

## ABOUT



**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.

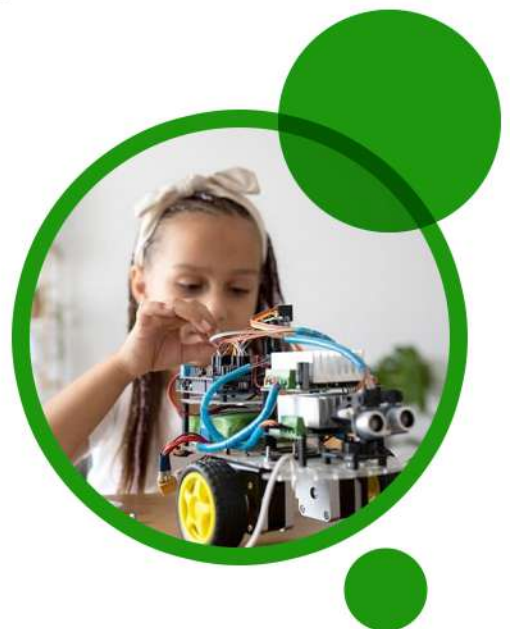
In 2016, 2017, and 2018, we organized the highly acclaimed technical event called **Mechatronics**, which provided a platform for students to showcase their skills and knowledge in the field of various technologies. Building on our previous successes, in 2023, we are thrilled to introduce the upgraded 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.

## YANTRAYAAN

### Transforming the future through intelligent machines

**Yantrayaan** serves as a platform for technological innovation and advancement in Robotics. Yantrayaan provides a hands-on opportunity for participants to apply engineering principles and develop practical skills. Participants are motivated to push the boundaries of engineering, designing sophisticated robots with advanced mechanics, cutting-edge control systems, and control mechanisms. These competitions inspire creativity and foster breakthroughs in Robotic technologies

In the exciting Yantrayaan Robotics Game, there are two main types of robots: the Striker Robot and the Defender Robot. The Striker Robot and the Defender Robot work together as a team. The Striker Robot tries to score goals, while the Defender Robot tries to prevent the opponent from scoring. It's a fun and thrilling game where these robots showcase their abilities and try to win the match.



### 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

- The **YANTRAYAAN** is a unique Robotic competition between two teams. Each team will consist of two robots performing as STRIKER and DEFENDER. The **Striker** Robot is like the goal-scoring superstar of the team. It's fast, skillful and great at controlling the ball. Its job is to race across the field, dodge the defenders and kick the ball into the opponent's goal. With its smart and clever strategies, the Striker Robot can find the best opportunities to score and make amazing shots.
- On the other side, we have the **Defender** Robot. It's like the team's shield, protecting the goal from the other team's Striker Robot. The Defender Robot is strong, quick, and has good awareness of its surroundings. It uses its skills to block shots, stop them from scoring. The Defender Robot is like a tough wall that the other team's Striker Robot has to get past.
- The striker will place the goal in another region while the defender will defend against the striker. The competition is about placing the maximum number of goals in the opponent's prohibited region. Each winning team will continue to the next round by beating its opponent in the previous round.
- The time duration of the game will be 1-minute trial to run on the arena & 10 minutes actual time.
- The striker BOT should be wireless and defender BOT wired (More than 3 meters) or wireless.
- Maximum size of each robot should be 25cm x 25cm x 20cm (LxBxH), including its expanding arms and wheels etc. Even expanding arms should not exceed the dimension limits during the match also. (The BOT will be checked for its specifications before it enters the tournament, any aberrations in the BOT size will lead to disqualification.)
- The voltage in a BOT should not exceed 12V/2 Amps.
- The total weight of BOT should not exceed 5 kg in the arena.
- Weight of external power source (batteries and adaptors) and the remote controller will not be counted.
- One BOT can just defend but it should not harm another BOT.
- The ball is made up of plastic whose length is 6cm dia and the weight will be less than 200 grams

## Arena Specifications :

1. The arena of the soccer game will be made of ply board.
2. The dimension of the arena is 8 feet x 6 feet.



**The ARENA will be as shown in figure:**



## Rules of Levels

### ■ Preliminary Level :

Interested candidates can join in competition and submit their document based on the provided problem statement and rules. Selected candidates from Round 1 will proceed to the Zonal Round (Round-2).

### ■ Zonal Level :

Candidates will be invited to within their respective zones. In this Zonal Round, candidates should bring their robot to play a soccer game with a striker robot. The striker robot should not roll the ball for longer than three seconds. Candidates will be selected to the final round based on the number of goals in the least time.

### ■ Final Level :

Final Round will involve candidates who have qualified from the Zonal Rounds across all zones. In this final round, candidates should bring two robots to play a rugby game. In these two robots, one is used for goal-scoring and the other is used for goal defence. The team which scores more goals will be announced as the winner.

- **Participants form teams consisting of two robots:** one striker robot and one defender robot. Each team is responsible for designing, building, and controlling both robots.
- Striker robot responsible for placing a goal in a designated region. Design the striker robot with capabilities for movement, ball striking.
- Defender robot responsible for defending the goal at designated region. Design the defender robot with capabilities for movement, goal defending.
- The scoring system can be based on factors such as the number of goals successfully placed by the striker.

## Judging / Selection Criteria

1. Evaluates the number of goals successfully placed by the striker in the designated areas of the defender's region.
2. Examine the accuracy of the striker robot's goals, taking into account whether they are accurately positioned within the allotted spaces.
3. Evaluates the defender's capacity to prevent the striker's goal from reaching targeted regions or from scoring.
4. Assess the defender's durability and capability to withstand the attacks and continue defending effectively.

## Judging Process :

1. Judges assign scores or rankings to each team based on their performance.
2. Uses a standardized scoring system that aligns with the judging criteria.
3. Scoring system will be based on teams' performances and fair comparisons.

## Disqualification :

1. Entries that do not meet the specified requirements or guidelines will be disqualified.
2. Violation of the rules or unethical behaviour may lead to disqualification.

## Reference Video Links :

Video Link-1: <https://youtu.be/BshlanivEQY>

Video Link-2: [https://www.youtube.com/shorts/vBjWZvb\\_tZA?feature=share](https://www.youtube.com/shorts/vBjWZvb_tZA?feature=share)

Video Link-3: <https://youtu.be/KtHUwHNLeIg>

## 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 an official ID Card from the respective institution / school.
5. All team members should belong to the 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.



**TECK TEAM SOLUTIONS**

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