Judge Training

RoboCup 2025

March 12, 2025

Work distribution

Senior Judge

- Recognized by the committee as experienced
- At least one senior judge is always present at a field, and stays at the same field the entire day
- Responsibilities:
    - organizes tasks at a designated field
    - final say in decisions during runs
    - leads discussion with the team
    - educate junior judges

Junior Judge

- Support the senior judge in all aspects of the judging process
- Learns as much as possible, so they may be assigned a Senior Judge position in the future
- Junior judges will rotate throughout the day, and might be assigned access control duty

We strongly encourage senior judges to gradually transfer more responsibilities onto less experienced volunteers, so they can learn under their supervision.

Rescue Line Field

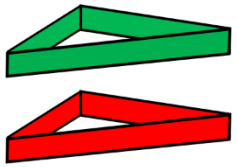
3.9.3 The evacuation zone is 120 cm by 90 cm with walls around the four sides at least 10 cm high and colored white.

Victim

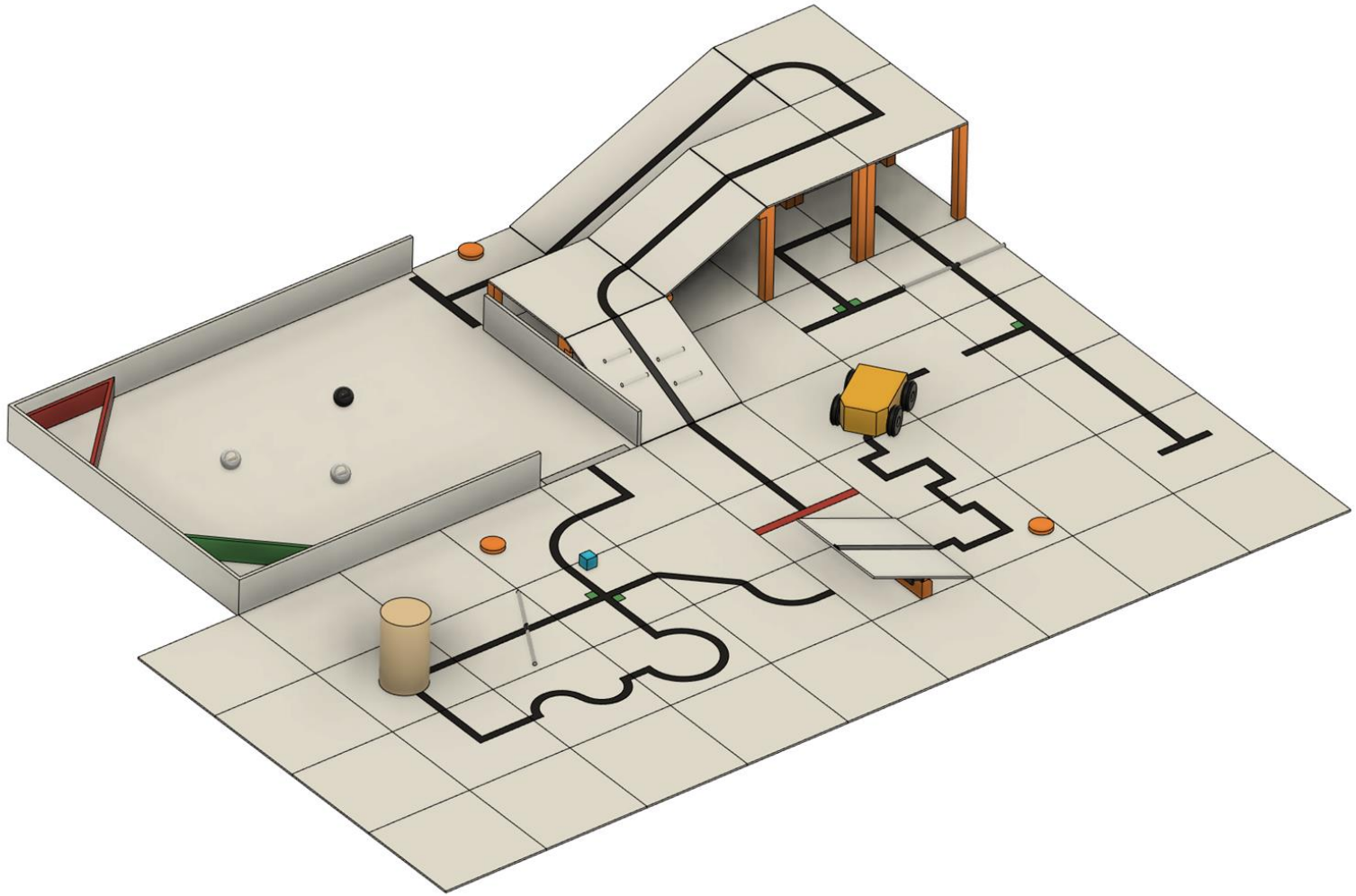
Speed bump

Checkpoint marker

Obstacles

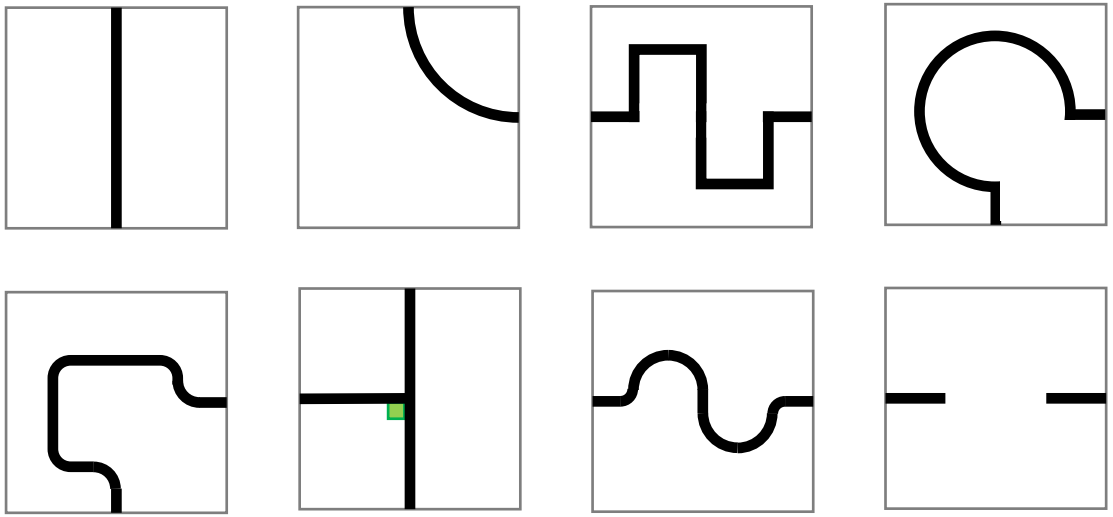


Evacuation Points

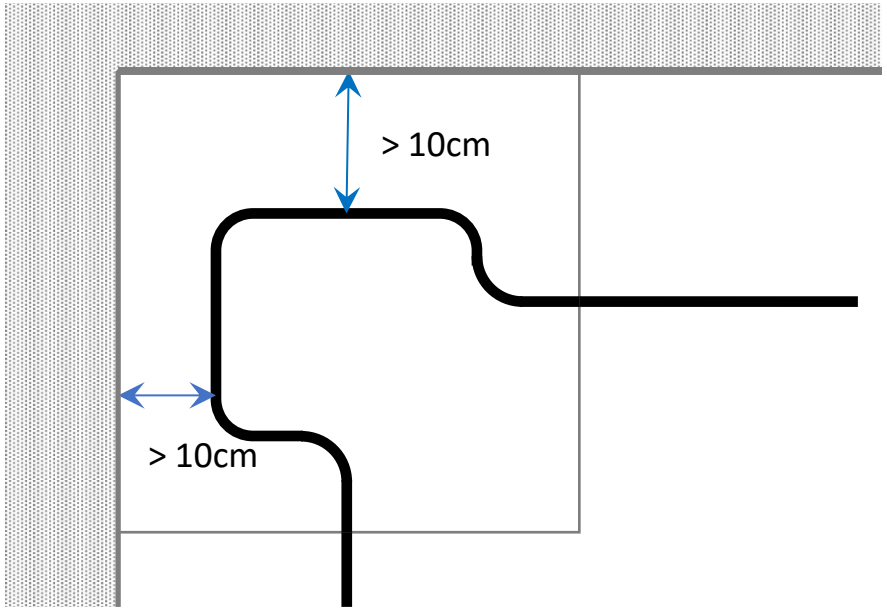


Tiles

3.1.2 The field will consist of 30 cm x 30 cm tiles, with different patterns. …



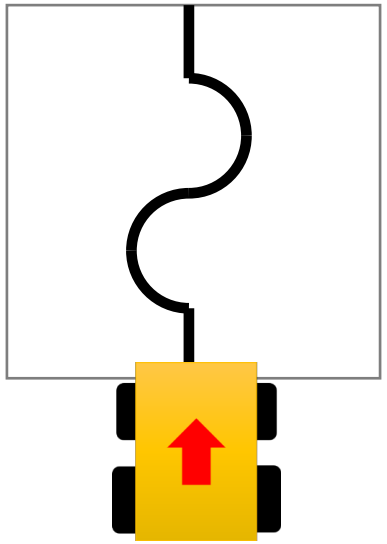
3.3.1 The black line is 1-2 cm wide.

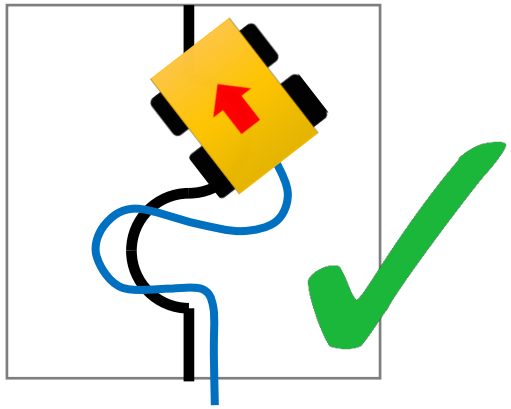


3.3.4 The line will be 10 cm away from any edge of the field.

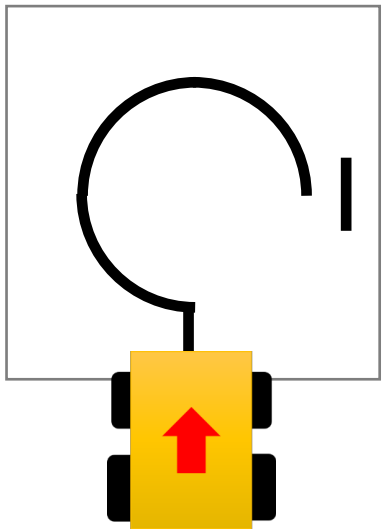
Follow the line

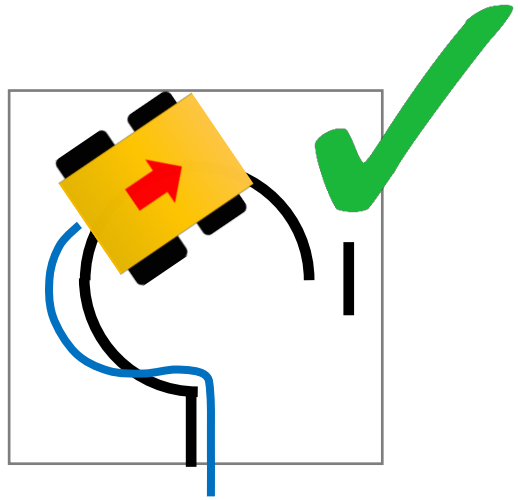
The robot must follow the line completely to enter the evacuation zone.





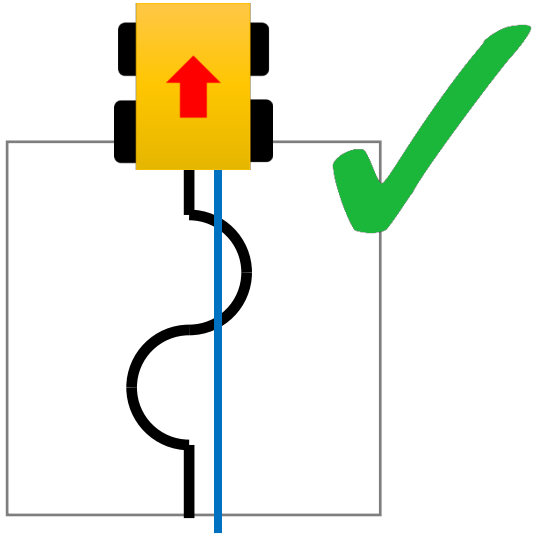
If a course is curved, the robot must advance along a curve, too

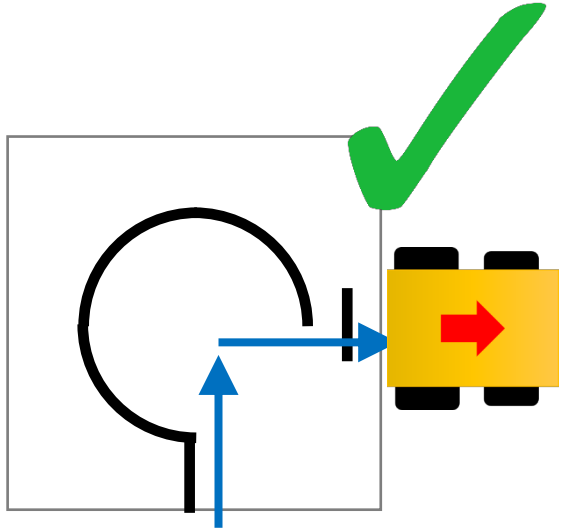




If a course is curved, the robot must advance along a curve, too

When a robot goes straight on, a referee confirms the movement of the robot by an interview.





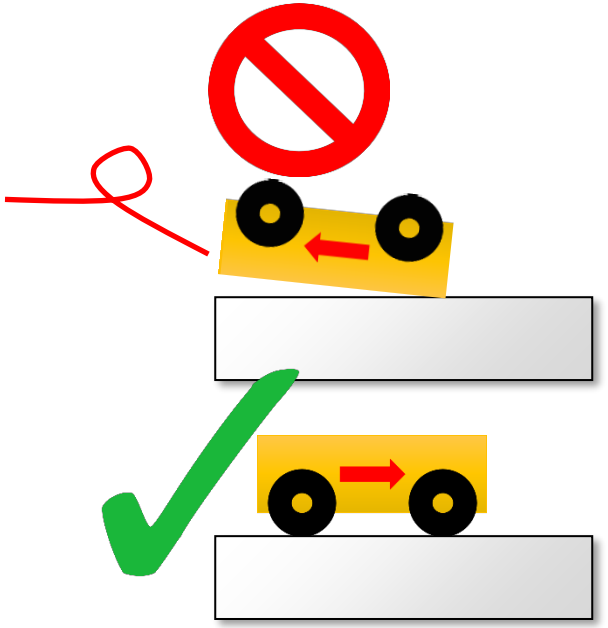
When a robot goes that course, a referee confirms the movement of the robot by an interview.

