

TRAM

SPECIFICATIONS:

Dimensions and Fabrications:

1. The TRAM should fit in a box of dimensions **250mm x 250 mm x 250 mm** (lxbxh) at any instant during the event. The external device used to control the machine or any external tank is not included in the size constraint.
2. The TRAM should not exceed **5 kg** of weight.
3. The distance between the rails on which the TRAM has to run will be **17.8 cm ($\pm 0.2\text{cm}$)**.
4. The supply wire will be **24cm ($\pm 1\text{cm}$)** high from the ground level.
5. The motors used in TRAM must not be rated above **100 rpm**.
6. There should be a mechanism for detection of obstacles at a distance. The warning signal of the presence of obstacle must come through remote.
For example- If you are using an IR detector module, the sensing LED must also glow in the remote control.
7. There should be mechanism for connecting the TRAM to neutral provided through the metal rails.

TRAM Control Requirements:

1. The machine can be controlled through wired or wireless remote.
2. The TRAM should not start/stop automatically. It should be **manually controlled only**.
3. Non-standard or self-made remote control systems must first be approved by the organizers.

Power & Battery:

1. The machine can be powered only by electricity. Use of an IC engine in any form is not allowed.
2. Two DC supplies, each of 12 V shall be provided to each team during the match. One will be provided for pantograph control mechanism. The other supply will be through the over-head live wire running above the rails for driving tram and for obstacle detector . The neutral of the over-head supply will be through the metal rails.
3. The electric voltage (from battery or supply) between 2 points anywhere in the machine **should not be more than 12 V DC** at any point of time during the match.

Arena:

1. The distance between the rails on which the TRAM has to run will be **17.8cm ($\pm 0.2\text{cm}$)**.

2. The supply wire will be **24cm ($\pm 1\text{cm}$)** high from the ground level.
3. More details regarding the arena will be disclosed during the event.

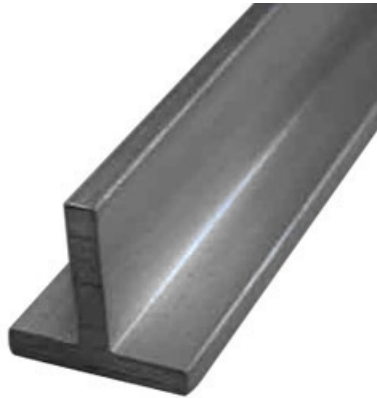


Fig.1: Type of rail used for track

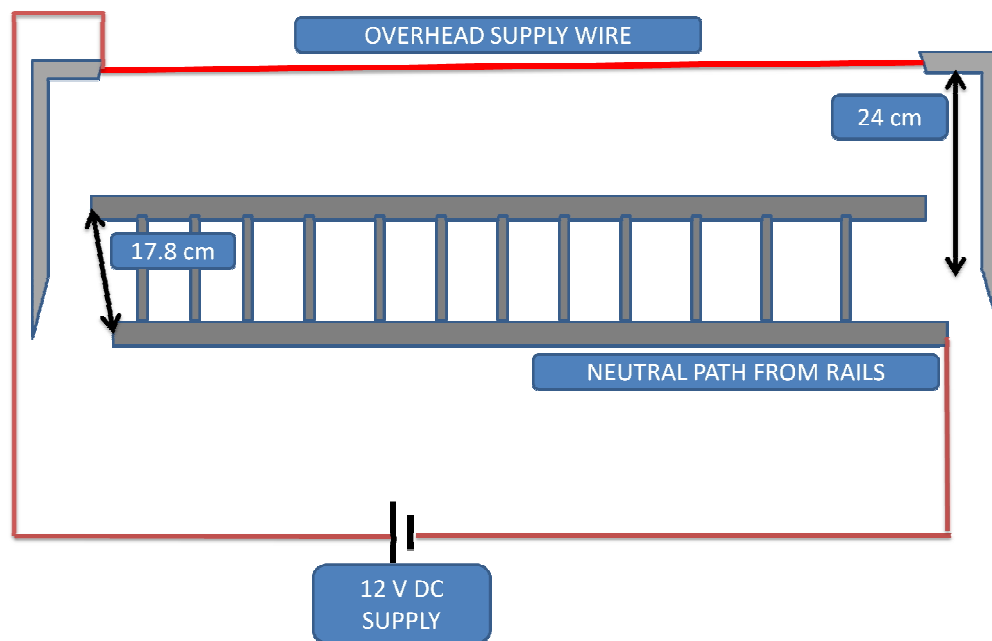


Fig. 2: Schematics of track

JUDGING CRITERIA:

1. A TRAM is declared victorious if it takes minimum time to cover the complete track and performing all the tasks.
2. There will be penalty for breaking rules, man handling etc.
3. A TRAM deemed unsafe by the judges will be disqualified immediately.