically around **12 to 14 points.**
- **Main Text:** For the main body of the abstract, use a legible font size of **10 to 12 points.** This size is comfortable to read and standard for academic and professional documents.

Font Style :

- Use a clear and easily readable font style such as **Arial, Times New Roman, Calibri, or Helvetica.** These fonts are widely accepted and don't distract from the content.
- Avoid using fancy or decorative fonts that may be difficult to read.

Alignment :

- **Left Alignment:** It is common to align the text to the left in academic and professional documents. This alignment offers a clean and organized appearance.
- **Avoid Justification:** Avoid justifying the text (making both left and right edges line up). It can lead to irregular spacing and affect readability.

Zonal Level :

Robot Model Presentation :

1. The robot model you present at the zonal level must be directly related to the abstract submitted during the preliminary round. Any significant deviations from the initial concept may result in disqualification.
2. Ensure that the design and functionalities of the robot align with the ideas and features outlined in your abstract.

Size Specifications :

- The size of the robot model must adhere to the measurements specified in the problem statement. As a reminder, the height of the robot model should not exceed 2 feet, and the width should not exceed 1.5 feet.
- The dimensions will be checked during the evaluation process, so make sure your robot fits within the specified size limits.

Arena Size and Specifications :

- The zonal level competition will be conducted in a designated arena.
- The Arena Shape either square or circle. **If square shape:** Length= 5 feet Breadth= 5 feet. **If circle shape:** radius= 2.5 feet

Reference Arena Model :

Final Level :

1. In the final level, participants must present their fully functional humanoid robot model.
2. Modifications and incorporation of electronic components such as Any Controller, sensors, actuators, and coding techniques are allowed to enable desired functionality.
3. The evaluation in the final round will be based on the stunts performed by the robot and its features that enable its functionality.
4. Each participating batch will be assigned a designated space to showcase their robot's performance to the judges and audience.

Note :

- To ensure fairness and adherence to the competition rules, the use of ready-made product frames or pre-existing humanoid robot models is strictly prohibited. Participants found using readymade product frames or pre-built robots will be disqualified from the Andhra Teck League competition.
- Any violation of this rule will result in immediate disqualification from the competition, and the organizers reserve the right to take appropriate action against any such instances.

Judging / Selection Criteria :

Preliminary Level :

The participants in the preliminary level will be selected based on the below factors:

- **Alignment with Chosen Concept:** Your humanoid robot concept should be directly aligned with the given theme and problem statement. Ensure that your design addresses the requirements and functionalities specified in the problem statement.
- **Creativity and Innovation:** Judges will look for unique and innovative aspects in your humanoid robot design. Demonstrate how your concept stands out from the rest and brings a creative approach to solving the tasks.
- **Feasibility and Practicality:** Evaluate the feasibility of your design in real-world scenarios. Consider the practicality of constructing and implementing your robot model using available resources.
- **Concept Clarity and Description:** Clearly and concisely present your humanoid robot concept in the abstract. The judges should have a comprehensive understanding of your robot's structure, functionalities and intended tasks.
- **Timely Submission:** Submit your abstract within the specified deadline. Concepts received after the deadline will not be considered for evaluation.
- **Clear Visualization:** Use sketches, images, or diagrams to help visualize your humanoid robot concept. Clear visuals can enhance the understanding of your design for the judges.

Zonal Level :

The selection of participants for the Zonal level will be based on the following factors:

- **Adherence to the initial abstract:** The robot's design and functionalities should align with the submitted abstract.
- **Creativity and Innovation:** Showcase any unique and innovative aspects of your robot design.
- **Presentation:** Effectively communicate the connection between the chosen concept and the design during the presentation.

Final Level :

- **Performance:** Judges will assess the robot's ability to perform the specified tasks and stunts, as outlined in the problem statement. The robot should demonstrate precision, accuracy, and smooth execution of movements.
- **Technical Excellence:** Evaluate the use of advanced features, electronics and coding techniques in the robot's design. Showcase how these technical elements enable the robot to perform its tasks efficiently and effectively.
- **Innovation and Uniqueness:** Highlight any unique and innovative features integrated into your robot design. Demonstrate how your robot stands out from others in terms of functionality, appearance, or user experience.

Reference Video Links :

Video Link -1 : https://www.youtube.com/watch?v=OOmJPo61tMU

Participation Eligibility :

1. Participation Team Should consist minimum of 02 to 04 members
2. All team members can register from one primary contact number
3. Initial registration is mandatory to participate in the event.
4. Every participant should have official ID Card from the respective institution / school.
5. All team members should belong to same institution / school only.
6. Team members should willing to participate zonal & Final level contests at outstation locations as per the schedules.

NOTE: The competition organizers reserve the right to modify the rules and regulations if necessary. They also reserve the right to disqualify any entry that violates the rules or disrupts the competition.

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