



BOMB DEFUSAL

Problem Statement:

Smartness and speed are important to save you and your city from an explosion! Some terrorists have planted the bombs in the nearby cities. Design and build a remote controlled superhero robot, to diffuse the hidden bombs placed in different terrains inside the city (The game arena)

Robot Specifications:

1. Kit:

- It must be SPARC ATV KIT (<https://sproboticworks.com/shop/products/sparc-ranger-kit.html>)

2. Size:

- The robots, at their maximum size (all retractable projections included) should fit into a box of dimensions 30cm x 30cm x 25cm. The measurements shall be done just before the start of the match, and the robot can expand after the start of the match.
- Weight of the robot should not exceed 5kg.

3. Control:

- The robot should be wirelessly controlled using Bluetooth.



4. Design:

- The robot should be made from the [ATV Kit](#) and [Arm Set](#). Apart from these components, if you would like to add any **minor** modifications, then it should be a product from SP Robotic Works. Any model violating this rule will be disqualified.
- You need to design a pick and place robot that can spot the bomb in each city and bring it to the safe zone before it explodes.
- Only electrical powered actuators are allowed.
- The power supply may be on-board or external, a maximum voltage of 12V D.C.

5. Participants:

- No team formation is allowed, everyone must be individual players.
- Participants are allowed to handle only one robot throughout the event. (Should not change the robot in between)
- No changes in the robot are allowed during the game play.

6. Game Play:

- There are 5 areas in the city where bombs will be planted. Each city will have a different population and the goal is to save the maximum number of people.
- The bombs will blast in 4mins from the time the participant starts.
- There will be league and knock out rounds.



- There is a safe zone area in the city, where the bombs need to be placed before they blast.
- The robots can move anywhere inside the city on the main roads only. Every time the robot comes out of the path (3 wheels out of the path), 5 seconds will be added to completion time.
- The road might contain gravel, ramps(not more than inclination of 20 degrees), speed breakers, small puddles of water, tunnels and more.
- The bombs will be of different sizes used for the game (the sizes will not exceed above 4cm*4cm*4cm).
- The population is not considered safe until the bomb is placed in the safezone completely (The entire bomb object must be inside)

7. Scoring:

- Number of people saved before the bomb blast decides the winner
- If all the bombs are defused before 4 minutes, then additional points will be added to the score according to the below calculation.
 - $\text{Points} \times (180 - \text{Time taken to complete the track in sec})$
- No form of claim is entertained during the progress of the event. Judges' decisions are final under any circumstance.



8. Arena:



Important:

- No tolerance is allowed in any of the rule violations.
- Robots should remain within the specification mentioned above.
- No second chance will be given to any of the participants.