Team stratagy

Autonomous goals

Note

As per <VUG6> the goals are:

- Scored both of their Alliance Triballs in Goals.
- Ended the Autonomous Period with both Robots contacting their own Elevation Bar
- Not violated any other rules.

Question

Questions

Are the triballs allowed in any goal.

A. yes <SC5>

Where do the Alliance Triballs start

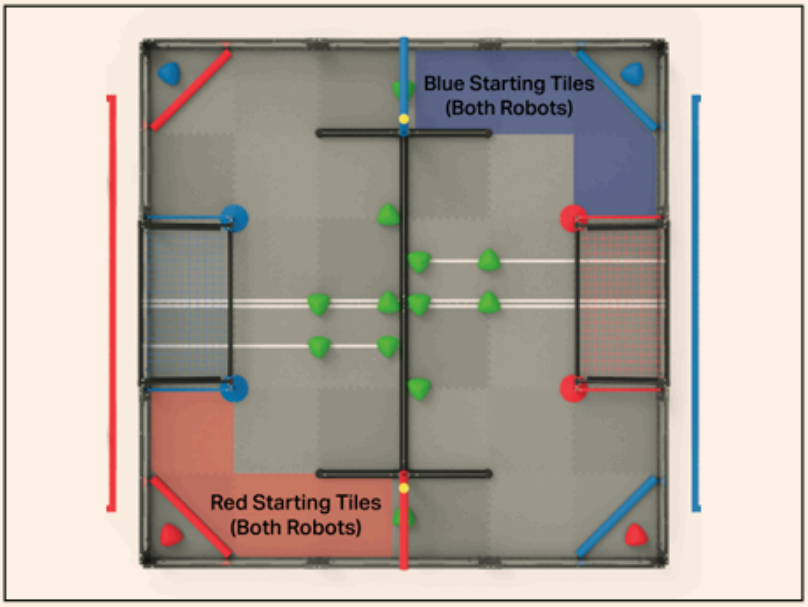


Figure 42: VEX U Starting Positions

<VUG2> Different Preloads. All criteria of rule <SG4> apply as written. However, the *Triballs* that are used as *Preloads* are standard (green) *Triballs*. *Alliance Triballs* begin in the *Match Load Zones*, as shown in Figure 42.

Where can the robots go during the autonomous period

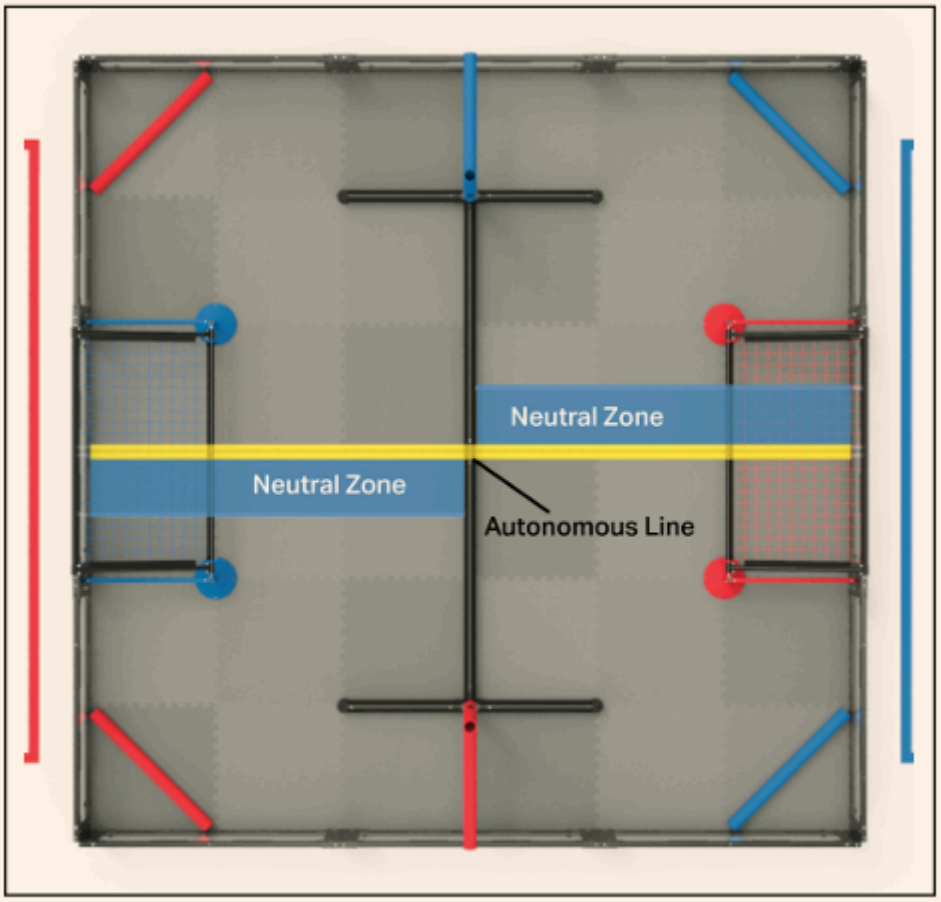


Figure 19: *A depiction of the Neutral Zone (blue) and Autonomous Line (yellow) and their boundaries.*

