JUNIOR ROBOCON 2019

Open Category

Category C

Game Play, Rules & Scoring

BOWLING

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1.	**LANE**	The lane is the floor that you throw the ball onto.
2.	**PINFALL**	If pins are successfully knocked down by ball.
3.	**APPROACH**	The approach is the area on which the player stands to prepare for your throw.
4.	**STRIKE**	When all pins are knocked down with one ball.
5.	**GAME**	A game consists of 10 frames per person.
6.	**FRAME**	A frame consists of up to two deliveries
7.	**PIN DECK**	The area where pins are kept.
8.	**FOUL LINE**	This is the black line at the start of the lane.
9.	**FOUL**	You will receive a foul if you step over the foul line in league or tournament play.
10.	**GUTTER**	This is the section either side of the lane where the ball ends up should it come off the lane.
11.	**GUTTER BALL**	When the bowling ball enters the gutter from the lane.
12.	**STRAIGHT BALL**	A straight ball is when a bowler throws the bowling ball straight down the lane.
13.	**HOOK**	A hook is when the bowler puts a spin on the bowling ball while throwing it causing it to curve down the lane.
14.	**PINS**	Bowling pins are the target of the bowling ball in various bowling games

1. Terms and Definitions

2. Contest Theme

The game of ROBOCON category 'C' very popular BOWLING. JR 2019, is based on a game that is
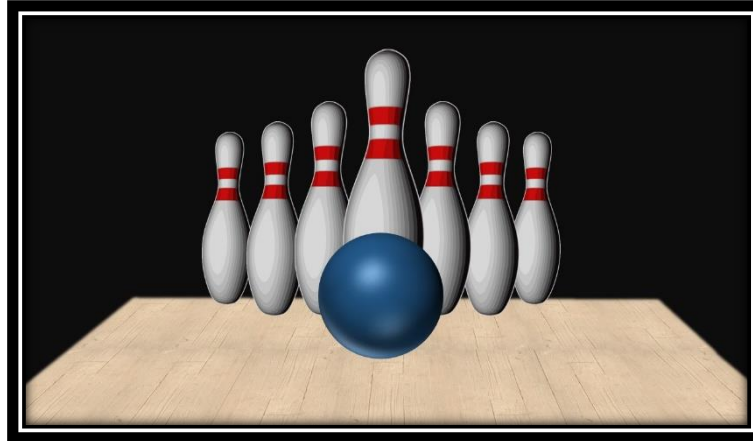
Bowling is a game in which you roll a heavy ball down a narrow track towards pins and try to knock down as many of them as possible. It is one of the oldest and most popular games in the world.

It has become one of the most played game nowadays. It is Interactive and competitive. The game requires a lot of technique and handiness in order to be properly played, qualities that can be improved towards exercise and practice. It is a game that requires creative mind.

The purpose of keeping this game as a robot game this year was to make students think over different techniques of bowling and also about how they can implement those techniques with robots. This will give students ability to think over mechanics, human body factors and enhance their robotics skills.

3. The Importance of Safety

- The safety of the designed robots is the first and foremost for the safety principle of the contest. The participating teams are responsible for the safety of their robots.
- The team must work and cooperate closely with the organizers to ensure utmost safety of the contest.
- Safety must always be the top priority and it must be considered by all people involved in the contest including officials, participants and spectators in all circumstances.
- Teams are required to pay sufficient attention to the safety of their robots before applying to take part in the contest.

4. Gameplay and Scoring:

GAMEPLAY:

- A match is contested by a single team. It lasts 3 minutes at most. A team consists of minimum of 2 members and a maximum of 5 members. Each team has one robot.
- The robot has to perform series of tasks with the help of autonomous control only. The robot should be controlled using wireless means only.
- The robot has to be placed on the start zone before the whistle is blown which indicates the start of the game.
- One minute will be given to the players for setting up their robots in the red area.
- The robot should start with the whistle.
- The bowling robot is to be already loaded with the balls.