Visit a Tile

5.4.6 The robot has visited a tile when more than half the robot is within that tile when viewed from above.

More than a half of the robot is in a tile.

The robot is not moving along the black line in the tile.

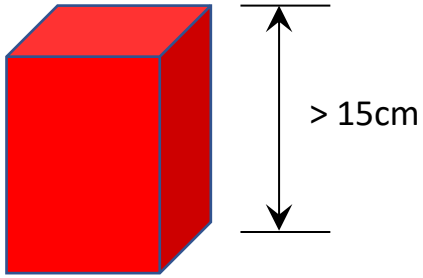


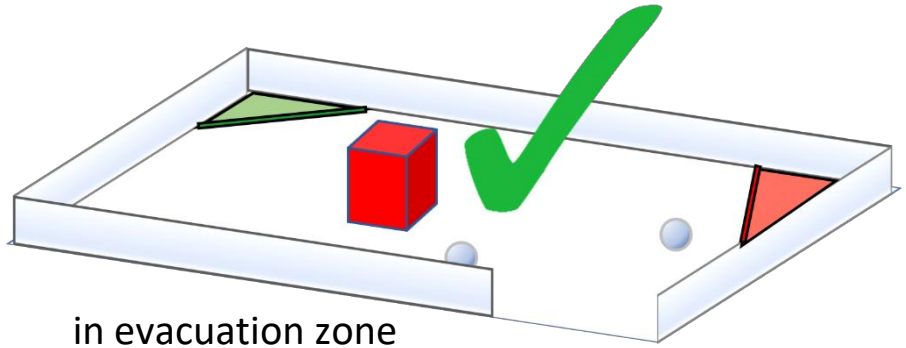
The robot must continue moving forward.

Obstacle Placement

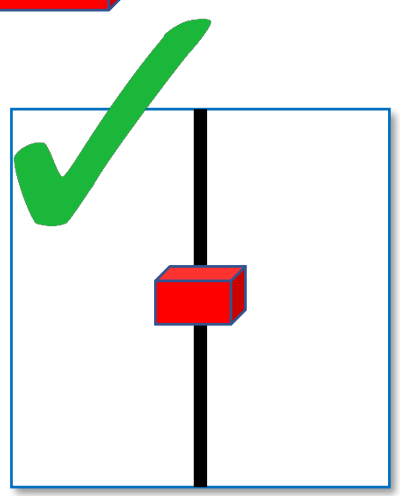
3.5.4 Obstacles may include bricks, blocks, weights, and other large, heavy items. Obstacles will be at least 15 cm high and can be fixed to the floor.

3.5.5 An obstacle will not occupy more than one line and/or tile.

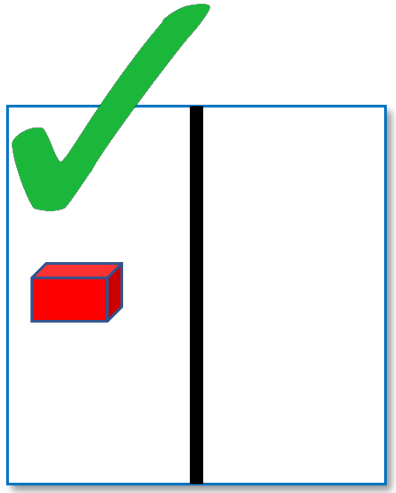




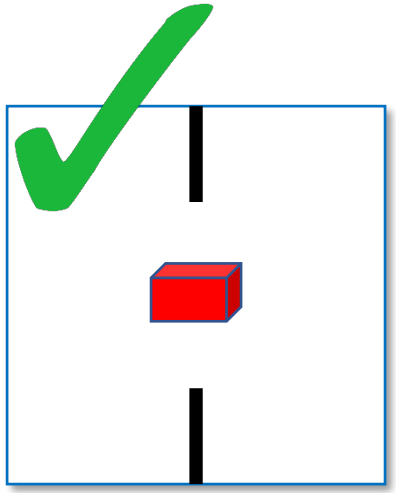
in evacuation zone



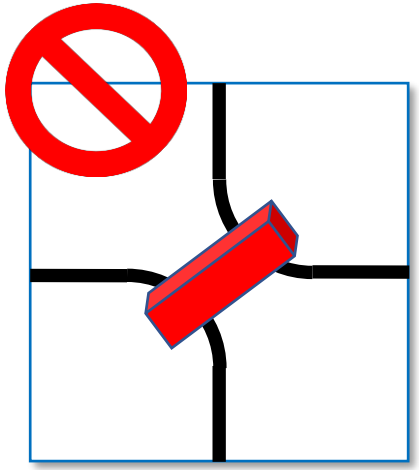
On a line



Not on a line



In a Gap

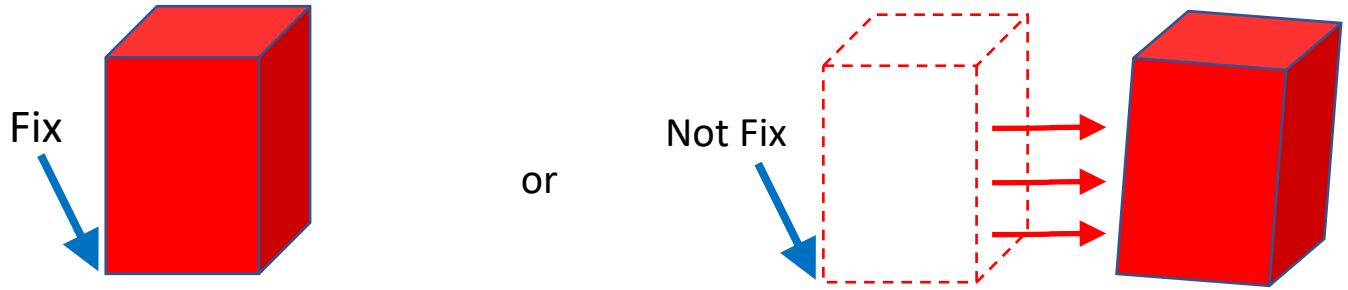


On multiple lines

3.5.7 Obstacles will not be placed closer than 25 cm from the edge of the field (including edges of tiles that are elevated by ramps) and inclined tiles.

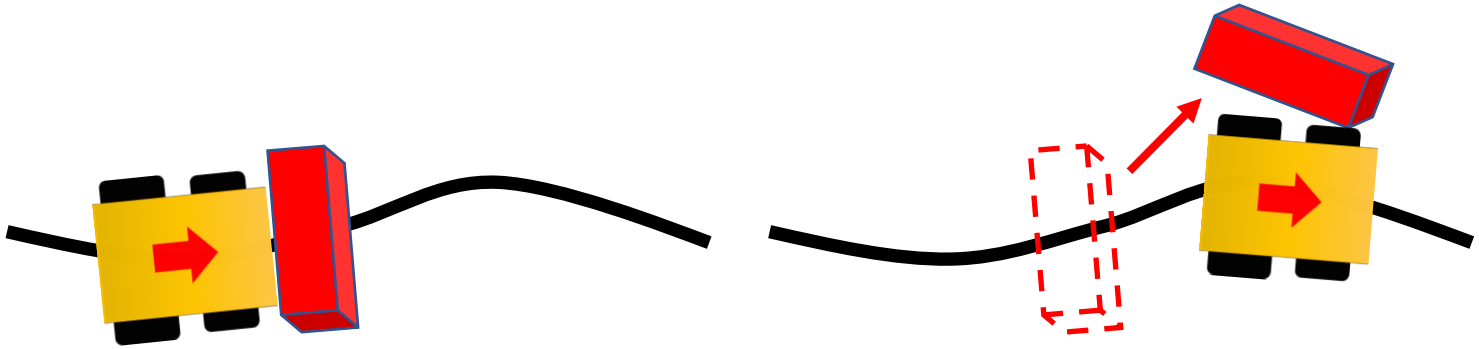
Obstacle Placement

3.5.6 A robot is expected to navigate around obstacles. The robot may move obstacles, but obstacles may be very heavy or fixed to the floor. Obstacles will remain where they were moved to, even if that prevents the robot from proceeding.



The obstacle may not move when the robot pushes it.

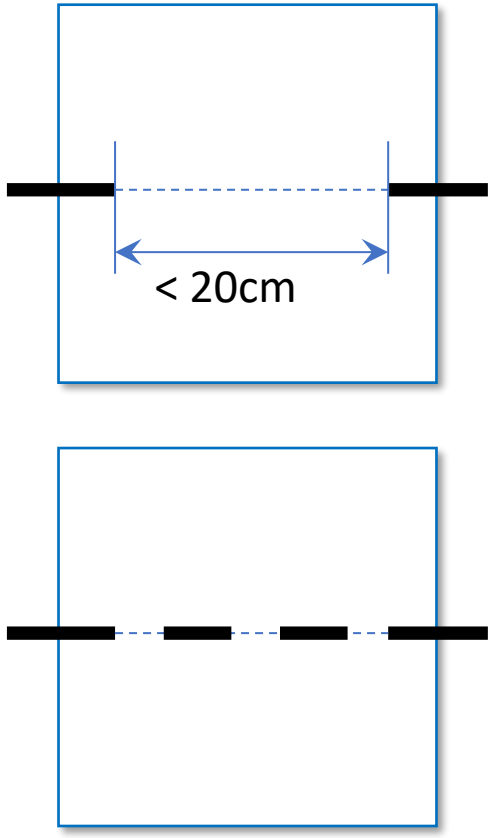
The obstacle may move when the robot pushes it.



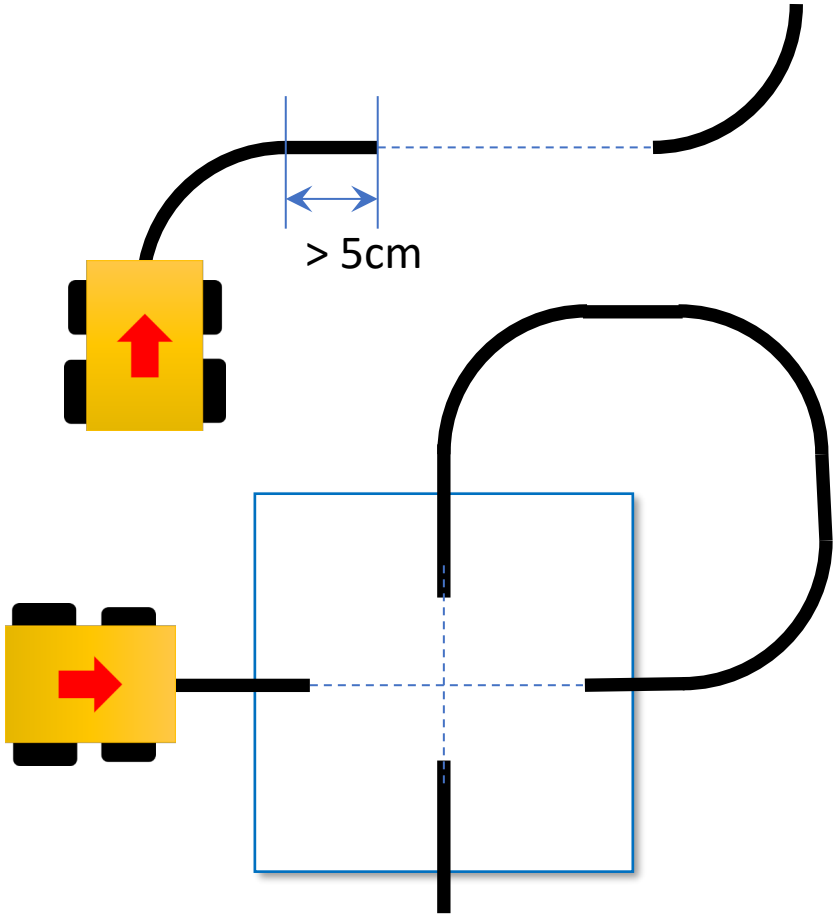
If the robot pushed the obstacle, it cannot be returned to the original position until the end of run.

Gap Placement

3.3.2 Straight sections of the black line may have gaps with at least 5 cm of straight line before each gap as measured from the shortest portion of the straight portion of the line. The length of a gap will be no more than 20 cm.

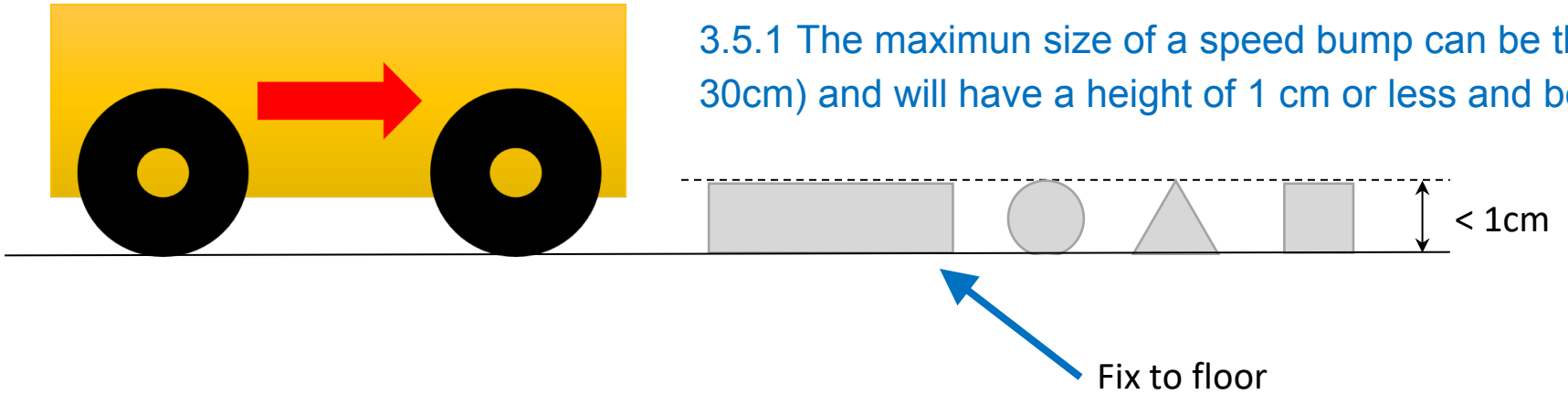


There may be multi gaps in one tile

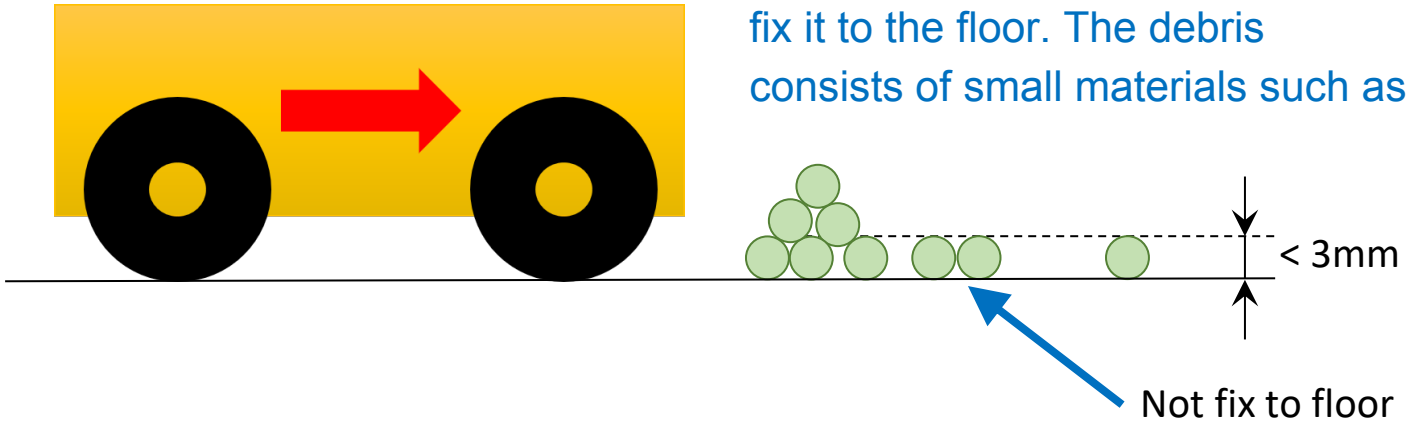


There may be cross gaps in one tile

Speed Bumps and Debris



3.5.1 The maximun size of a speed bump can be the size of a tile (30cm x 30cm) and will have a height of 1 cm or less and be white.

