



Istanbul Technical University Robot Olympics 2019 Rules of Construction Category

Job Description:

In this category, robots try to form the shape ,which was determined before, in the shortest time possible and correctly. The robots use the blocks that are provided to them.

Criteria of Success:

In this category, criteria of success is carrying at least 2 blocks to the construction area.

Contest:

- 1) In contest, robots compete one by one.
- 2) Each robot has 10 minutes for competing.
- 3) In contest it is expected that robots report how height they want to be from track and place the blocks, which are given to track, correctly.
- 4) Competitors can screw on their robots to the robot area with using the stabilising holes on the area. Or they can stabilise in any way only if they do not harm the track.
- 5) Robot is not allowed to touch anyplace out of the track.
- 6) When robot is stabilised to the track, the pieces which touch to the track can not exceed the robot area. However robot can have extensions out of the robot area only if they do not touch the track.
- 7) Robots start to construct the building after the countdown and starting command.
- 8) After starting, it is permitted that when robot is placing the blocks robot can touch anywhere in the construction area to get support only if it does not harm the track.
- 10) Each robot has two rights for competing.

Robot Properties:

- 11) There is no size limit for robots.
- 12) Weight of robot must not exceed 4000 grams.

Track Properties:

- 13) Blocks will be provided by the system. A charger system will place a new block in 5 seconds when one block is taken by the robot.
- 14) The track is not able to give new blocks when it is moving up or down.

Rating:

- 15) Point = (number of blocks that are transported to the construction area) + (the referees determine a point out of 10 for the accuracy of each block)
- 16) Robots which can not achieve the criteria of success are not included in rating.
- 17) At the end of the contest, supreme board of referees will watch the photographs and videos which are taken during contest . Then they will grade the accuracy of blocks.
- 18) If a competitor use two rights for competing, then the points for each right are calculated seperately and the higher score will be taken.

Magazine System:

- 19) The area of the magazine is 3 mm higher than the robot zone.
- 20) The magazine system moves the block up to 10mm away from the robot zone.
- 21) The magazine system pushes the blocks in a path of 3 mm depth. Therefore, 3 mm of the blocks are in the floor and 12 mm is outside.
- 22) Figure 3 shows the position of a block after its transmission by the magazine system, and the position and dimensions of the magazine region relative to the robot region.

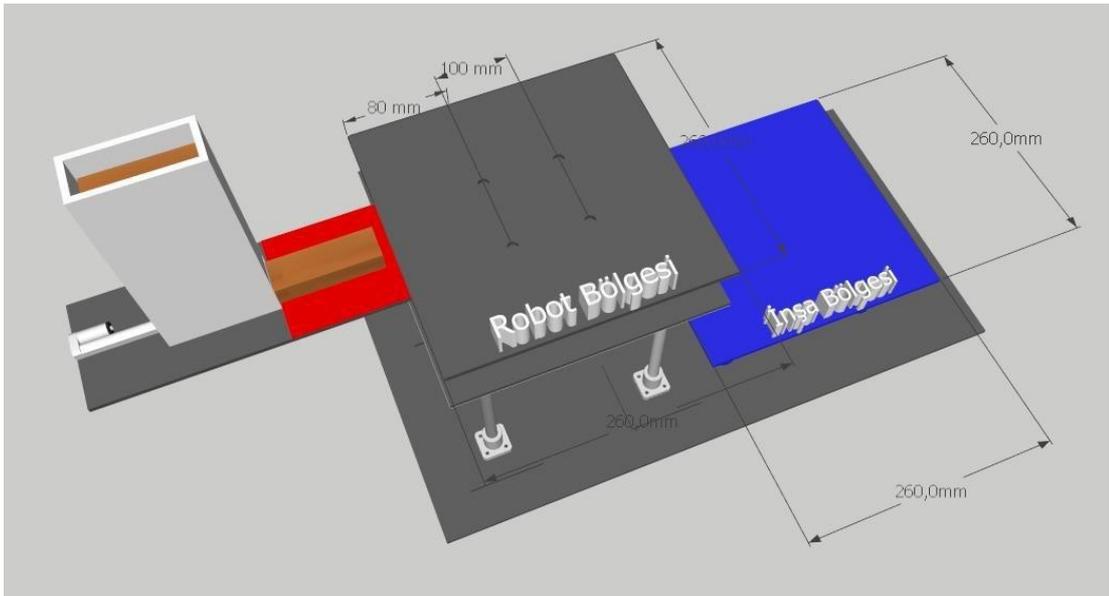


Figure 1 - Track Measurements. Robot Bölgesi = Robot Area, İnşa Bölgesi = Construction Area

