Prepare for Takeoff!
ControlCraft Robotics Challenge Awaits!!

Calling all robotics maestros!

Get ready to blast off in the ControlCraft Robotics Challenge, a mechatronics spectacle like no other, hosted by the Mechatronics Club. This year, we're pushing the boundaries of **manual control mastery** and **robot-building brilliance**!

What awaits you?

- **Challenge 1: Path Mastery:** Navigate your robot through a treacherous course, demanding precision and speed. Prove your control prowess as you conquer curves, slopes, and obstacles.
- **Challenge 2: Pattern Precision:** Unleash your robot's dexterity in a delicate pick-and-place challenge. Manoeuvre with pinpoint accuracy as you manipulate objects into intricate formations.
- **Challenge 3: ControlCraft Conquest:** In this grand finale, all skills merge! Navigate your robot through a complex environment, completing tasks that blend the mastery of both previous challenges. This is where champions are crowned!

The ControlCraft challenge is NOT just about building. It's about the **symphony** of design and control that brings your robot to life. Show us your **robot's technical elegance** and your own **commanding control skills** as you battle for robotic supremacy!

Are you ready to take the challenge?

Register now and unleash your robotic vision! ⚡

CONTROL-CRAFT

THE PATH MASTERY : YOUR ROBOT YOUR CANVAS.

www.mechatronicsclub.com

Objective:

Embark on a **partially obstructed course**, where craters and obstacles test your robot's agility and your manual control mastery. Unleash your **strategic acumen** by picking up scattered cube boxes and **transforming the arena into a complete path**. Each action is your brushstroke, painting a masterpiece of efficiency and precision.

Scoring:

- **Control Precision**: Navigate with **flawless grace**, earning points for smooth manoeuvres and obstacle avoidance.
- **Box Placement Accuracy**: Every box counts! **Strategically position** them to complete the path, maximising your score with each perfect placement.
- **Time Warp**: Speed is essential, but e**fficiency reigns supreme**. Finish the arena swiftly while maintaining control and accuracy to dominate the leaderboard.

General Guidelines for Participants: -

- Each team must **not exceed 4 members**. Members can be from any department and any year but must be from the same institution.
- A total of **6 minutes** will be provided for completion of the task.
- The maximum dimension of the robot can be **20cm x 20cm x 15cm (l x b x h)** including wheels excluding the manipulator. Correction up to 1 cm is allowed.
- Equip your robot with a reliable **four-wheel roving mechanism** & a **pick-and-place manipulator** mechanism.
- Implement a Wired or Wireless communication to control the robot's motion and pick and place mechanism. **[everything will be manually controlled]**
- The length of the wire (for wired bots) should be long enough so as to avoid tangling.