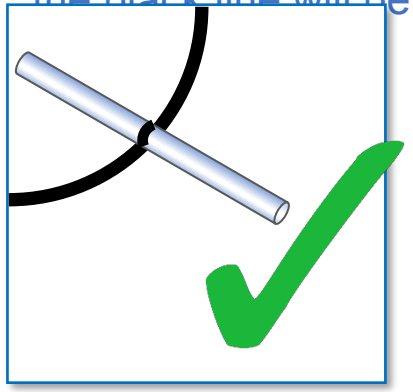


3.5.3 Debris will have a maximum height of 3 mm. The organizers will not fix it to the floor. The debris
consists of small materials such as toothpicks, small wooden dowels, etc.

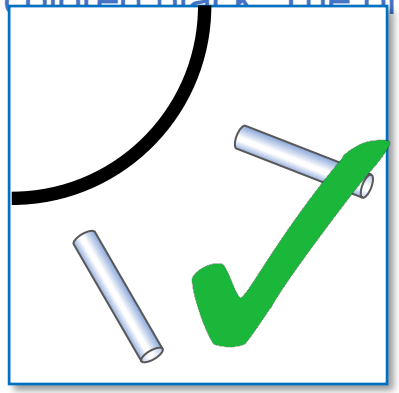
*Speed bumps and debris may be in evacuation zone.

Speed Bump Placement

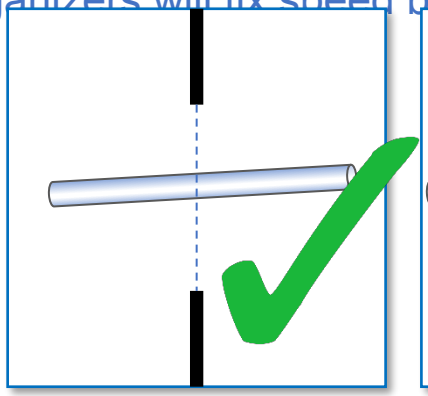
3.5.1 The maximun size of a speed bump can be the size of a tile (30cm x 30cm) and will have a height of 1 cm or less and be white. When the speed bump is placed over any black line, the overlap between the speed bump and the black line will be colored black. The organizers will fix speed bumps on the floor



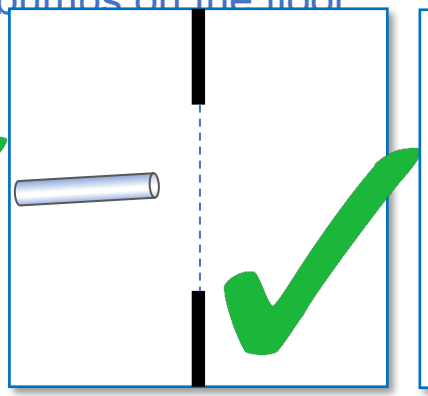
On black line



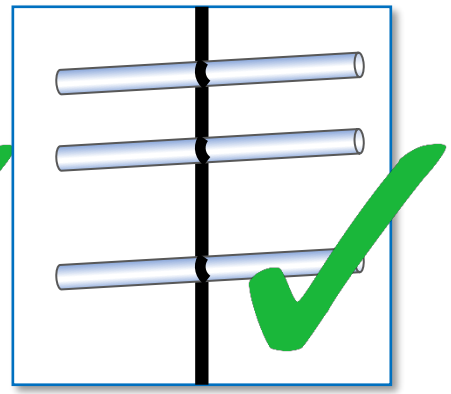
Not on Black line



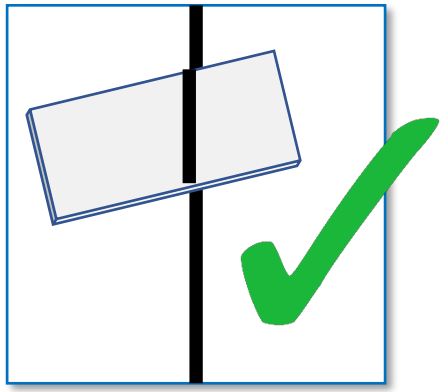
In a Gap



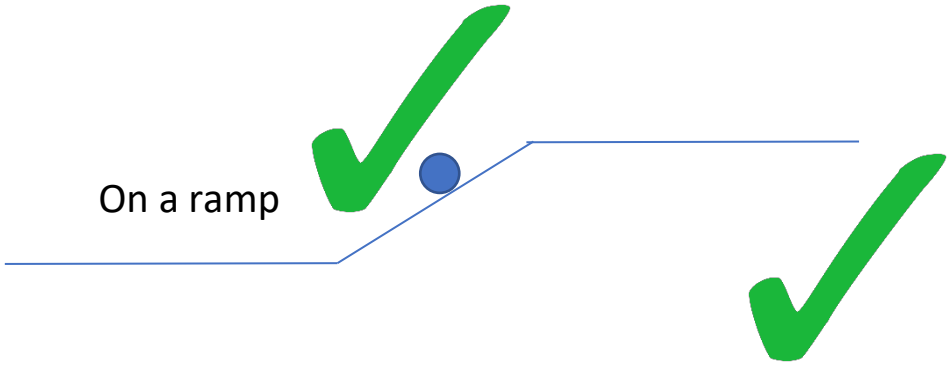
Not in a gap



Many bumps in one tile

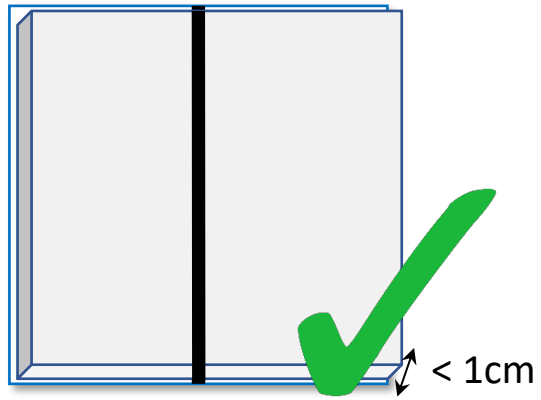


Big bump



*In the evacuation zone

No points are given



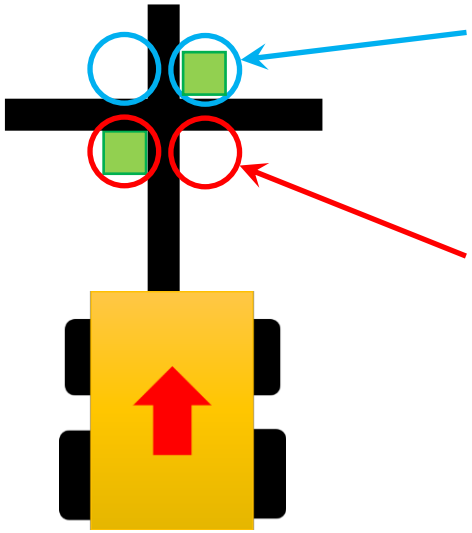
Intersections

3.6.2 Intersection markers are green and 25 mm x 25 mm in dimension. They indicate the direction of the path the robot should follow.

3.6.3 The robot should continue straight ahead if there is no green marker at an intersection.

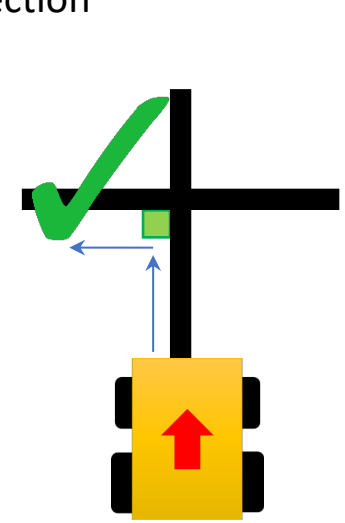
3.6.5 The intersections are always perpendicular but may have 3 or 4 branches.

3.6.6 Intersection markers will be placed just before the intersection.

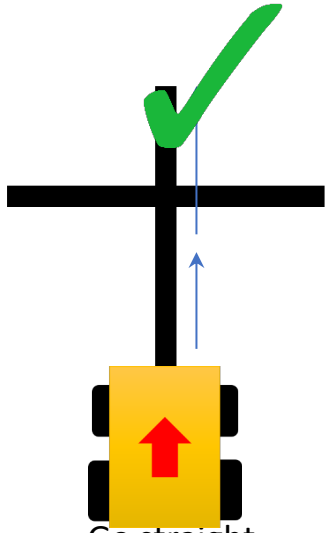


The robot should ignore intersection markers placed behind the intersection

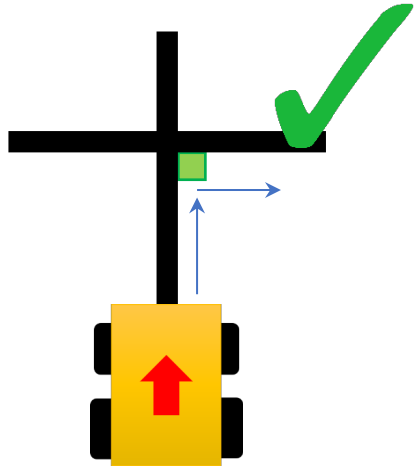
The intersection mark is placed just before the intersection.



Turn left



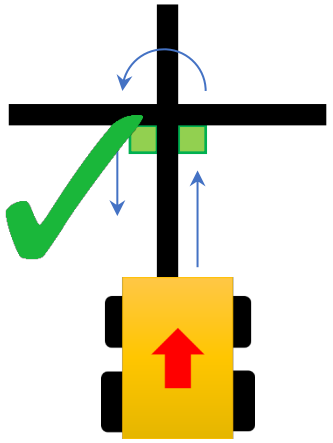
Go straight



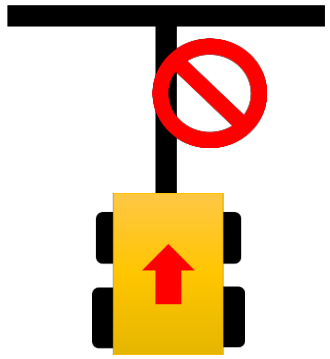
Turn right

Intersections

3.6.4. A dead end is when there are two green marks before an intersection (one on each side of the line), in this case the robot should turn around.



Turn around

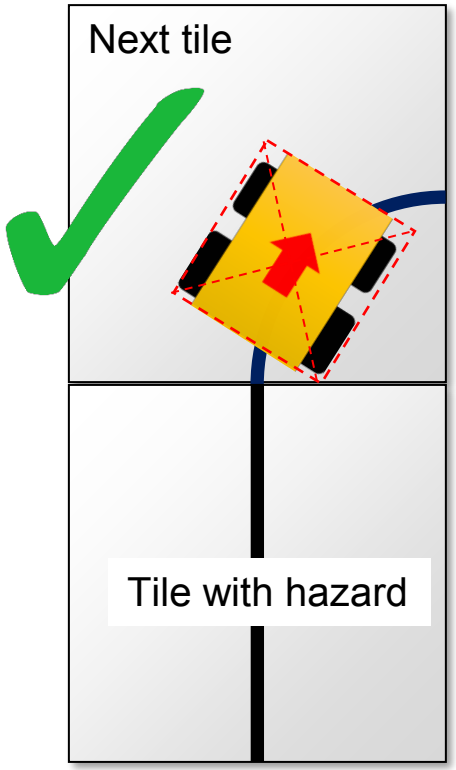


Not possible

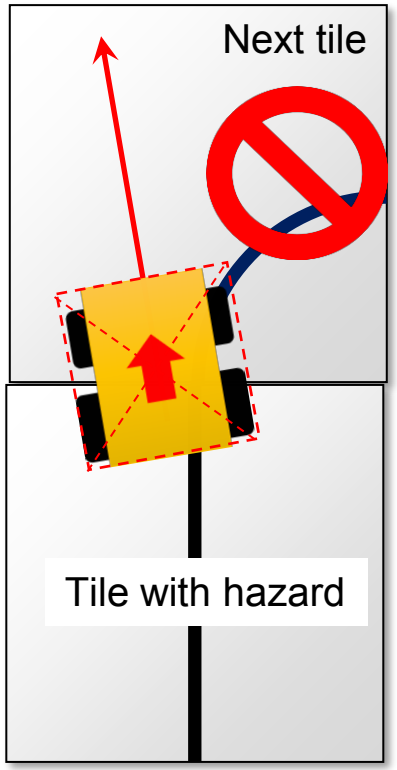
do not make such a course

Scoring

5.6.1 Points are awarded per hazard when the robot has reached the subsequent tile in sequence



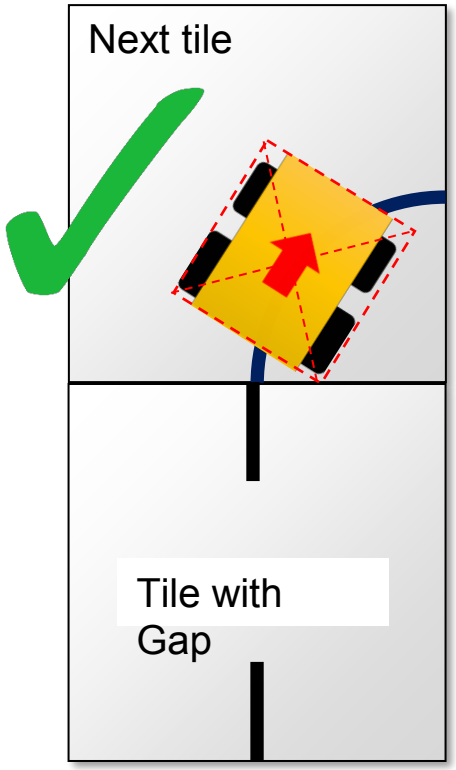
The robot is moving along the black line in this tile.