<VUG3> Different Autonomous zones. During the *Autonomous Period*, *Robots* may not contact foam tiles, *Triballs*, or Field Elements on the opposing *Team's* side of the *Neutral Zones*. However, *Robots* are free to move between *Offensive Zones* at any time. All other portions of rule <SG9> apply as written.

Where is the Alliance Elevation Bar?

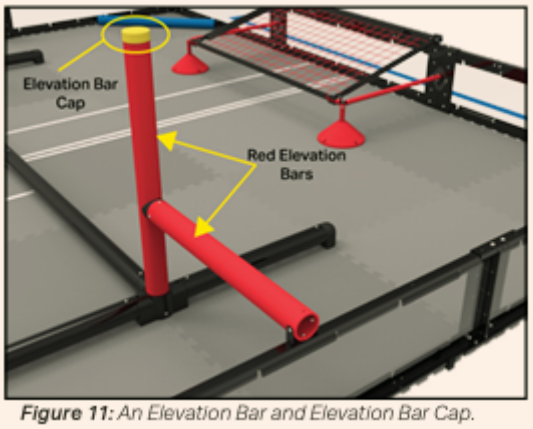


Figure 11: *An Elevation Bar and Elevation Bar Cap.*

Can robots score additional points within the autonomous period

- **Triball Scoring**: Each Triball scored in a goal during the Autonomous Period earns 5 points.
- **Offensive Zone Scoring**: Triballs placed in an Offensive Zone are worth 2 points each.

Aims

- Start on the starting tiles,
- The robots start with a green preload, this needs to be released or scored before the alliance triballs are collected.
- Collect Alliance triballs,
- Score with both alliance triballs.
- Move towards own Elevation Bar
- Contact own Elevation Bar before the end

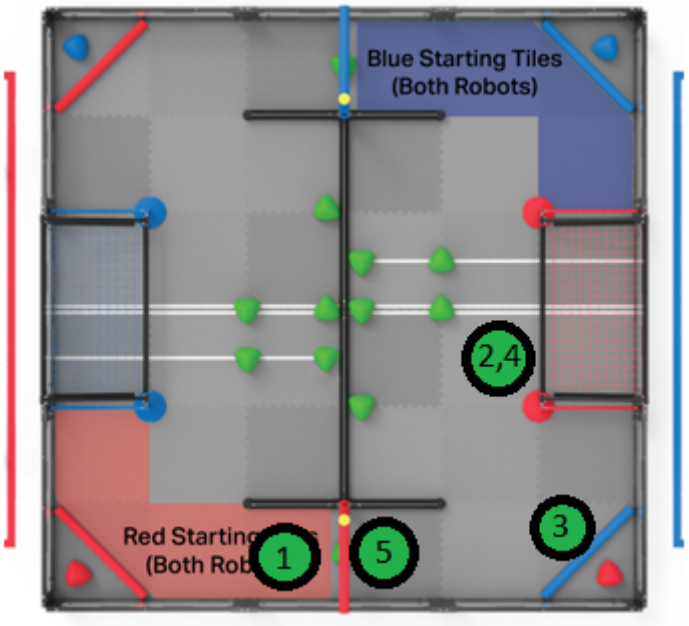
Stretch Aim

Score additional points

Concepts

Concept A

Robot A

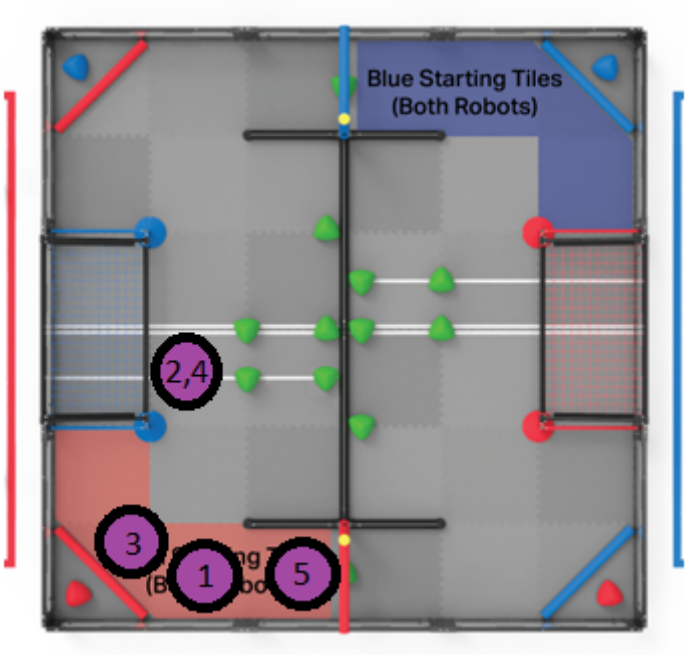


1. Robot A starts at point 1.
2. Scores goal [5]
3. collects Alliance triball.
4. Scores Alliance tribal in Alliance goal. [5]
5. moves towards Elevation Bar

