

**\* General Rule:** Please check the general rule first before read this rule. General rule take precedence over any rules.

**\*Attention:** Please be aware that this is provisional version of the rules, there may be some changes. Specially testing material of size and weight is till on progress, there will be new updates

<b>Tag-Out</b>	League	Participation	Construction
	Junior/	1 Person	1 Robot

## 1. Game description

Tag-Out is a tournament game which aims to push away opponent robot or Avatar out of the playfield faster than opponent. Game requires usage of sensors and mobility algorithm in order to avoid landmines that are located around the field.

## 2. Robot

**2-1. Robot type:** Any autonomous robot which includes wheels and that complies 2-2 rule.

### 2-2. Composition of robot

2-2-1. Construction: pre-made

All robots must be pre-made before the game begins; extra time will not be given to modify it.

2-2-2. Weight: less than 1kg (including the batteries)

2-2-3. Size of robot: less than 20cm x 20cm (W\*H)

2-2-3-1. Size measurement

- 1) Self-Check: Participants can self-check size of their robot before the game begins.
- 2) Official inspection: Referee will check the size of the robot with the measuring materials. Participant cannot give any objection toward the judge.
- 3) Modify: If it exceeds size (20cm x 20cm), participant will be given 1 minute to modify their robot in front of the judge, on a designated desk. If participant fails to fit the standard size, he or she will be disqualified.

2-2-4. Sensor of the Robot: No restriction

2-2-5. Power

**\* General Rule:** Please check the general rule first before read this rule. General rule take precedence over any rules.

**\*Attention:** Please be aware that this is provisional version of the rules, there may be some changes. Specially testing material of size and weight is till on progress, there will be new updates

2-2-5-1. Robots should work with an independent electric power supply; it cannot use a combustible device.

2-2-5-2. There is no limitation on type of battery or voltage.

2-2-6. Operation: Drive with their wheels

2-2-7. Structure in mission: Robot can have parts to move structures to other places, but any dangerous parts that is launchable or causing electronic disturbance is prohibited.

**2-3. Except the starting point, robots must move autonomously by the program and it cannot be operated by any outer interference.**

#### **2-4. Spare robot**

2-4-1. Robot preparation

Participant can bring spare robot to competition site and both main and spare robots should be confirmed by referee before the match.

2-4-2. Use of spare robot

It is not allowed to switch robots during the match. After getting confirmation by the referee, then can switch spare robot before the match starts.

2-4-2-1. Tournament: Substitution is allowed before start of each games.

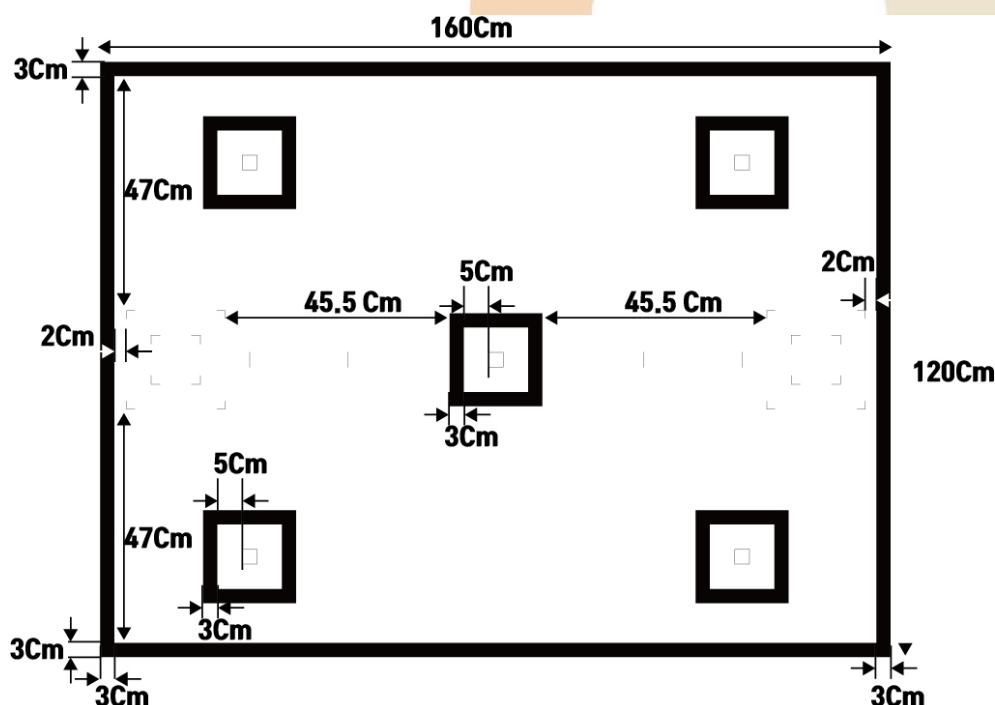
**\* General Rule:** Please check the general rule first before read this rule. General rule take precedence over any rules.