The robot is not moving along the black line in this tile.

Successful Gap

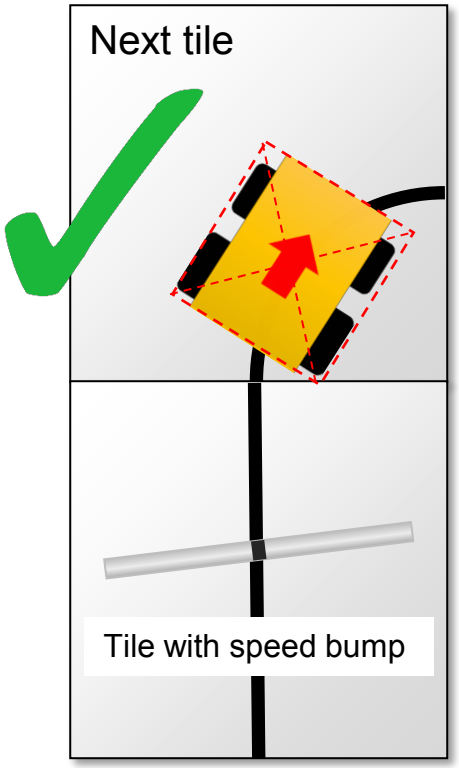
5.6.1 A robot is awarded points for successfully navigating each hazard (gaps in the line). Points are awarded per hazard when the robot has reached the subsequent tile in sequence. Point allocations are, 10 points per gap



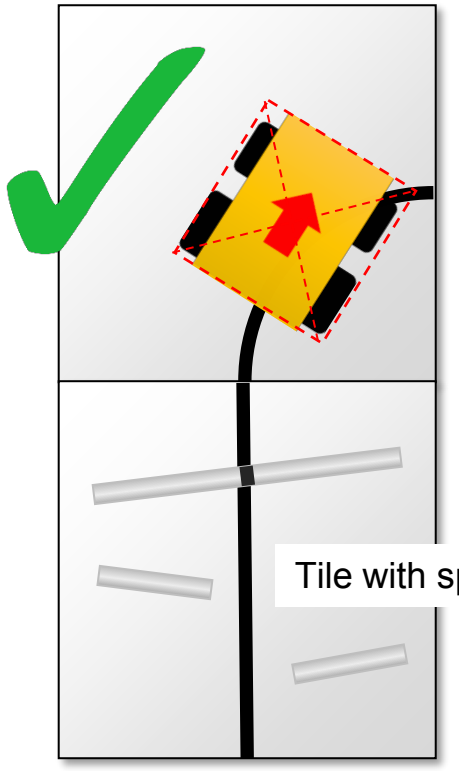
The robot is moving along the black line in this tile.

Successful Speed Bump

5.6.1 A robot is awarded points for successfully navigating each hazard (speed bumps). Points are awarded per hazard when the robot has reached the subsequent tile in sequence. Point allocations are, 10 points per speed bump that touches the line.



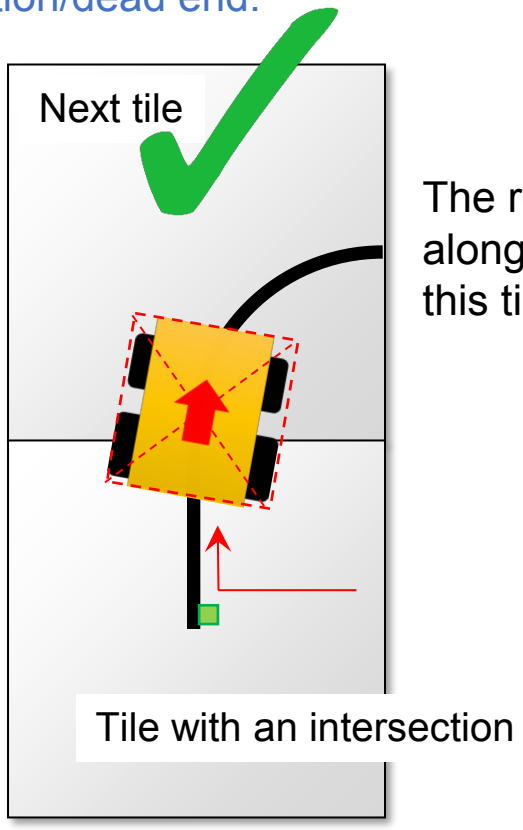
The robot is moving along the black line in this tile



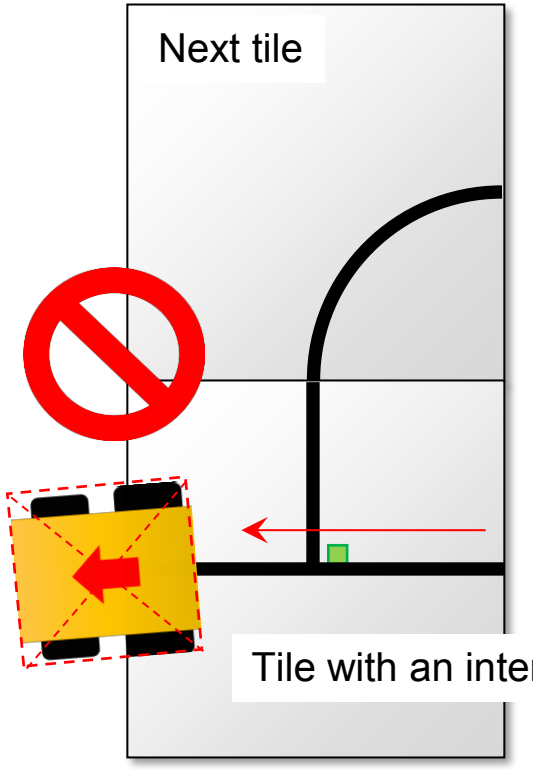
The robot is moving along the black line in this tile

Successful Intersection/Dead End

5.6.1 A robot is awarded points for successfully navigating each hazard (intersections, dead ends). Points are awarded per hazard when the robot has reached the subsequent tile in sequence. Point allocations are, 10 points per intersection/dead end.

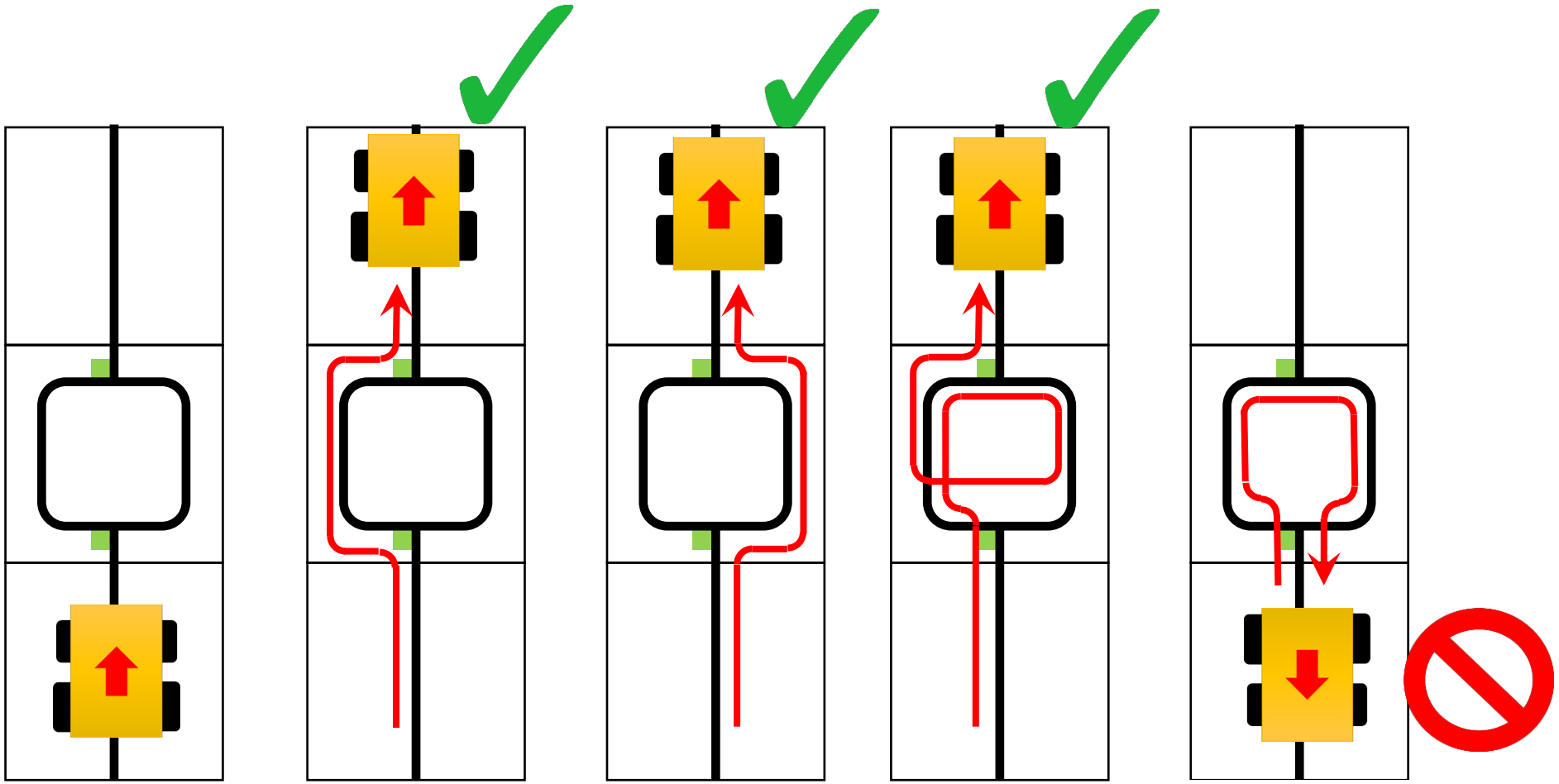


The robot is moving along the black line in this tile.



The robot goes to an incorrect tile.

Successfully negotiating an intersection tile



Successful 2 intersection 20 point

Not successful intersection

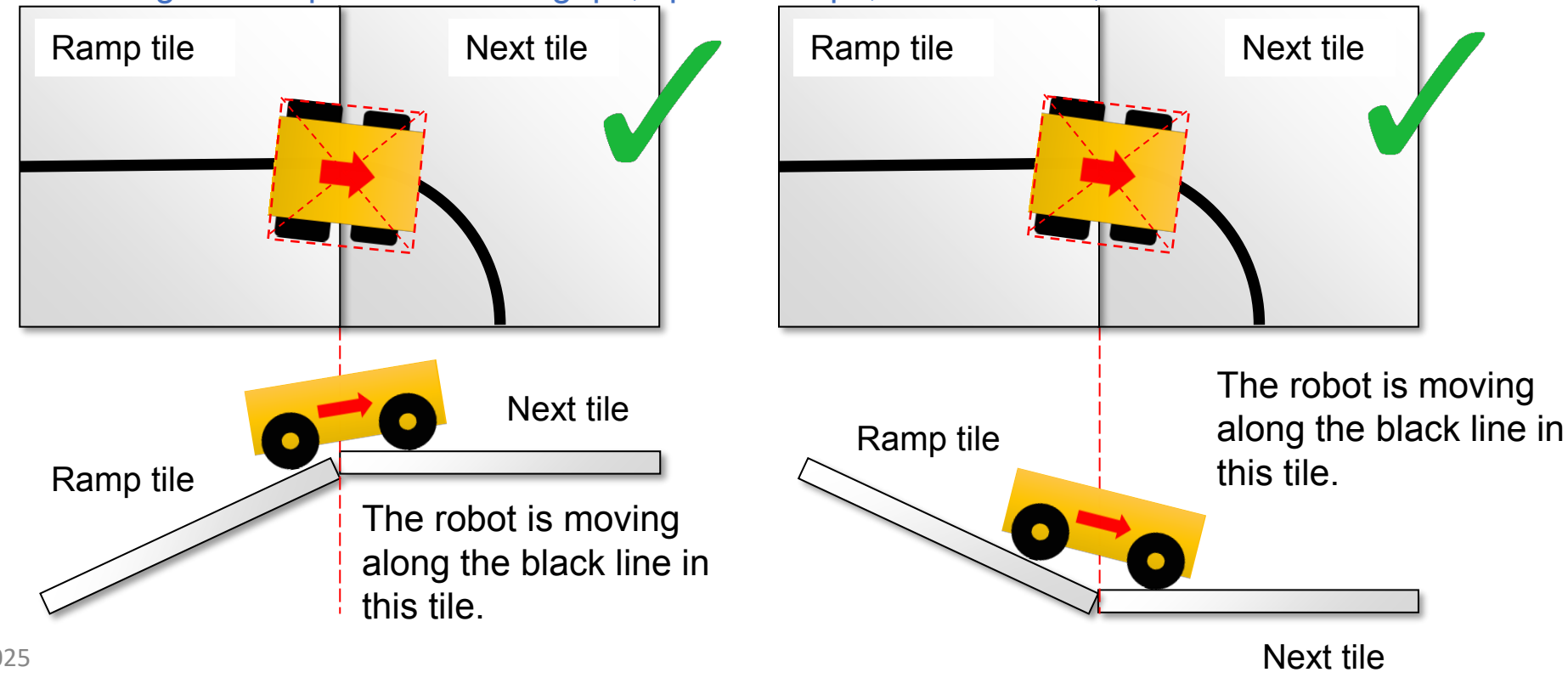
0 point and a lack of Progress

Successful Ramp

5.6.1 A robot is awarded points for successfully navigating each hazard (ramps). Points are awarded per hazard when the robot has reached the subsequent tile in sequence. A ramp as a hazard accounts for all of the inclined tiles that make up one ramp. Point allocations are, 10 points per ramp.

