



# Istanbul Technical University Robot Olympics 2018

## Stair Climbing Category Rules

### Definition of the Task:

- In this category, the robots try to complete the track by climbing the stairs up and down.

### Success Criteria:

- In this category, success criteria is to climb at least five steps.

### Robot Specifications:

- 1) The robots must be (at the beginning of the competition) 35 cm in width, 40 cm in length and 40 cm in height in maximum.
- 2) There is no restrictions for the weight of the robots.
- 3) It is prohibited to use system that can damage the track, robots that damage the track will be disqualified.

### Competition:

- 4) Every robot competes in order.
- 5) Each robot have 2 chances and 4 minutes of time in each chance to compete.
- 6) Starting point of robots is at the behind of the white mark.
- 7) Robots climb the stairs up until they reach top of track, then they climb down one by one.
- 8) For a step to be accepted as climbed, a robot must on the next step with all of its part, the parts must be contact with next step for at least 2 seconds.
- 9) Also the "General Rules" are applied as in all other categories.

### Track Specifications:

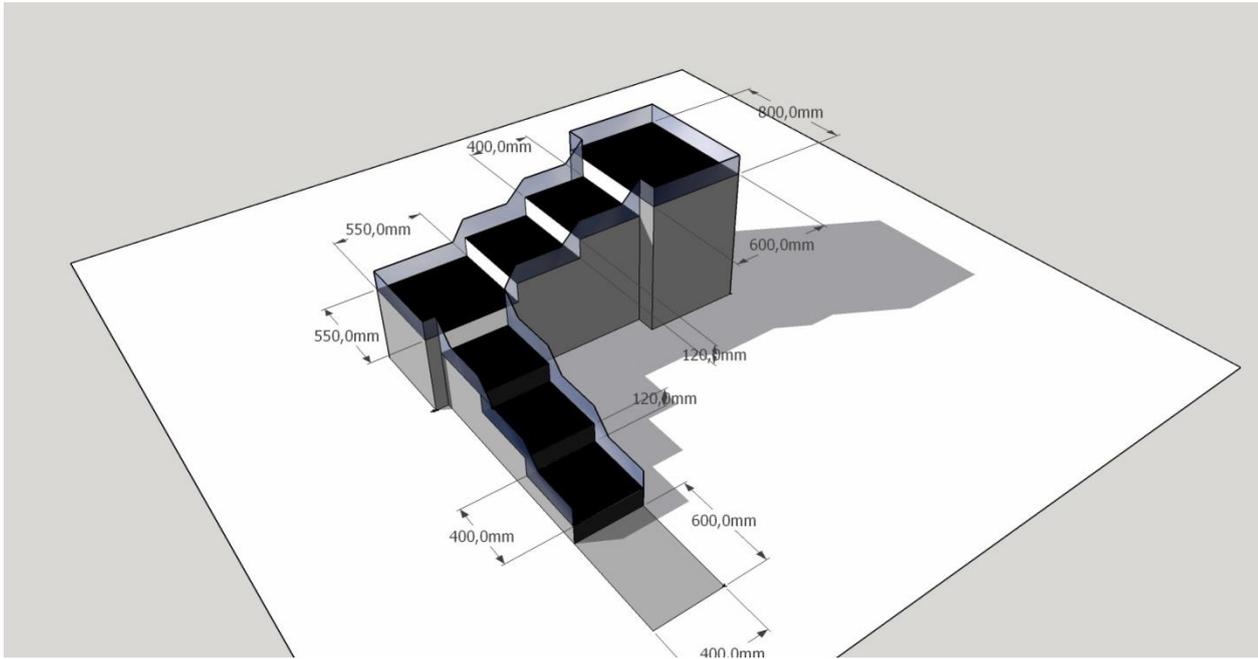
- 10) The size of the 1<sup>st</sup>, 2<sup>nd</sup>, 3<sup>rd</sup> steps are 40 cm x 40 cm, the size of 4<sup>th</sup>, 5<sup>th</sup>, 6<sup>th</sup> steps are 55 cm x 40 cm and the size of the final step (7<sup>th</sup> step) is 80 cm x 60 cm. There are 18 mm thick white markers on the edges of the steps.
- 11) Track contains 7 steps.
- 12) Each step has a plate made of plexiglass with the height 120mm.
- 13) Heights of the steps are 12cm.



14) Bottom part of the 1<sup>st</sup> 2<sup>nd</sup> 3<sup>rd</sup> steps will be full, 4<sup>th</sup> 5<sup>th</sup> 6<sup>th</sup> 7<sup>th</sup> will be empty.

15) Referees can not take responsibility for the robots, if robot will drop.

16) Track plan is founded at below :



### Scoring:

- 17) Robots have to be on the step for at least 2 seconds to gain the points of that step.
- 18) Each time touching the plates reduces 10 point.
- 19) Climbing up to 1<sup>st</sup>, 2<sup>nd</sup>, 3<sup>rd</sup> steps gives 10 point , climbing up to 4<sup>th</sup> step gives 40 point, climbing up to 5<sup>th</sup> step gives 80 point , climbing up to 6<sup>th</sup> step gives 40 point, climbing up to 7<sup>th</sup> step gives 50 point.
- 20) Climbing down to 6<sup>th</sup>, 5<sup>th</sup>, 4<sup>th</sup> steps gives 30 point, climbing down to 3<sup>rd</sup> step gives 50 point and climbing down to 2<sup>nd</sup> and 1<sup>st</sup> steps gives 10 point.
- 21) The robot gets +40 points if it crosses the beginning line, when it has climbed down the stairs (finished the competition).