SCORING -

- **Stage 1**
  Loading – Team will be given 10 points to reach the loading zone.
  Turning – 10 points will be given for a left turn after loading the robot.
- **Stage 2**
  Reaching the nodes:
  Node 1 – 10 points
  Node 2 – 20 points
  Node 3 – 30 points
  Node 4 – 40 points

- **5 points will be given for every attempt of throwing.**
- **5 points will be given for every pin fall.**

Violations

The team who commits the following shall be deemed to be in violation of the rules and subject to a mandatory retry.

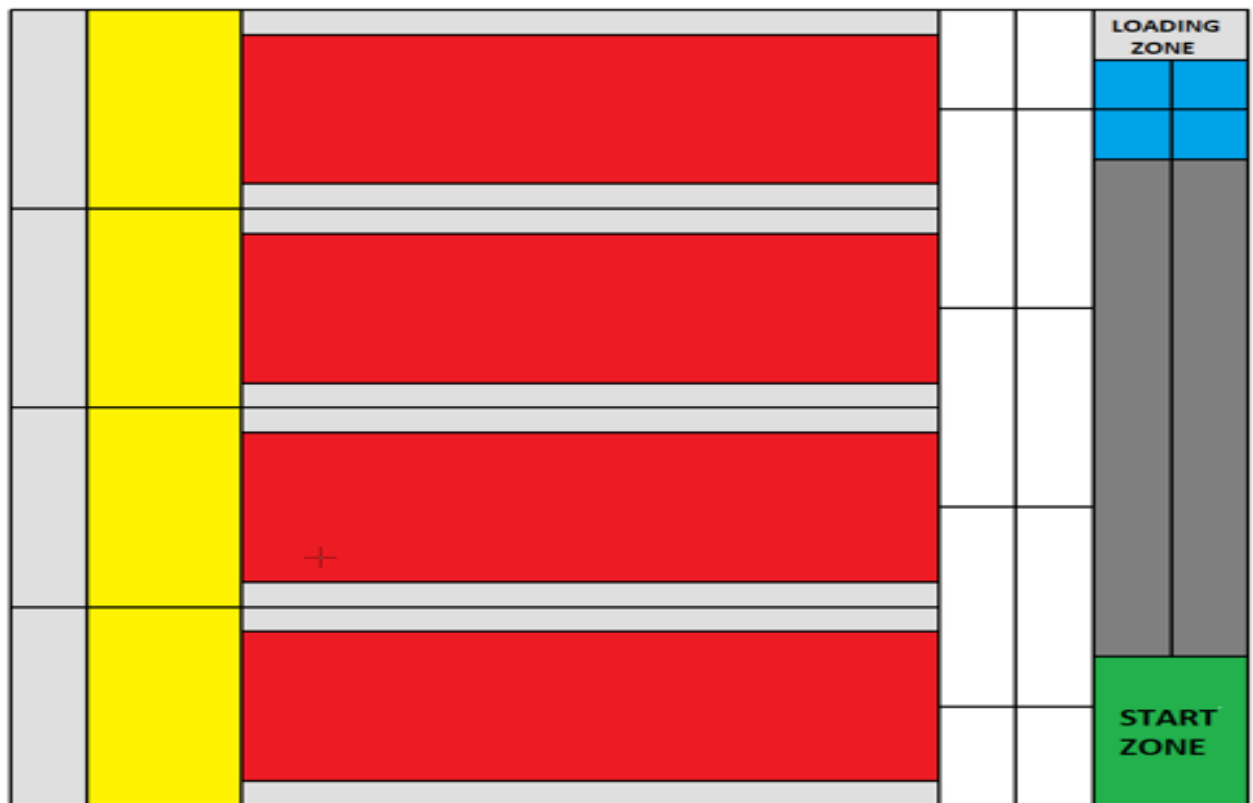**5 points will be deducted for every retry.**

- Wheels of robot cross the blue line.
- Extension of robot crosses foul line.
- A team member touches the robot without referee's permission.
- Any other acts deemed to be an infringement on the rules.

Negative Points

5 points will be deducted in the following conditions:

- If ball is in the air after crossing foul line.
- If player throws second ball before first ball reaches pin deck.
- Attempt of throwing after strike in same lane.

5. Arena Design

6. Arena Specifications