3.7.4 The ramp points will be awarded for each individual ramp tile instead of the entire ramp.

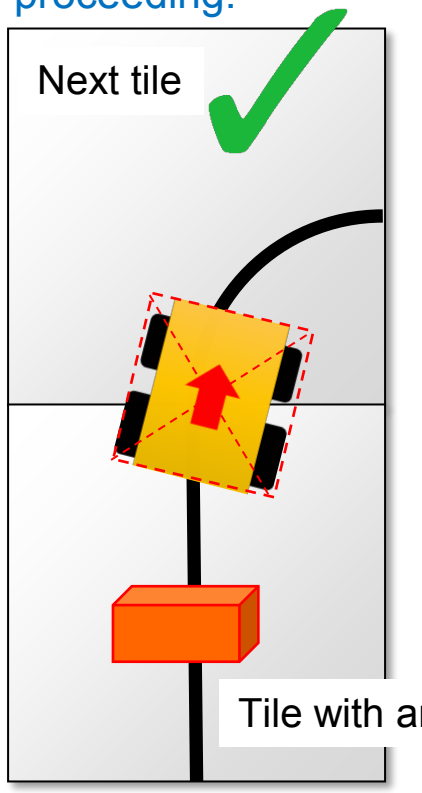
3.7.5 The line along the ramps can contain gaps, speed bumps, intersections, obstacles and debris.



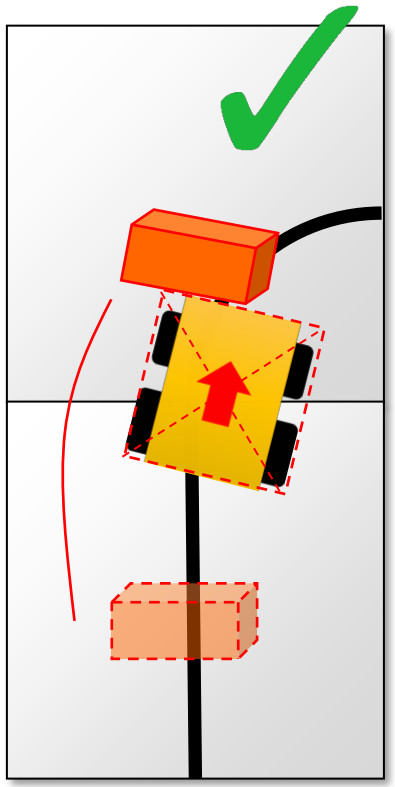
Successful Obstacle

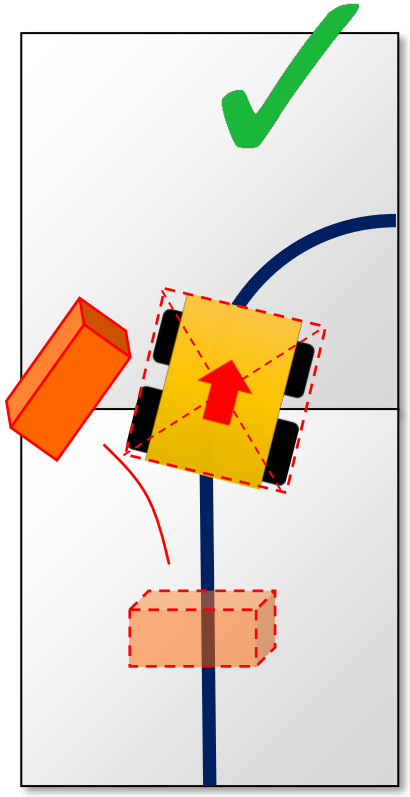
5.6.1 A robot is awarded points for successfully navigating each hazard (obstacles). Points are awarded per hazard when the robot has reached the subsequent tile in sequence. Point allocations are, 20 points per obstacle.

3.5.6 A robot is expected to navigate around obstacles. The robot may move obstacles, but obstacles may be very heavy or fixed to the floor. Obstacles will remain where they were moved to, even if that prevents the robot from proceeding.



The robot is moving along the black line in this tile.



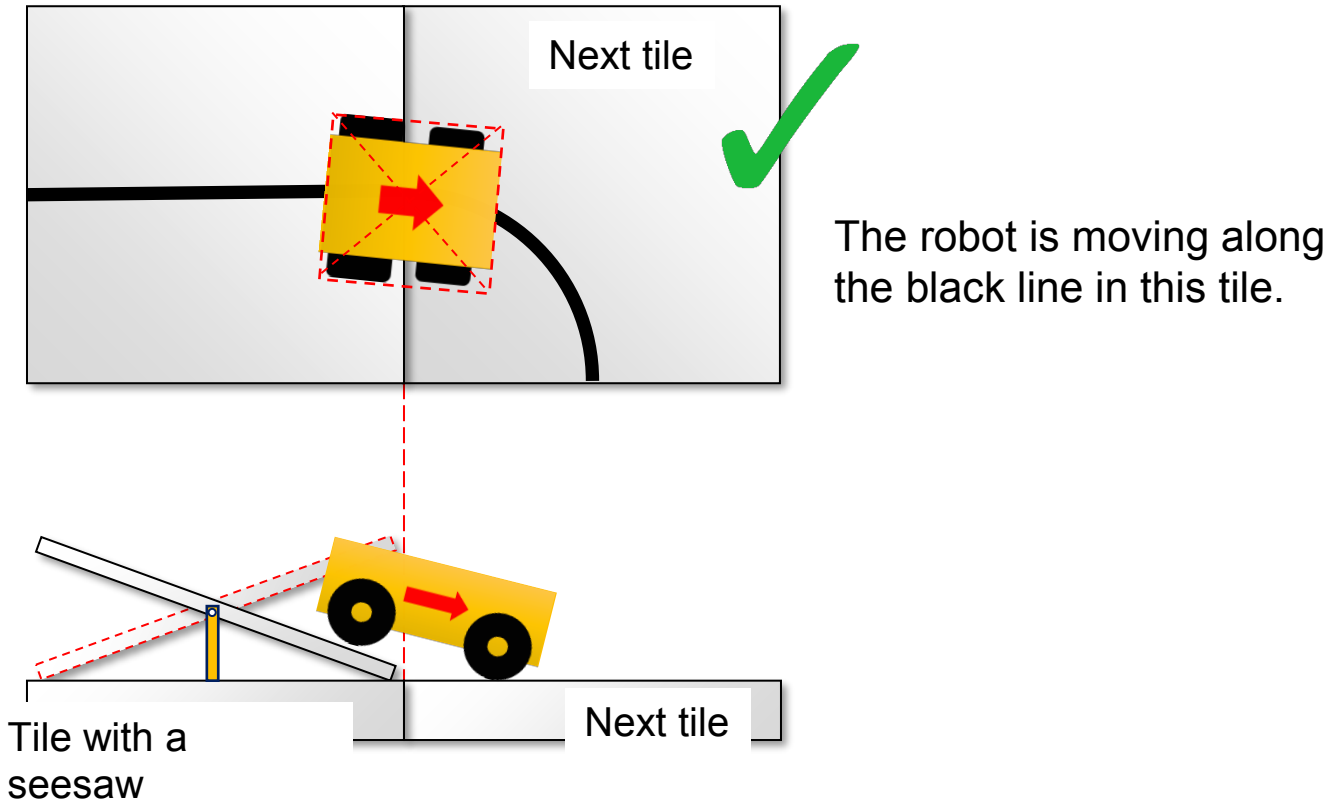


The robot pushes an obstacle and enters in the next tile □ the obstacle will be scored

Obstacles moved by the robot will not be returned to their original positions even during LoP.

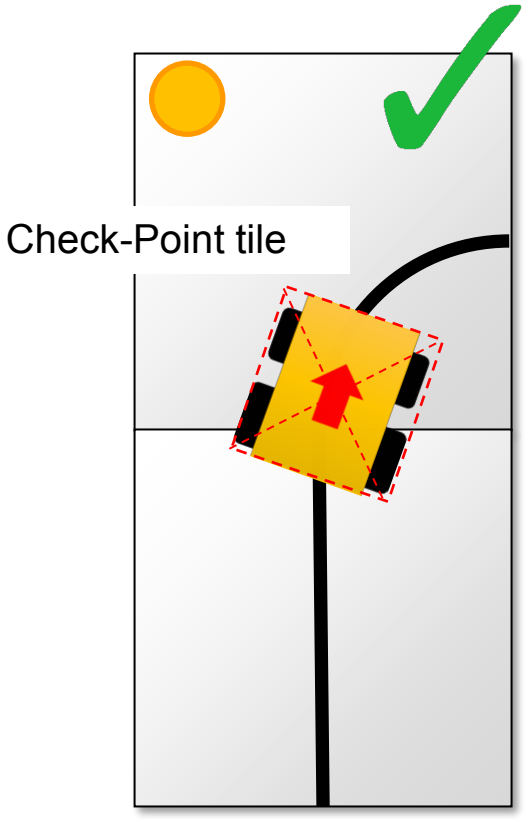
Successful Seesaw

5.6.1 A robot is awarded points for successfully navigating each hazard (seesaws). Points are awarded per hazard when the robot has reached the subsequent tile in sequence. Point allocations are, 20 points per seesaw.

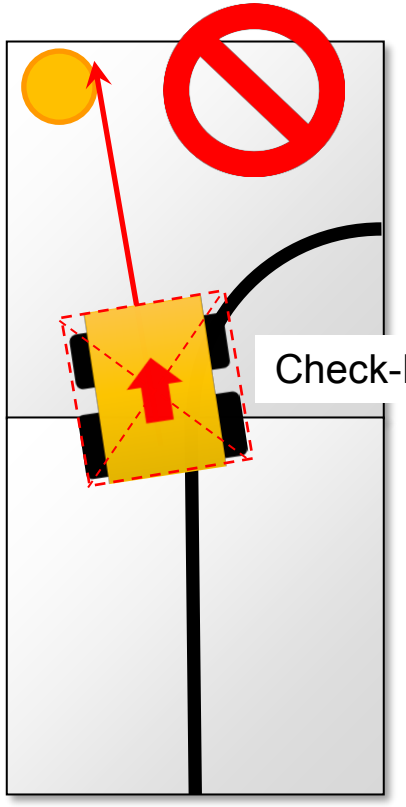


Successful Checkpoint

5.6.3 When a robot reaches a checkpoint tile or stops on the goal tile, it will earn points for each tile it has passed since the previous checkpoint.



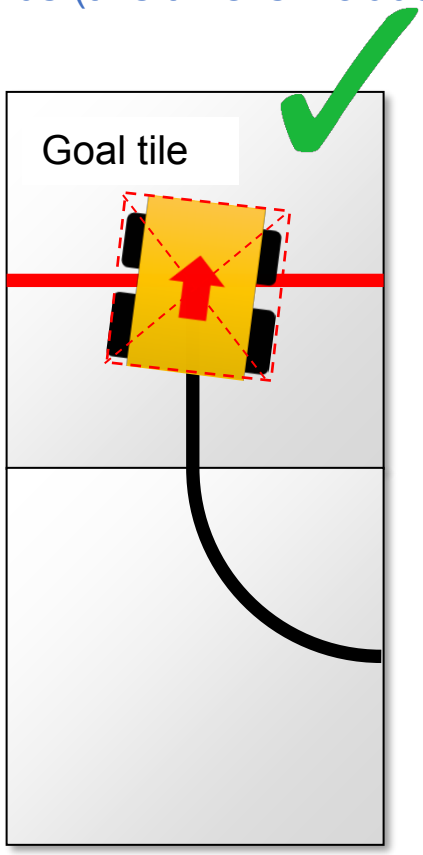
The robot is moving along the black line in this tile



The robot is not moving along the black line in this tile

Successful Exit Bonus

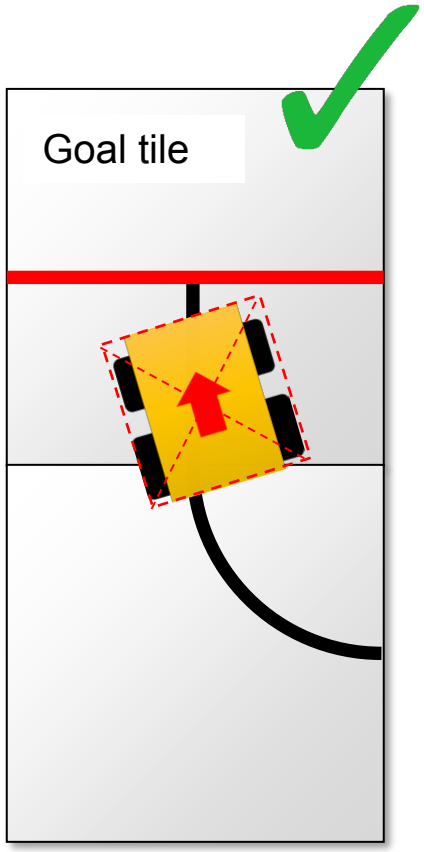
5.6.11 An exit bonus is awarded when the robot has reached the goal tile and has completely stopped for more than 5 seconds (this time is included in the total 8 minutes).



The robot advances along the black line in this tile

and

stops for 5 seconds after reaching the goal tile



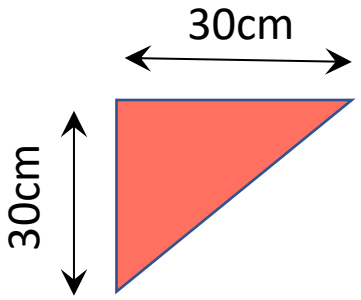
Even if the robot is not on the red line, if the robot stopped for 5 seconds after going along the line in the goal tile, it will be awarded the exit bonus.

