



January 14, 2020

Template for DD-ROBOCON 2020 Solution Idea

As a part of Stage I, all teams need to submit the following online (Google Form) by the deadline specified on the website:

1. "Solution Ideas (Form 1)" in the following format (Link of the Google Form will be announced soon with the bank details for payment).
2. A pdf file titled "Design Details Document_team_name" with a **maximum of 5 pages** to expand their points/claims given in the Solution Ideas (Form 1).
3. A link to the repository with the CAD models of the robots in STEP format must be provided. No changes in the CAD models will be recognized after the deadline.

University/Institute/College Name: A. P. SHAH INSTITUTE OF TECHNOLOGY

Team Leader: SUYASH ATMARAM PATIL

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I. Design of Passing Robot

(2 points x 4 parameters = 8 points)

- A. Overall dimensions (in mm) and estimated weight (in kgs)
781mm x 681mm x 325mm, 15 Kg
- B. Type of drive
Four wheel omnidirectional drive
- C. Actuators and sensors integrated Planetary Gear Motor, Johnson Gear Motor, Pneumatic Piston
Laser Sensor, IR Sensor, FSR(Force sensing resistor), Encoder, LSM9DS0
- D. Ball picking and passing mechanism gripper, johnson motor, arm and piston cylinder

II. Design of Trying Robot

(2 points x 5 parameters = 10 points)

- A. Overall dimensions (in mm) and estimated weight (in kgs)
985mm x 895mm x 720mm, 21 kg
- B. Type of drive
Four wheel mecanum wheel drive
- C. Actuators and sensors integrated Planetary geared motor, Johnson Gear motor, FSR,
IR Sensor, Ultrasonic sensor, Laser sensor, Encoder, Proximity sensor
- D. Ball receiving mechanism
Mermaid shape window, Johnson motor
- E. Try mechanism Johnson motor with encoder and disc

III. Kicking Mechanism

(2 points)

Johnson geared motor with encoder, leg shaped rod



Evaluation Criteria

	Points
Solution Ideas	20
Design Document and CAD Models	80
Total	100

1. The Solution Ideas (Form 1) is worth a maximum of 20 points. It consists of 10 rows - each parameter is marked out of 2 points.
2. The Design Document should detail the ideas proposed in the Solution Ideas form. It should be a technical document that describes proposed mechanism for achieving the different tasks. The document should also include relevant calculations/justifications for the proposed mechanism and demonstrate a clear understanding of the task's objective. Design Document, along with the CAD models of the proposed mechanism, is worth a maximum of 80 points. The individual sections will be evaluated as follows:

Points breakup for Design Document and CAD Models

Task	Mechanism	CAD	Calculations/Justifications
Ball pick and pass	5	10	5
Ball receive	5	10	5
Try	5	10	5
Kicking	5	10	5

3. For the shortlisted teams after Stage I, 1/3rd weightage of Stage I score and 2/3rd weightage of Stage II score will be used to select the teams for the final competition to be held at IIT Delhi.