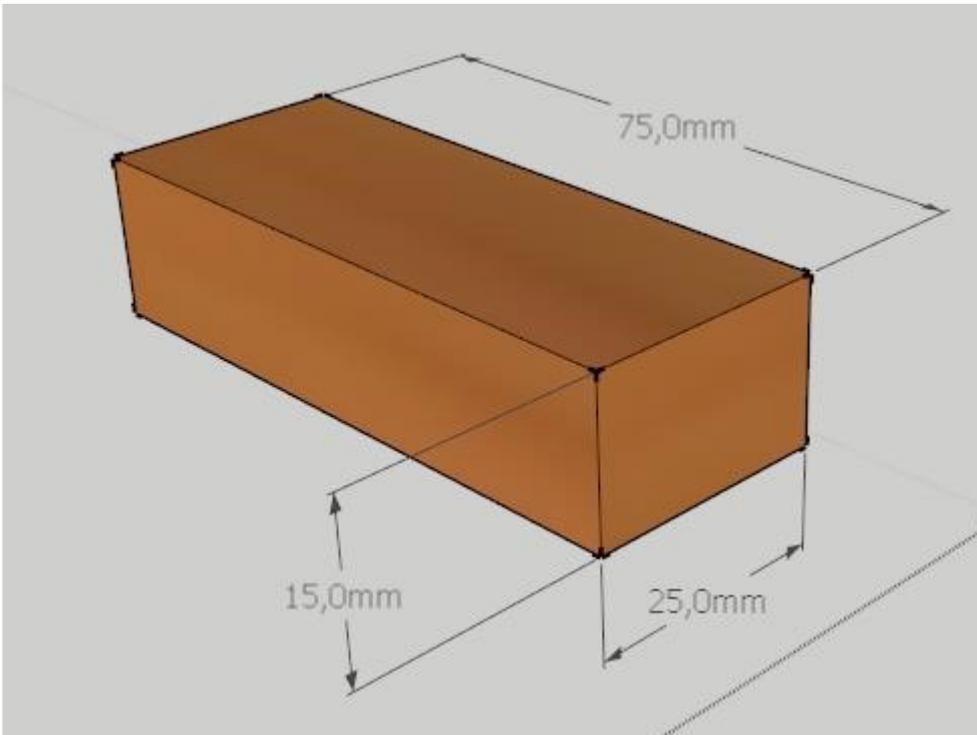


Figure 2 - Measurements of Block

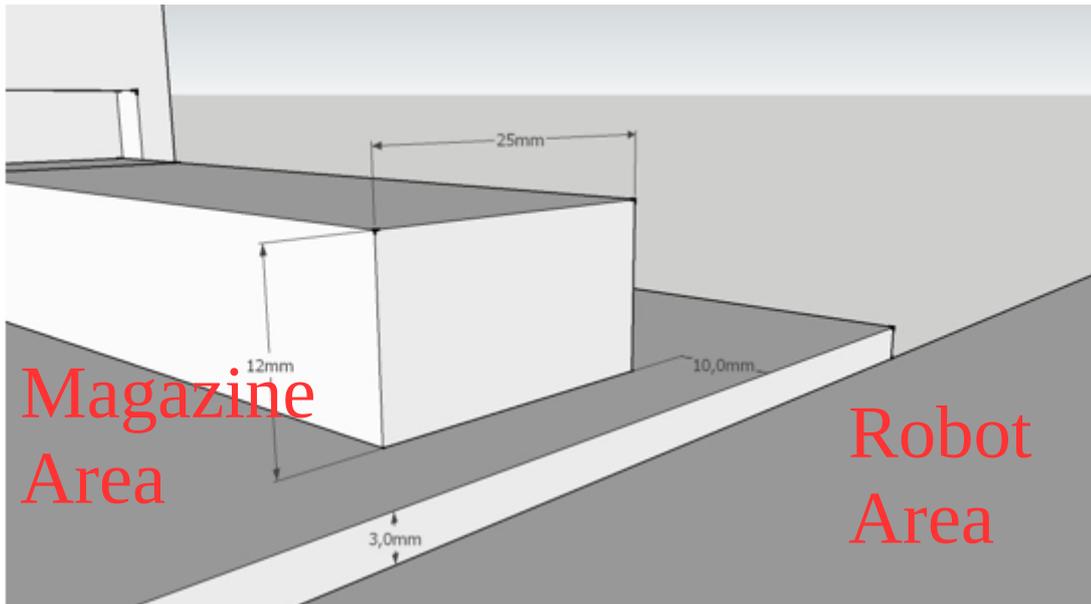


Figure 3 -

Block Supply System Measurements