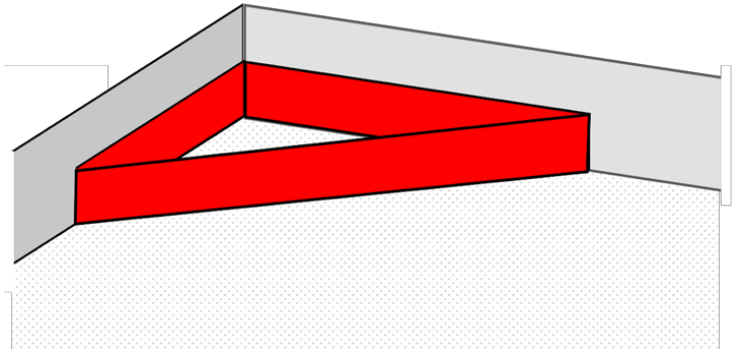
Evacuation Point

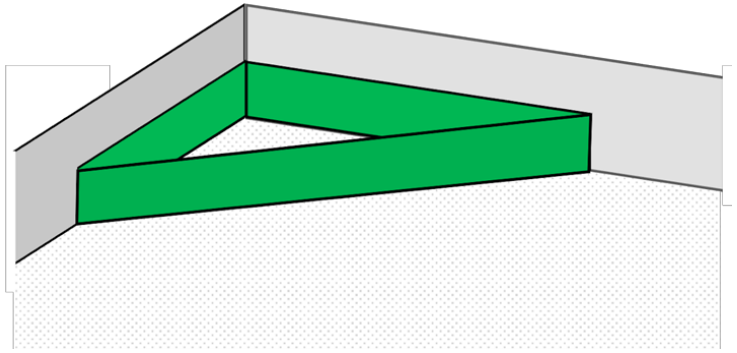
3.9.7 Safe evacuation points are defined by right-angled triangles with sides of 30 cm x 30 cm.

a. There will be one red evacuation point where the dead victim must be placed by the robot and,

b. There will be one green evacuation point where the living victims must be placed by the robot.

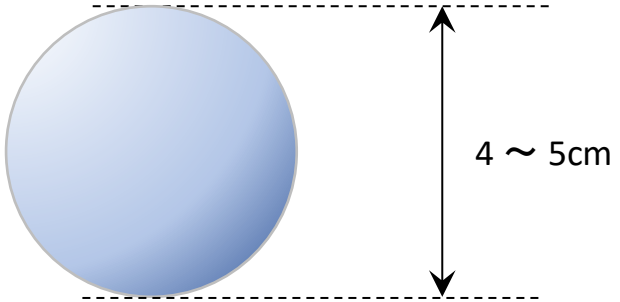






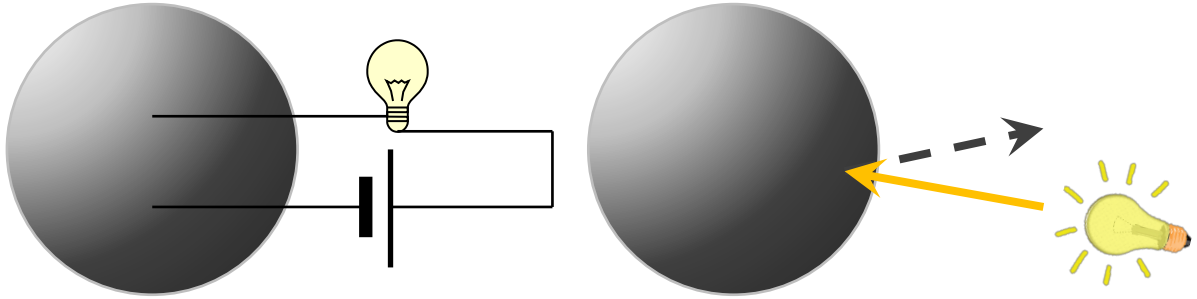
Victims

3.10.2 A victim represents a person and is in the form of a 4-5 cm diameter sphere with an off-center center of mass and a maximum weight of 80 g.

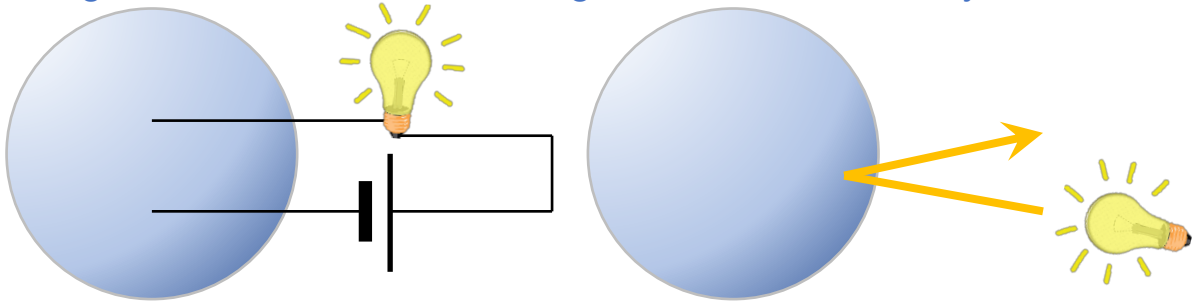


3.10.3 There are two types of victims:

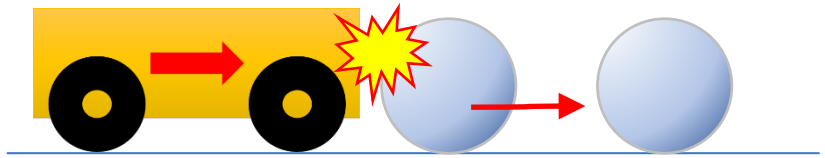
a. Dead victims are black and not electrically conductive.



b. Living victims are silver, reflect light, and are electrically conductive.

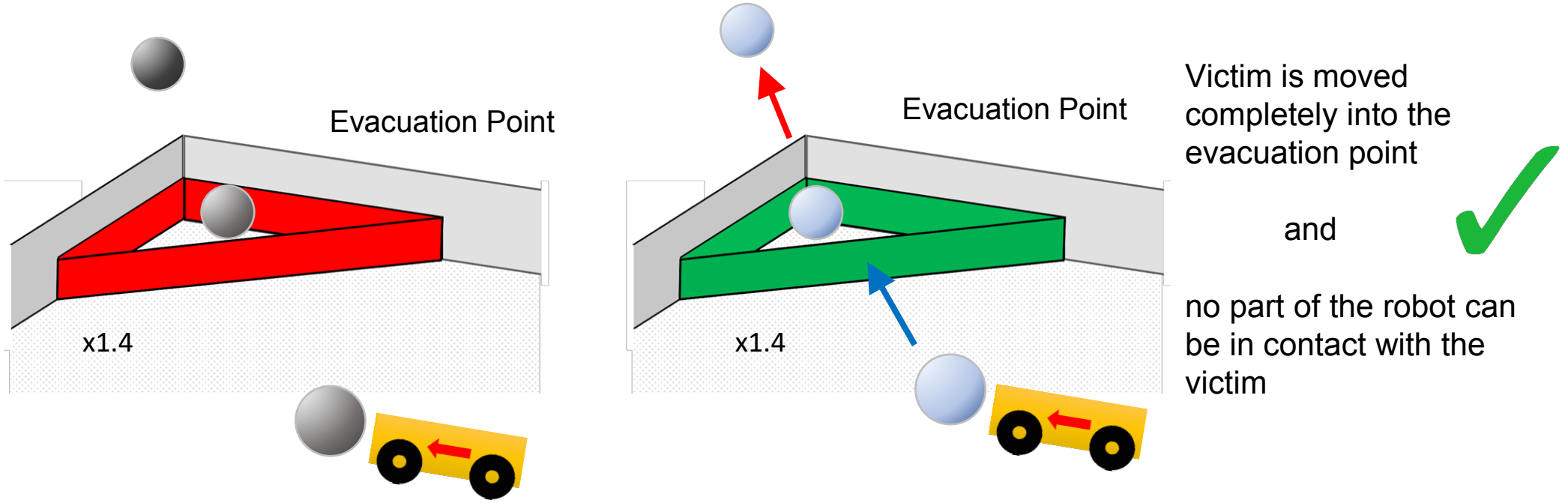


When a robot touches it, it rolls



Successful Victim Rescue

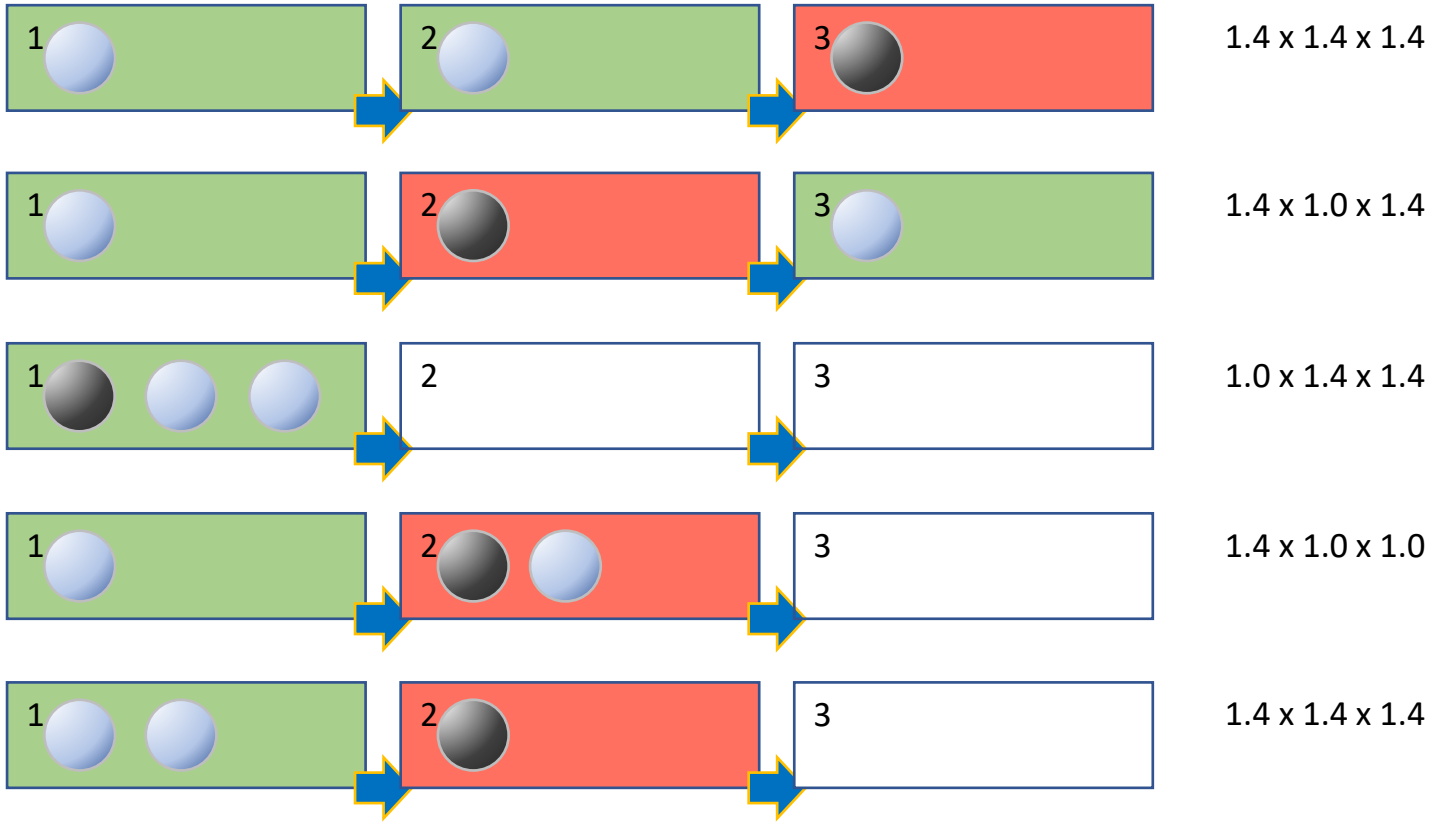
5.6.6 Successful victim rescue (SVR): Robots are awarded multipliers for successfully rescuing victims. A successful victim rescue occurs when the victim is entirely moved into the designated evacuation point, and no part of the robot can be in contact with the victim. When the referee determines there has been a successful victim rescue, the referee will remove the victim from the evacuation point to allow more victims to be evacuated.



Successful Victim Rescue

5.6.6 The multipliers are allocated as such:

- (SLVR) = × 1.4 per successful rescue of a living victim.
- (SDVR) = × 1.4 per successful rescue of the dead victim if both living victims have already been successfully evacuated.



Evacuation Zone Multiplier

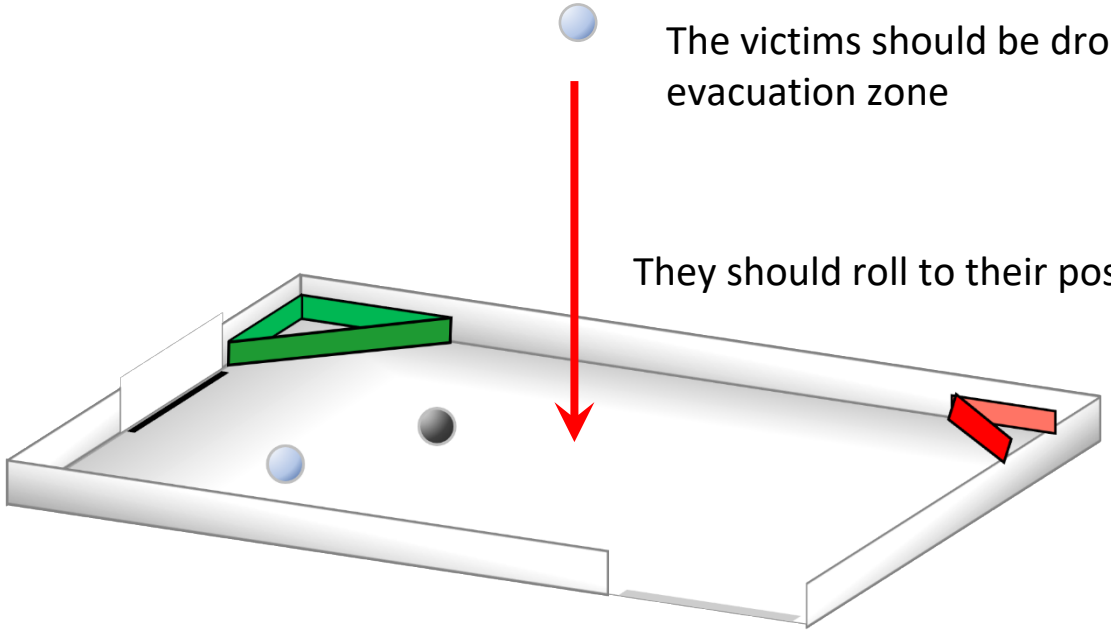
5.6.8 When a lack of progress occurs between checkpoints (or a checkpoint and the goal) containing an evacuation zone, each of the (SVR) obtained multipliers will be deducted.