**\*Attention:** Please be aware that this is provisional version of the rules, there may be some changes. Specially testing material of size and weight is till on progress, there will be new updates

### 3. Competition Site

**3-1. Official Playfield:** Playfield approved by International Robot Olympiad committee

**3-2 .Size and Composition:** The size of playfield has to be 160cm X 120 cm ( $\pm 10\%$ ).



3-2-1. Allowable range of error in the stadium: The slope that is less than  $2^\circ$  ( $\pm 10\%$ ) and a gap or bump that is less than 3mm ( $\pm 30\%$ ) is allowable.

3-2-2. Prevention for falling robot: There will be no special structure for falling robot.

**3-3. Playfield:** It is cover with matt coat polyethylene terephthalate paper which includes advertisement and logo from the organizers.

#### 3-4. Appendage of Competition

3-4-1. Landmine

3-4-1-1. Shape: a regular hexahedron with rounded vertex

**\* General Rule:** Please check the general rule first before read this rule. General rule take precedence over any rules.

**\*Attention:** Please be aware that this is provisional version of the rules, there may be some changes. Specially testing material of size and weight is till on progress, there will be new updates

- 3-4-1-2. Weight: less than 30g ( $\pm 10\%$ )
- 3-4-1-3. Size: 3cm x 3cm x 3cm ( $\pm 10\%$ )
- 3-4-1-4. Number: 5 landmines per match

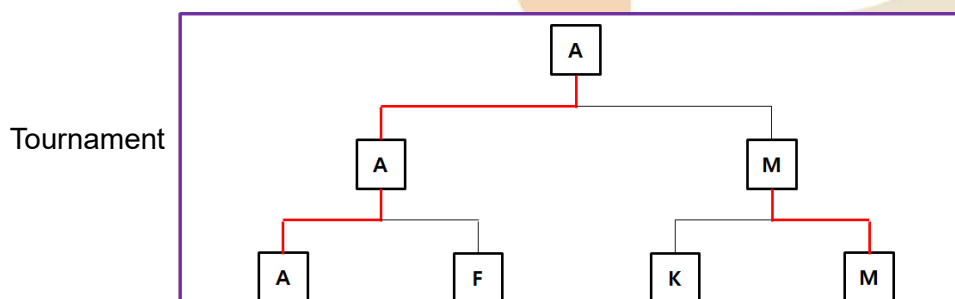
#### 3-4-2. Avatar

- 3-4-2-1. Shape: a regular hexahedron
- 3-4-2-2. Weight: less than 900g ( $\pm 10\%$ )
- 3-4-2-3. Size: 20cm x 20cm x 20cm ( $\pm 10\%$ )
- 3-4-2-4. Number: 1 per 1 robot (Each avatar can be distinguished from color.)

## 4. Competition progress

### 4-1. Game process

Game will be processed in tournament match.



### 4-2. Tournament (main match)

- 4-2-1. tournament opponent will be decided by lottery.
- 4-2-2. If there are 3 teams running a tournament game, then the match will be conducted in a league.

### 4-3. Modification of robot

After the game is over all teams can have equal modification time based on decision of the referee.

## 5. Match

### 5-1. Performing of the mission

**\* General Rule:** Please check the general rule first before read this rule. General rule take precedence over any rules.

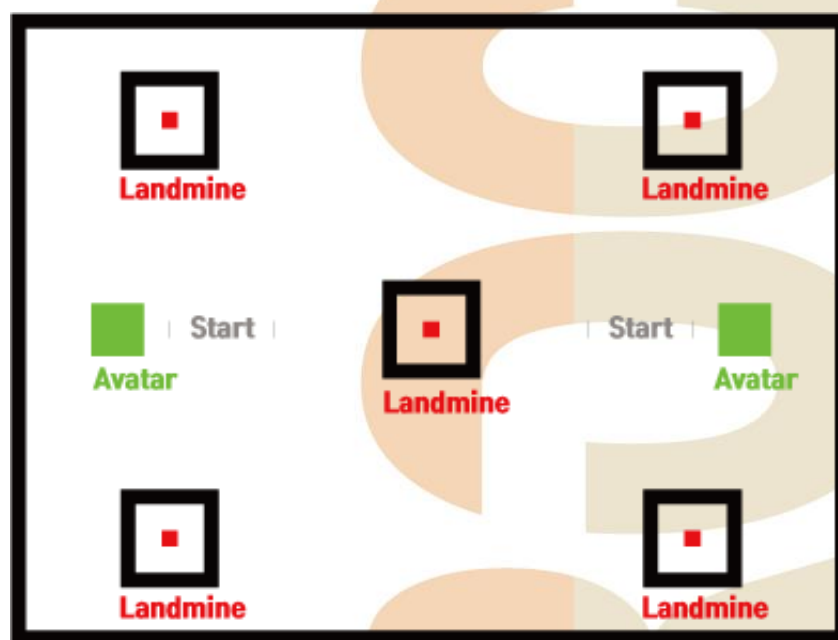
**\*Attention:** Please be aware that this is provisional version of the rules, there may be some changes. Specially testing material of size and weight is till on progress, there will be new updates