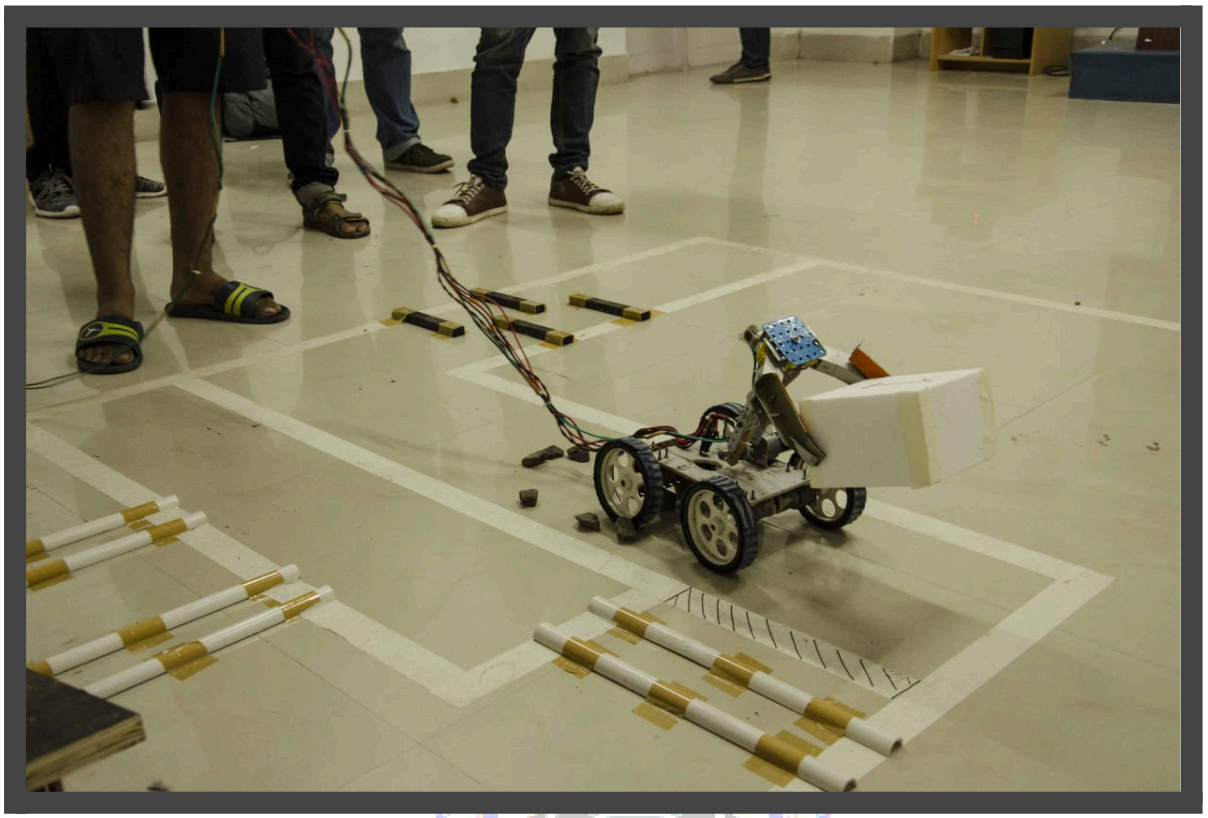
- ❖ Maximum permissible weight including the manipulator must **not exceed 4 kg.**
- ❖ Teams have to compete in this event by making its path through a specified track or arena.

Round Details: -

- In ControlCraft the Robot had to move through a specified arena/track starting from a **start box** avoiding several obstacles, collecting cubes till checkpoints and completing the incomplete track by putting desired cubes.
- The Arena is confined within **(1.5 X 1.5) m^2** leaving a 30 cm clearance track for the bot movement along it.
- On both sides of the track there will be a 2 cm red line running along.
- There would be some obstacles placed over the track, the bot had to move avoiding it.
- The robot will have to pick up cubes of dimension **(8x8x8) cm^3** using its manipulator mechanism keeping the rover stagnant. And have to place it in the desired checkpoints mentioned.
- There will be a specified starting and ending box. Robot has to make its path through the track moving through a **maximum of 25° slope** on its way carrying cubes to place it in the desired checkpoints.
- There will be in **total 7 cubes** placed at different locations around and over the track/arena.
- **Penalty points will be rewarded for collision with cubes, obstacles & skipping checkpoints.**
- Participants are not supposed to use any readymade Lego components or readymade gripping mechanism. However, the participants are allowed to use ready-made gear assemblies.
- In the case of an electric power supply,the voltage between any two points should be less than or equal to 12V DC at all times during the run.
- AC power supply will be provided if needed for wired bots.

- In case of any **human intervention** during the run, the team had to again start from the starting box/checkpoints, but till then its completed task will remain unchanged. But the timer will not stop for any reason.
- If any bot runs out of the track completely, then the team had to again start from the beginning.
- Only one team member is allowed to handle the bot. No other team members were allowed to enter the arena.(An extra member can accompany the later in case of wired bot).
- The bot is not allowed to slide the blocks against the ground except for fine adjustments.
- **Any damage done to the blocks will lead to immediate disqualification and points negation.**
- The organisers reserve the right to change any or all of the above rules as they deem fit but if any it will be notified before the gameplay.
- **In case of any disputes, the decisions of the event lead or event managers will be final.**

Similar snaps of Arena: -



Marking details: -

- For crossing each checkpoints perfectly without any intervention, the team will get +50 points.
- If the bot touches the red lines on any sides of the track then there will be a penalty of 10 points.
- For each human intervention, there will be a penalty of 20 points and the team had to again start from the previous checkpoint.
- For completing the track within 4 minutes the team will be provided with an extra 20 points.

SCORING: -

- P=Total points scored during the run.
- T=(360-Time taken to complete in seconds)/2
- Total Points Scored= (P+T)

The team with maximum points will be declared as the winner.

Top 3 teams according to score will be declared winner and will receive certificates from Srijan and wholesome cash rewards.
And rest teams will receive e-certificates of participation from JUMTC.