There are 2 counters for lack of progress:

a. Counter for all lack of progresses, used for calculating the exit bonus
b. Counter for lack of progresses in the area containing an evacuation zone, used

Victim Placement

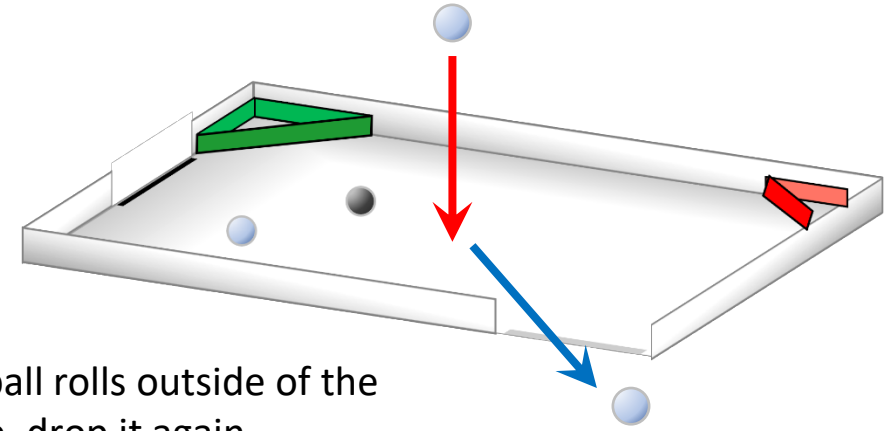
3.10.4 Organizers will locate the victims randomly in the evacuation zone. There will be precisely two live victims and one dead victim placed in the evacuation zone.



The victims should be dropped from the center of the evacuation zone

They should roll to their positions by themselves.

The victims should never be touched or pushed by humans to new locations after they are dropped in the evacuation zone.



If the dropped ball rolls outside of the evacuation zone, drop it again.

Pre-Mapping

Pre-mapped type of dead reckoning (movements predefined based on known locations before game play) is prohibited.

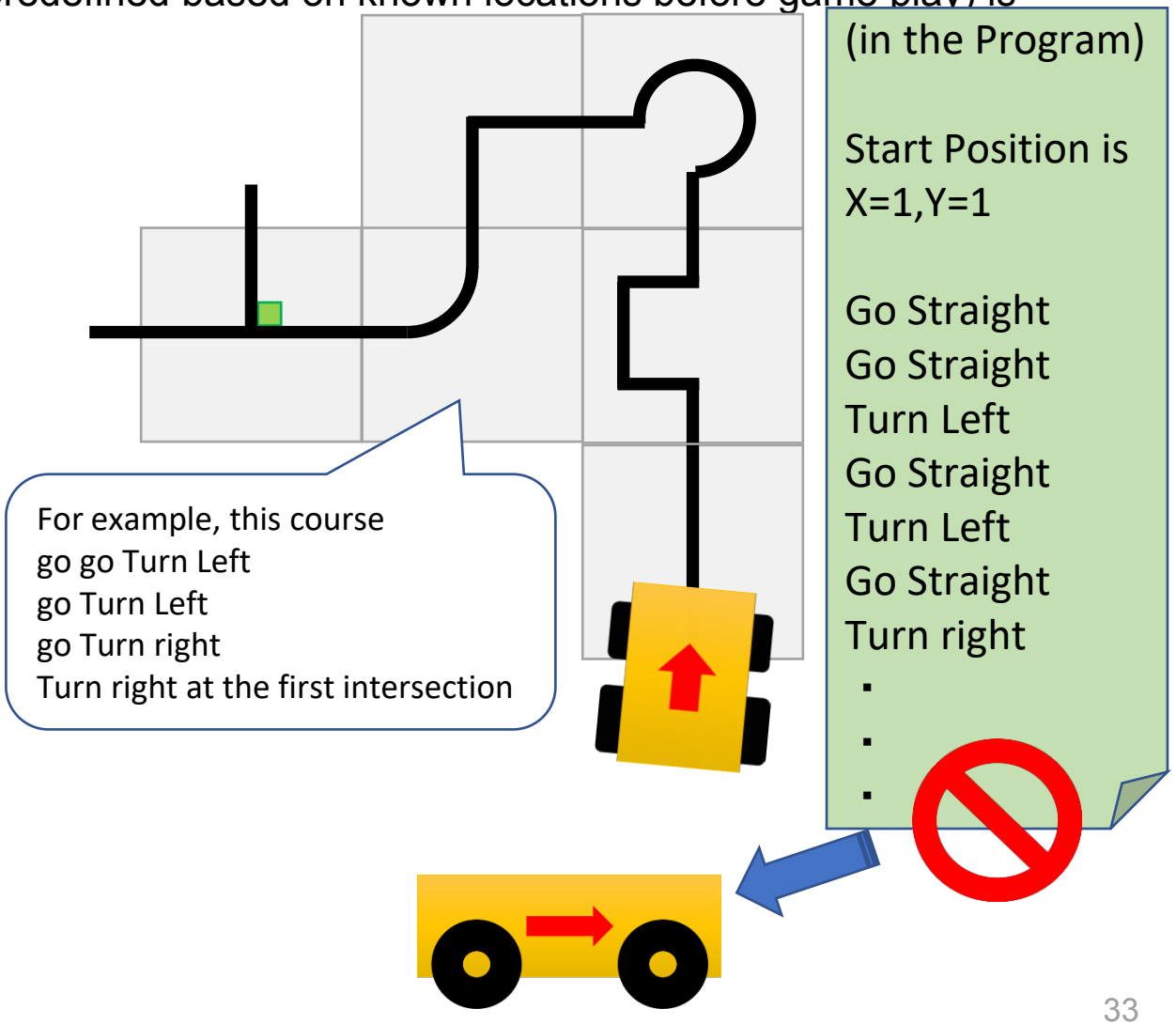
Information that is OK to tell the robot beforehand:

- inclination of the ramp
- width of the line
- color values of intersection markers, etc.

Information that is NOT OK to tell the robot:

- location or size of the obstacles
- placement of the evacuation point
- if it is better to go right or left around obstacles
- number of checkpoint markers, etc.

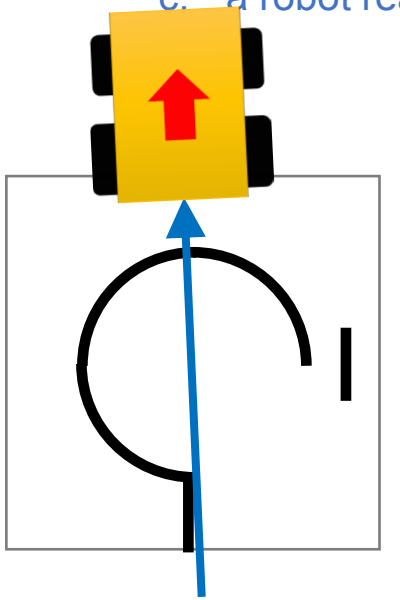
everything that can vary between different runs



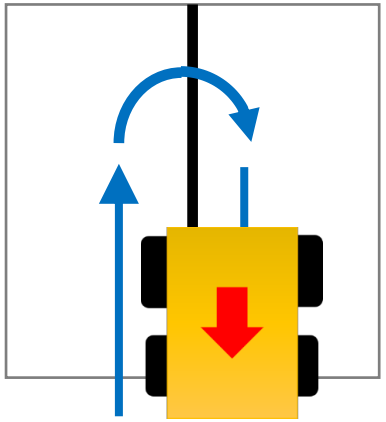
Lack Of Progress

5.5.1 A lack of progress occurs when:

a. a team captain declares a lack of progress.
b. a robot loses the black line without regaining it by the next tile in the sequence (see figures at end of the section).
c. a robot reaches a line that is not in the intended sequence.

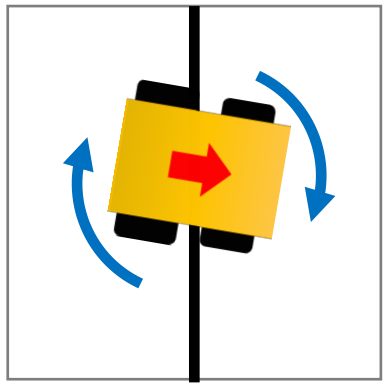


Don’t follow the line

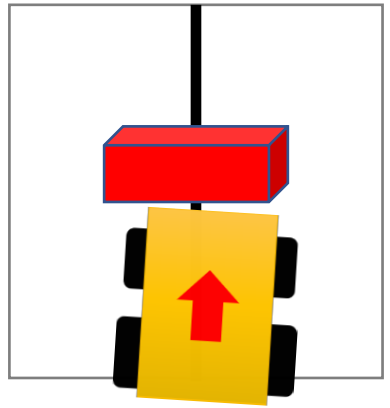


Reverse run

These are not “Lack of progress”.



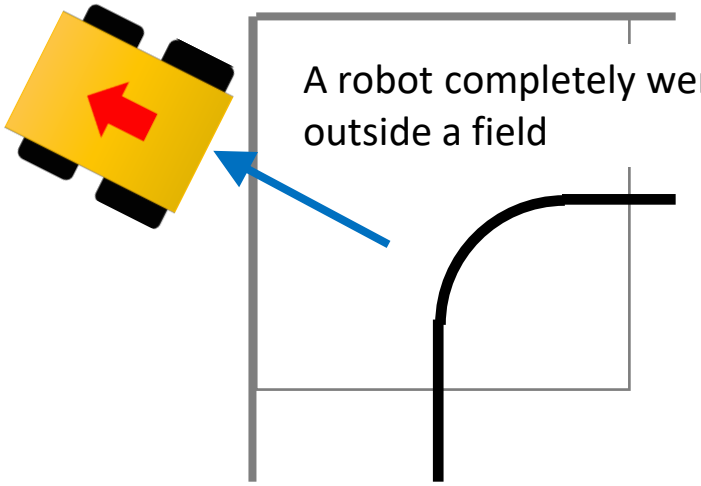
Turn on the spot



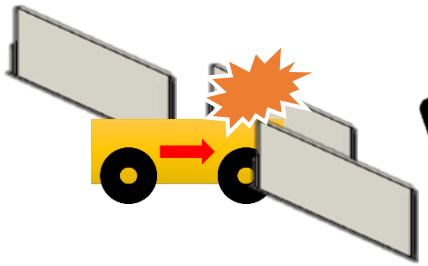
Not move

Other
It deviated from the black line, and the robot returned to the black line that the robot already passed.
It deviated from the black line, and the robot cannot return to the original line by the next tile etc.

Lack Of Progress



The team captain declares



A robot damages the field.

A team member damages or touches the field.

A team member touches the field or their robot without permission from a referee.

In these cases, the referee declares a Lack of progress or any penalty.

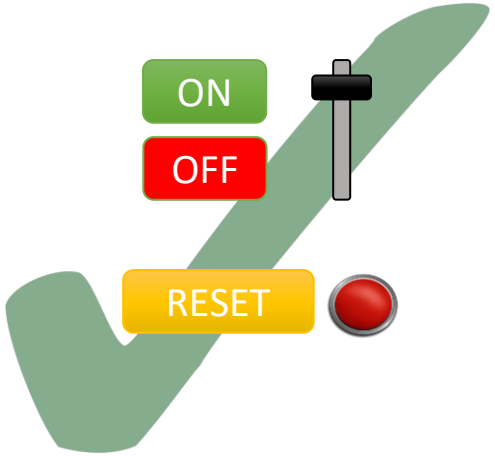
After Lack of Progress was declared

5.5.3 After a lack of progress, the team must reset the robot by using a switch of button located in a clearly visible location by the referee.

Team captain can:

- Power Off & On
- Reset the program

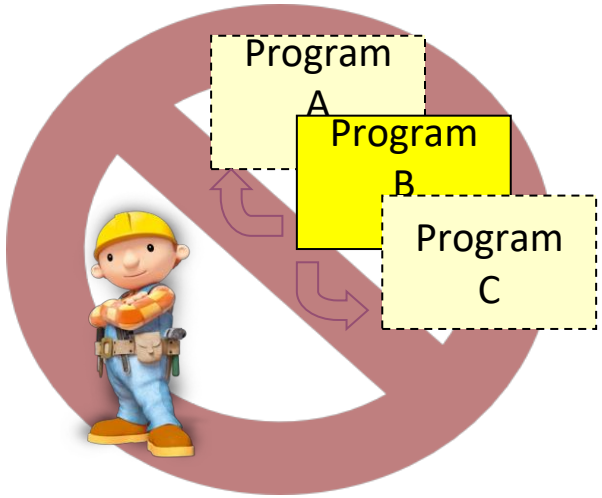
 Same operation at every LOP



When a robot loses parts in the field, nobody is allowed to remove them.

Team captain cannot

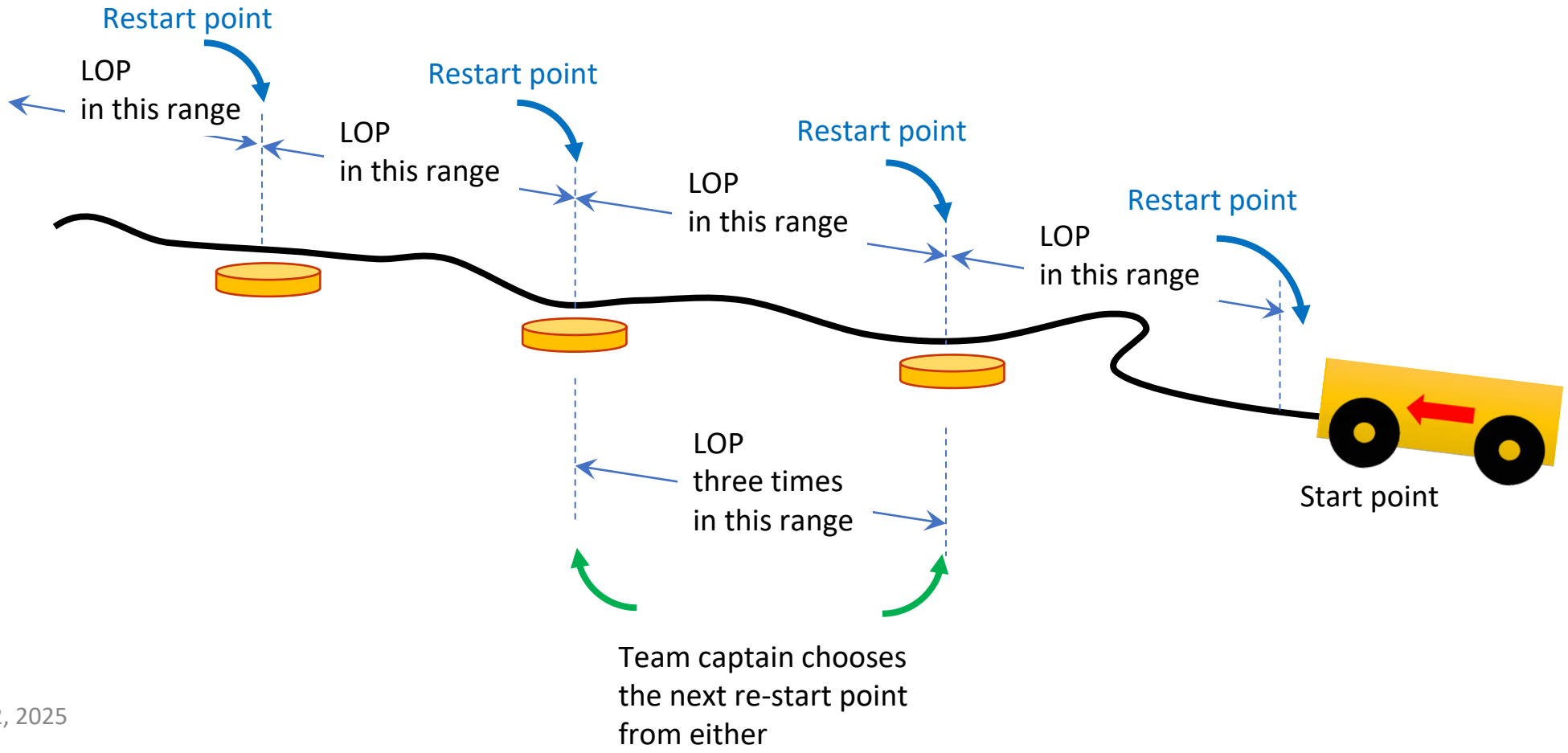
- Change program
- Modify the program
- Repair the robot
- Input a re-start position
- **Manually modify the robot**



