EV CHALLENGE

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 a 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.

Problem Statement:

Design and construct an electric vehicle (EV) to showcase advancements in electric mobility, energy efficiency, and sustainable transportation.

Tasks that participants need to:

- Build an EV that travels a set distance on a single charge while using energy efficiently.
- Create a vehicle that reaches a specific speed within a defined distance.
- Design the EV with innovation for better aerodynamics and energy use.
- Include essential safety features like brakes and lights.
- Prepare a detailed report on the design process and present it.

Event Details:

- Type of Challenge: Time and Endurance-based

- Eligibility: Open to all engineering students

- Levels of Competition: Single-level

- Registrations close on 17th-SEP-2023 / Final qualifier results will be out on 20th-SEP-2023.

- Event Date: 1st - OCT- 2023 (9:00 AM to 3:00 PM).

- Venue: ā hub (Andhra University Incubation Hub Center), North Campus, Andhra University, Visakhapatnam, Andhra Pradesh 530003. (https://goo.gl/maps/j5BRS5fAVymbdGBo8)

EV Challenge Description:

1. Electric Powered Vehicles: The competition focuses on electric-powered vehicles that are designed to be energy-efficient, environmentally friendly, and innovative in their design and functionality.

2. Vehicle Construction: Each participating team is required to construct their electric vehicles from scratch. Buying pre-built vehicles off the shelf is not allowed to encourage innovation and creativity in vehicle design.

3. Judges' Pre-Qualification: Judges will evaluate and pre-qualify the vehicles before the challenge based on thorough inspections. This is to ensure that all vehicles adhere to the rule of being built by the team.

4. Time and Distance Endurance Challenge: The challenge consists of a time (10 minutes/Lap) and distance endurance race. Vehicles will carry a proportional payload during the race, and the goal is to complete the race with optimal energy efficiency and performance (one vehicle at a time on track).

5. Closed Loop Road Race: The race will take place on a predefined paved closed-loop road near AU Incubation Hub. This provides a controlled environment for testing the vehicles' capabilities and performance.

6. Entry Classes:

- Autonomous or Remote Controlled: Participants can choose between an autonomous vehicle or a remote-controlled vehicle using wireless remote control technology.

- Payload Classes: Vehicles will compete in different payload classes, including 50%, 100%, and other specified weights relative to the vehicle's weight.

- Vehicle Size Classes: Refer to "Size of the EV" in Specification to build EV section.

- Arena Size: Width of the arena will be 4 Feet and length may vary based on real time scenario.

Specifications to Build EV:

- **Payload:** Minimum 25 kg (For E2W) / Minimum 40 kg (For E3W)
- **Size of the EV:** 1.5m (l) x 0.7m (w) x 1m (h) (E2W) / 2m (l) x 1m (w) x 1.2m (h) (E3W).
- **Weight of the EV:** 50 kg (E2W) / 75 kg (E3W) including the weight of the vehicle, motor, battery, and other components.
- **Battery Type:** Lithium-ion battery
- **Battery Capacity:** 48V, 20Ah
- **Motor Type:** Brushless DC (BLDC) motor
- **Motor Capacity:** 750W (E2W) / 1000W (E3W)
- **Controller:** Electronic speed controller (ESC) with wireless communication capability

Participation Eligibility:

1. Participation Team Size: **3 to 5 members (no exceptions)**
2. All team members can register with one primary contact number.

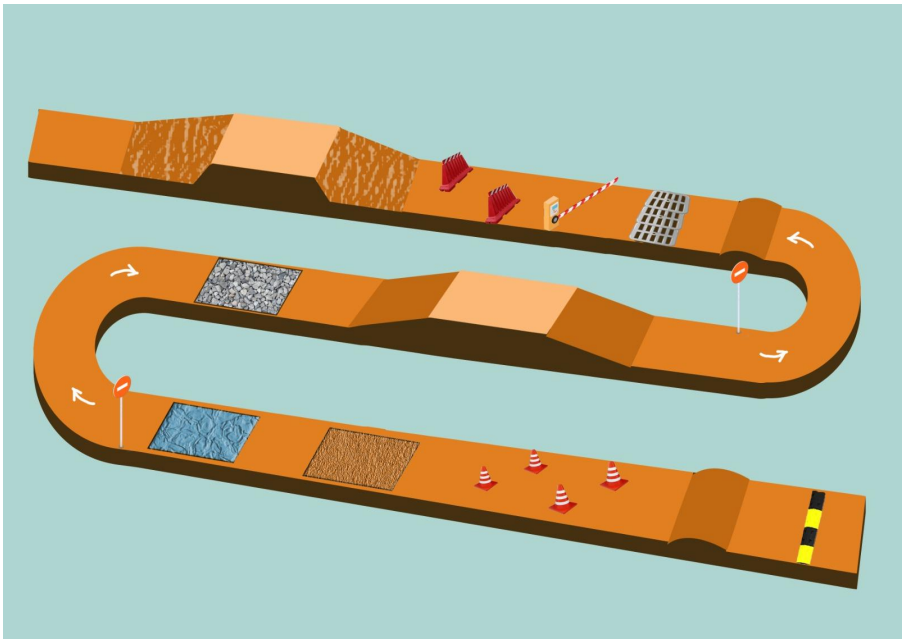
3. Initial registration is mandatory to participate in the event.
4. All participants should have an official ID Card from their respective institutions.
5. All team members should belong to the same institution.
6. Team members should be willing to participate in contests at outstation locations as per the schedules.

Judging / Selection Criteria:

1. Live demonstrations of energy efficiency and range.
2. Speed and performance showcased during on-site trials.
3. Innovations in design that enhance efficiency and aesthetics.
4. Adherence to safety standards and incorporation of safety features.
5. Quality of the live presentation delivered on the challenge day.

***Note:** The competition coordinator 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.

EV ARENA PICTURE



***Note:** The arena picture provided above serves as a reference and may undergo slight modifications to align with the real-time scenario.

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