After referee's signal, robot has to avoid the landmine and push its opponent robot or avatar out of the playfield.

**5-2. Start** A participant should start the robot when the referee starts the game.

5-2-1. Allocation of robot

Robot will be allocated in the start area on the mission map and its avatar will be located behind of the robot.



<Example of allocation>

5-2-2. False start

If the participant starts the robot before the referee's signal, it is declared as 'False start' and they have only one more chance to restart.

5-2-2-1. Transforming robot

Must progress the game in original state of the robot. If robot transforms its shape, it will be disqualified.

5-2-3. Restart

The opportunity of restart will be given one once and if conducts false start twice in a row, he/she will be disqualified.

**5-3. Time limit**

**\* General Rule:** Please check the general rule first before read this rule. General rule take precedence over any rules.

**\*Attention:** Please be aware that this is provisional version of the rules, there may be some changes. Specially testing material of size and weight is till on progress, there will be new updates

1 minute for the match.

#### **5-4. Robot Stop**

If both robots don't move after start call by the referee and if robot hovers same areas constantly during the match, the referee will count 10 seconds. After referee's count, time will be halted, and robot will go back to start point and restart the match.

#### **5-5. End of Competition**

##### 5-5-1. Tag-Out

If robot touches the landmine by itself or by the opponent and if landmine move away from its original position, referee will stop the match and call it 'Tag-Out'.

The opposite team will be a winner. If Avatar touches the landmine, rule will apply same as above. Position shift of the landmine are judged on the space between the landmine and the border line.

##### 5-5-2. Robot Out

If robot falls out of the playfield by itself or by the opponent, referee will stop the match and call it 'robot out'. The opposite team will be a winner. Robot out is based on whether the robot contacts outer floor.

##### 5-5-3. Avatar out

If Avatar falls of the playfield by itself or by the opponent, referee will stop the match and call it 'Avatar out'. The opposite team will be a winner. Robot out is based on whether the robot has touched the concrete floor

#### **5-6. Disqualification**

##### 5-6-1. Robot Touch

During the match, if participants touch the robot without approval of judge, it will be declared robot touch and will be disqualified.

##### 5-6-2. Penalty

Referee call penalty to participant if he/she disobeys referee's instruction and interrupts the progress. If participant gets 2 penalties, he/she will be disqualified.

##### 5-6-3. False Start

If participant conduct 'False Start' twice, participants will be disqualified. Refer to 5-2-3.



**\* General Rule:** Please check the general rule first before read this rule. General rule take precedence over any rules.

**\*Attention:** Please be aware that this is provisional version of the rules, there may be some changes. Specially testing material of size and weight is till on progress, there will be new updates

#### 5-6-4. Transforming robot

If robot has a gripper to move the avatar or transforms its shape, will be disqualified refer to 5-2-2.

#### 5-7. Rematches

During the match if expected situation occurs, such as blackout or breakdown of measuring instrument, referee can decide to do rematch.

**5-8. Referee will control all situations and referee will have authority to control participants. The judgment of game result is exclusive authorization of referee. The declaration shall be final.**

### 6. Evaluation

#### 6-1. Ranking decision factors

During the match, a team that pushes the opponent robot or avatar out of the field faster wins the match. If no one fulfills the task in the limited time, the team that shifted the position of the opponent avatar wins the game.

#### 6-2. Order of priority to result

##### 6-2-1. Tournament

6-2-1-1. Extra playoff: 30 seconds will be given as extra time and match will restart at the same condition of original state of the playfield.

6-2-1-2. If the winner isn't decided in the extra time, 2<sup>nd</sup> extra time will be given to find out winner of the match.

6-2-1-3. If the winner is not decided in the 2<sup>nd</sup> extra time, participants who has lighter robot wins the game.