When a Lack Of Progress

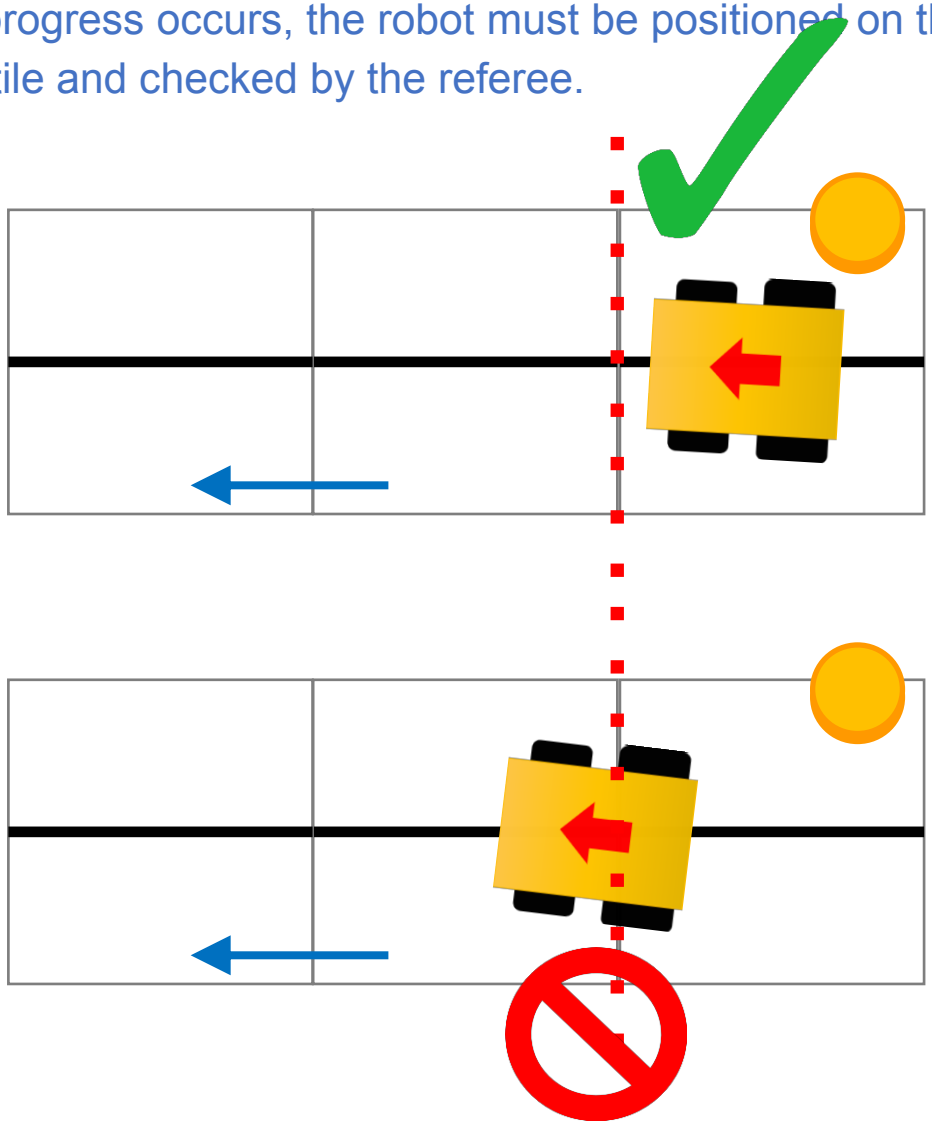
If a Lack of Progress happens, the robot must be positioned at the previous checkpoint facing the evacuation zone, and checked by the referee.

A robot is allowed to proceed to the following checkpoint, if the robot fails to reach it after the third attempt.



When a Lack Of Progress

5.5.2 If a lack of progress occurs, the robot must be positioned on the previous checkpoint tile facing the path towards the goal tile and checked by the referee.



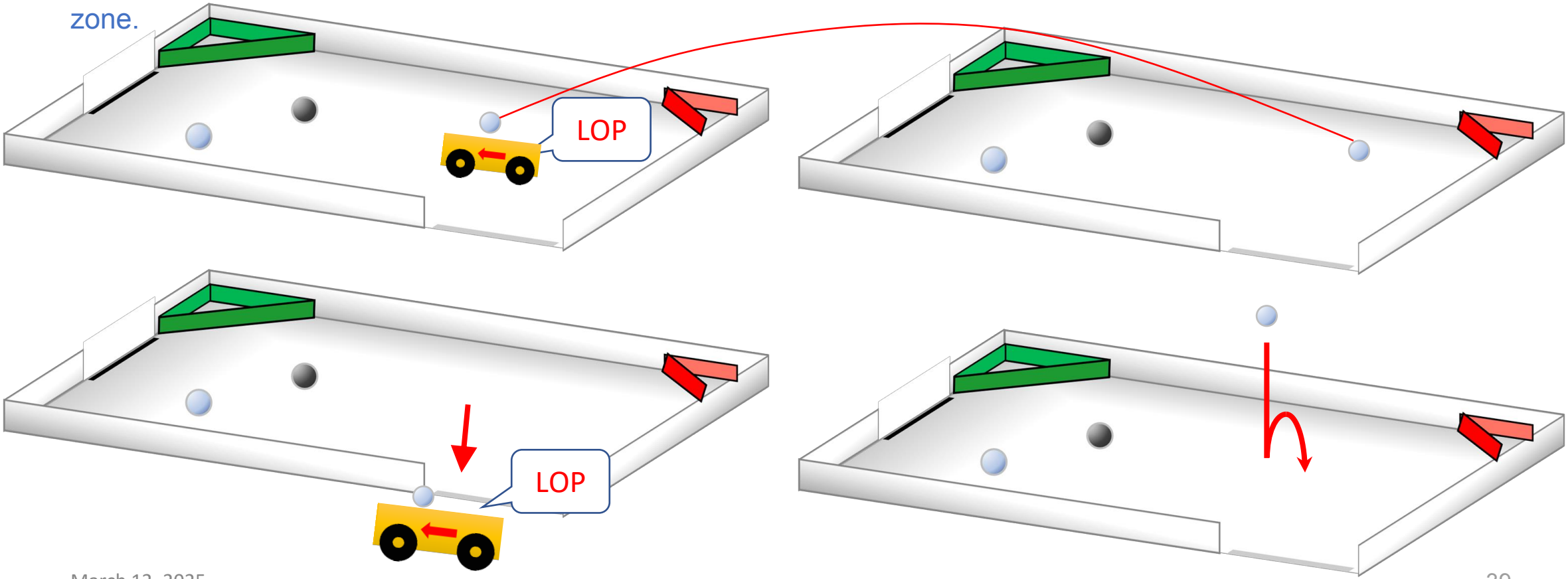
The direction of the robot should be in the direction of the path toward the goal tile

When the robot restart

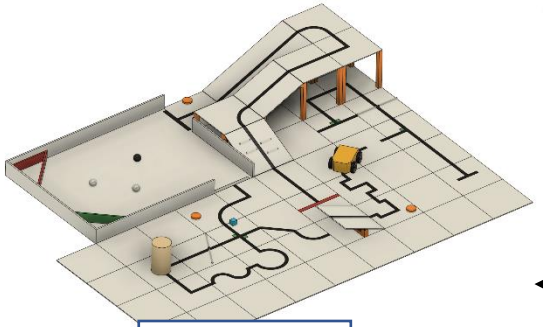
The referee checks the position of the robot.

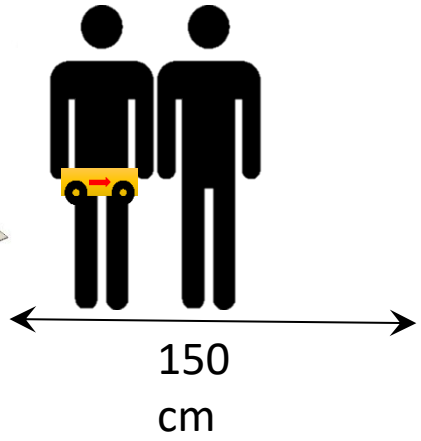
When a Lack Of Progress

5.5.6 Suppose a lack of progress occurs in the evacuation zone. In that case, all victims (including ones that have rolled) will remain in their current position. Victims that are held by the robot will be placed roughly on the robot's location when a lack of progress occurs in the evacuation zone. Suppose a lack of progress occurs as the robot exits the evacuation zone while carrying victims. In that case, the victims will be randomly placed in the evacuation zone.

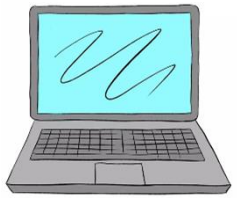


Start of Play

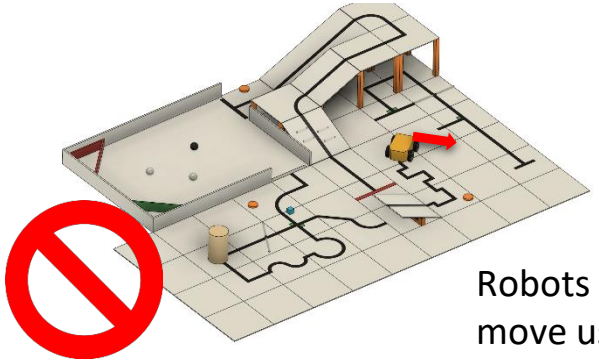




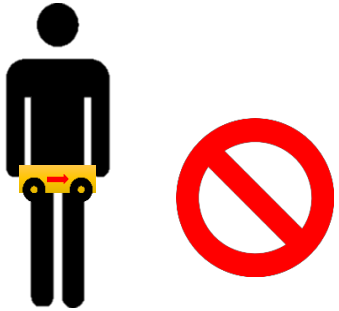
Teams should designate a team member as ‘captain’ and ‘co-captain’. Only these two team members will be allowed access to the competition fields.
Other team members within the vicinity of the rescue field have to stand at least 150 cm away from the field.



Calibration is defined as the taking of sensor readings and modifying a robot’s program to accommodate such sensor readings. **Pre-mapping activities will result in immediate robot disqualification for the round.**



Robots are not permitted to move using its own power while calibrating.



Once the game has begun, the robot playing is not permitted to leave the competition area for any reason.

Calibration

Set up

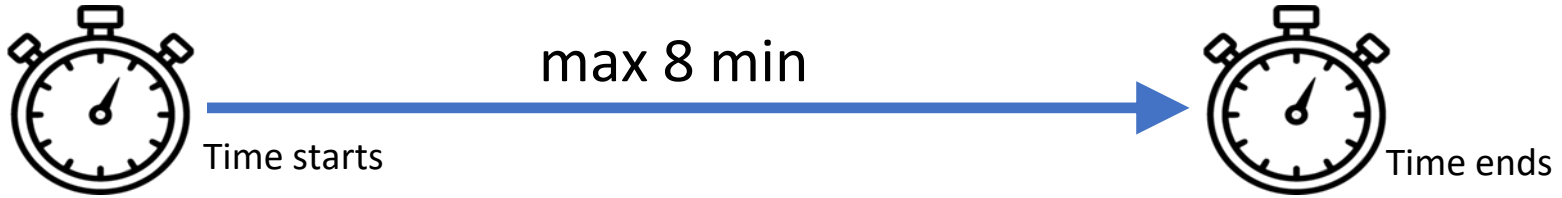
Scoring run

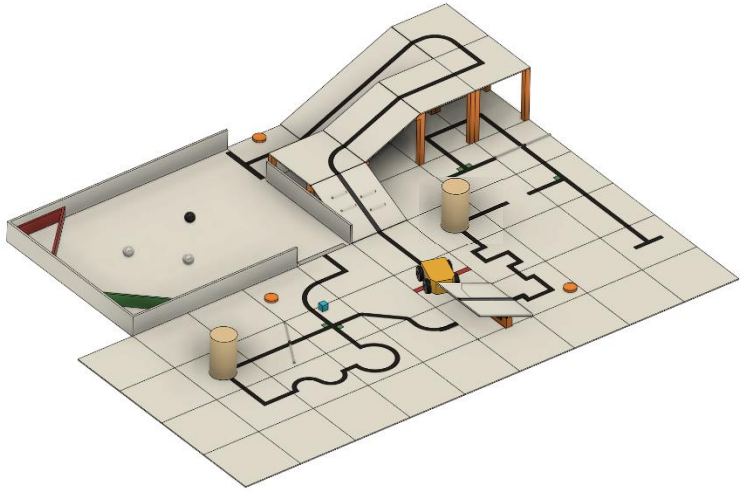
max 8 min

End of Play

5.7.2 The game ends when:

a. the 8 minutes of allowed game time expires
b. the team captain calls end of game
c. the robot reaches the goal tile and completely stops for 5 seconds





The robot reaches the goal tile and completely stops for 5 seconds

The time expires

8 min

The team captain calls end of round.

Scoresheet

- Judges record points a team scores on a **scoresheet**.
- The **judge's decision** on the scoring of a runs is **final**.
- If a team **disagrees** with the score, the team captain has to **write a comment in the designated part of the scoresheet** and **sign** it.
- The scoresheet will be reviewed **later**, and the team will be approached to present **video evidence** to their claim.

The teams **are allowed** to film their runs, but video evidence will **only be accepted during the review**.

No videos are to be discussed at the field.

Videos will **only** be inspected if a **comment was written** in the **signed scoresheet**.