Required equipment

- The guidance system could be blind, know where the robot is based on where it has been, so no other guidance equipment.
- some means of moving the acorn to the goal.
- some mean of contacting the Elevation Bar at the end, this will need to allow the robot to pass below the elevation bar at the start of the match.

Robot B



1. Robot B starts at point 1.
2. Deposits preload green ball in goal [-5]
3. collects Alliance triball.
4. Scores Alliance tribal in Alliance goal. [5]
5. Moves towards Elevation Bar

Required equipment

- The guidance system could be blind, know where the robot is based on where it has been, so no other guidance equipment.
- some means of moving the acorn to the goal.
- some means to contact the Elevation Bar at the end, as the robot says on one side of the the field the entire match, a pole could be attached to the back of the robot, the

robot reverses to the elevation bar at the end, until contact is made with the elevation bar.

Summary

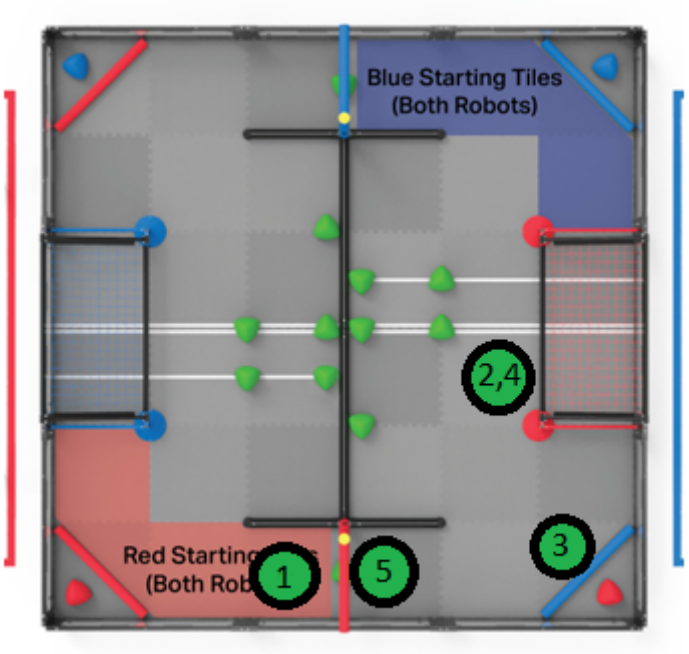
I don't think it is allowed to score the green preload in the oppositions goal, worse it may count as an oppositions goal.

The equipment required for this concept is low, no complicated guidance systems. Just a means to move the balls from point a to point B, and a means to contact the elevation bar. robot b, this could be a fixed bar.

This will give a score of 15 - 5.

Concept B

Robot A



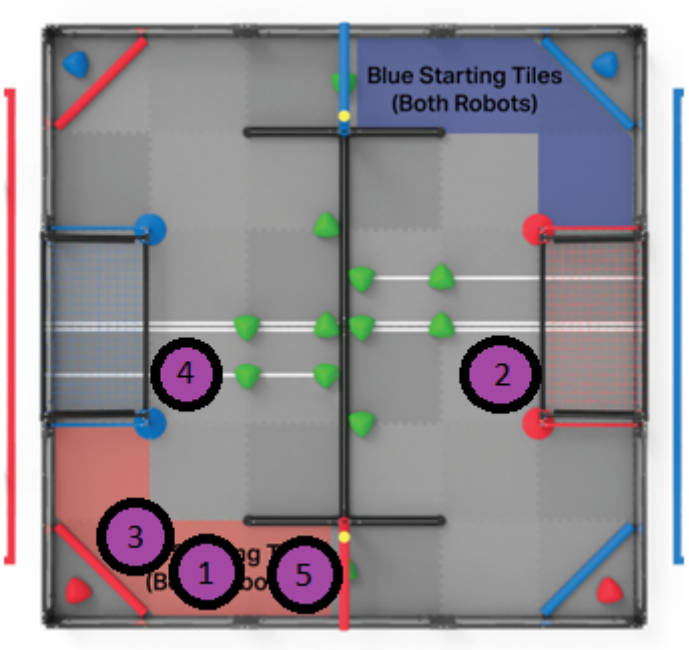
1. Robot A starts at point 1.
2. Scores goal [5]
3. collects Alliance triball.
4. Scores Alliance tribal in Alliance goal. [5]
5. moves towards Elevation Bar

Required equipment

- The guidance system could be blind, know where the robot is based on where it has been, so no other guidance equipment.
- some means of moving the acorn to the goal.

