



PRESENTS

## PRAYUKTI 2018

ANNUAL TECHNO-MANAGEMENT EXTRAVAGANZA

APRIL 9<sup>th</sup>-

11<sup>th</sup> 2018

# 1-O-ONE

## INTRODUCTION

Passionate about bots and basketball too? Or you just like to watch things get crushed from fierce competition?

The path to glory passes through the alley of destruction, lethal combats, violent bots, and flying blades and basketball tactics! Merge your technical know-how with the ferocious player in you! Make your bot fight for the ultimate glory or land up in the junk yard! So folks, fight smart, be innovative and play. Seriously, play because Basketbots is not only about scoring a basket, but also staying ALIVE!!

## PROBLEM STATEMENT

Design a wired or wireless, manually controlled machine that is capable of knocking out the opponent and is able to score a basket and finally be able to score the maximum points

## General Rules

- The bot can be wired or wireless.
- The competition will be played on a knock-out basis and the winning will depend on the scoring of a basket
- The bot will be inspected for safety before the event begins. If found to be unsafe for the participants/spectators, it will be discarded.
- The organizers reserve the right to change any or all of the rules as they deem fit. Changes in rules, if any, will be highlighted on the website.
- Violation of any of the rules will result in immediate disqualification.
- The bot cannot be split into two sub-units. Two distinct parts connected by a flexible cable will be considered separate units.
- Lego kits, readymade kits, car bases and development boards are not permitted. Readymade gear boxes are permitted.
- Any single bot cannot hold the ball for more than 1 min. If it does, the ball will be shifted to its original position.
- If a bot remains immobile for 30 seconds, then it can demand a timeout of 1 minute (obviously with negative points), afterwards it will be disqualified.
- If a bot cuts the wires of another bot (intentionally or accidentally), then it will be disqualified immediately.
- Only 3 members of the team will be allowed inside the arena area.
- In all cases, the judges' and coordinator's decision will be final and binding.





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### Team Specifications

A team can consist of minimum 3 and maximum 5 members. Members can be from different institutions and different departments.

### Robot Specifications

- The size of the bot can be maximum of 40cmx40cmx40cm(length\*breadth\*height).
- The total extension of bot (including arm) should not exceed 60cm.

### Weight Classes

- Weight of the robot should not exceed 15 kg (pneumatics/tanks included).
- Weight of external power source (batteries and adaptors) will not be counted.
- Weight of wireless wheeled robots will be counted as 0.75 times the actual weight.
- The robots can be of ROLLING or WALKING type.

### Mobility

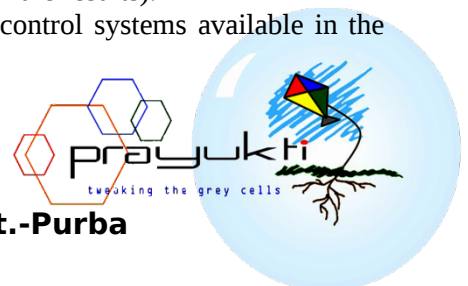
- All robots must have easily visible and controlled mobility in order to compete.

### Methods of mobility include

- Rolling (wheels/tracks/whole robot).
- Non-wheeled robots having no rolling elements in contact with the floor and any continuous rolling or cam operated motion in contact with the floor, either directly or via a linkage. Motion is "continuous" if continuous operation of the drive motor(s) produces continuous motion of the robot. Linear-actuated legs and novel non-wheeled drive systems come under this category.
- Jumping, Hopping and Flying/Hovering (airfoil using, helium balloons, ornithopters, etc.) is not allowed.

### Robot Controller Requirements

- Bots may be wired or wireless. Autonomous bots not allowed.
- In case of wired bots, the minimum length of the wires should be **maximum of 5 meters**. The wires should remain slack at any instant during the fight. All the wires coming out of the machine should be stacked as a single unit. Care should be taken so that wires do not get entangled.
- In case of wireless system, it should have a minimum four frequency remote control circuit or two dual control circuits or a transmitter-receiver paired module so that frequency interferences with the opposing team can be avoided (in case of any interference in the wireless systems, they will not be considered for rematch or in the results).
- Remote control systems from toys might be used. Remote control systems available in the market may also be used.





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### Battery & Power

- The machine can be powered electrically only. Use of an IC engine in any form is not allowed.
- The electrical voltage at any point of time in the machine shouldn't exceed 24V.
- 230V (AC Power) will be provided.
- In case of wireless bots batteries should be placed on the bot.
- In case of wired bots external batteries can be used.
- On-board batteries must be sealed, immobilized-electrolyte types. Permitted batteries: Gel cells, lithium, NiCad, NiMH, or dry cells.
- Use of damaged, non-leak proof batteries may lead to disqualification.
- Change of battery will not be allowed during the match (exception can be made in case of battery damage).
- Due care must be taken to ensure that the terminals of the robot's battery are protected, and do not short-circuit. Failure to do so will lead to disqualification.

### Weapon Systems

- Robots can have any kind of cutters, flippers, saws, hammers, lifting devices etc. as weapons, with the following **exceptions**:
  - Liquid projectiles.
  - Acid based weapons.
  - EMPgenerators.
  - Explosives.

### The Event

- The event will be in 2 rounds.
- The maximum duration of 1st round will be 7minutes.  
The 2<sup>nd</sup> round will be disclosed during events.
- Either the bot has to basket the ball or destroy the opponent and kick the bot out of arena.

### Ball and Basket dimensions

The diameter of the ball will be 5 centimeteres and the diamteter of the basket will be 10centimeteres.

#### Round 1:

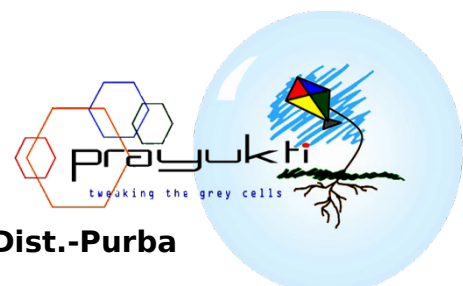
The height of the basket will be 40centimeteres.

#### Round 2:

To be disclosed.

### Scoring

Scoring will be at the sole discretion of the organisers.





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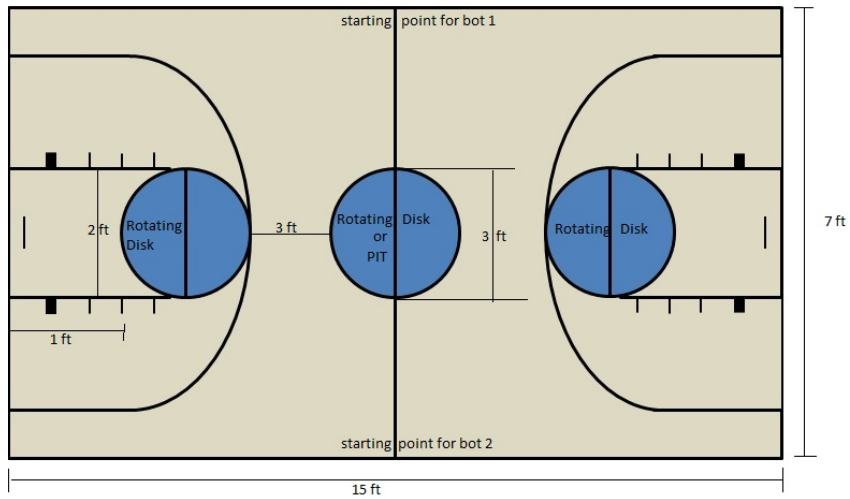
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## ARENA:

### 2D VIEW



### 3D VIEW