- some mean of contacting the Elevation Bar at the end, this will need to allow the robot to pass below the elevation bar at the start of the match.

Robot B



1. Robot B starts at point 1.
2. Deposits preload green ball in alliance goal [5]
3. collects Alliance triball.
4. Scores Alliance tribal in goal. [5]
5. Moves towards Elevation Bar

Required equipment

- The guidance system could be blind, know where the robot is based on where it has been, so no other guidance equipment.
- some means of moving the acorn to the goal.
- some mean of contacting the Elevation Bar at the end, this will need to allow the robot to pass below the elevation bar at the start of the match.

Summary

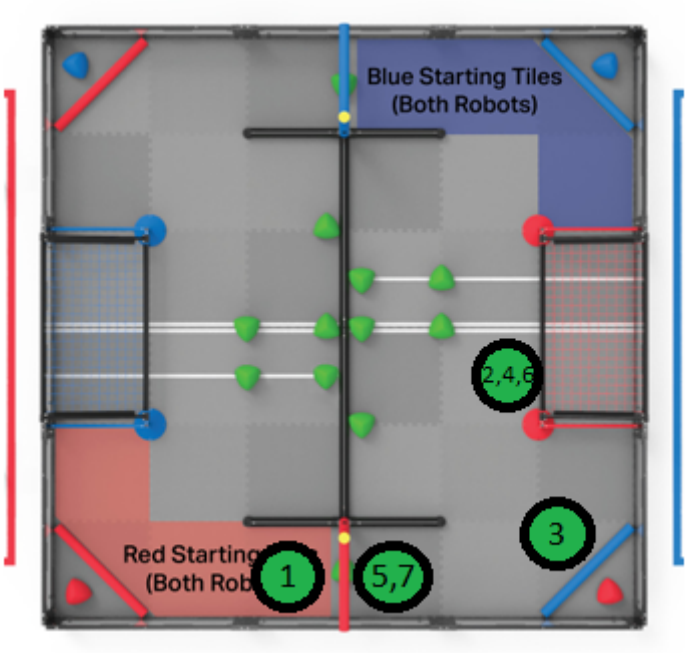
2 robots are in the same side at the same time, careful timing is required to ensure they don't interfere with one and other.

The equipment required for this concept is low, no complicated guidance systems. Just a means to move the balls from point a to point B, and a means to contact the elevation bar. Both robots need to pass below elevation bar.

This will give a score of 20.

Concept C

Robot A

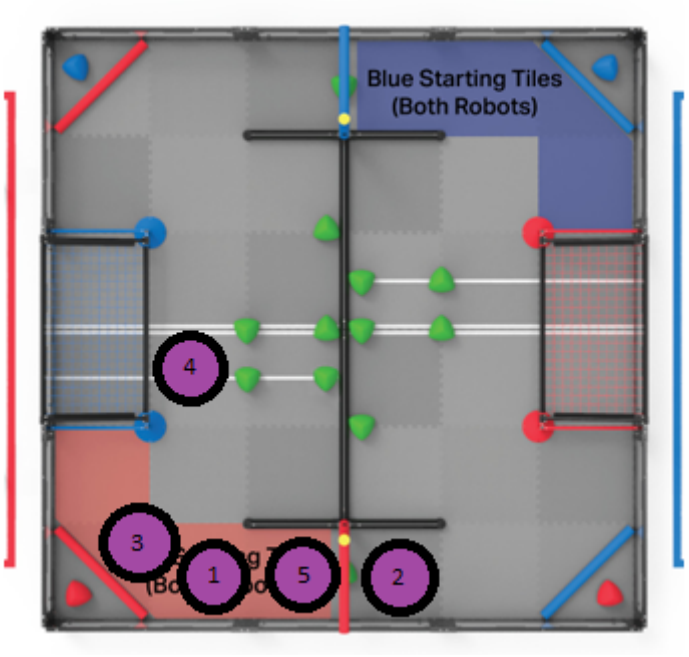


1. Robot A starts at point 1.
2. Scores goal with green preload [5]
3. collects Alliance triball.
4. Scores Alliance tribal in Alliance goal. [5]
5. collects green preload deposited by robot B
6. Scores goal with robot B deposited preload [5]
7. moves towards Elevation Bar

Required equipment

- The guidance system could be blind, know where the robot is based on where it has been, so no other guidance equipment.
- some means of moving the acorn to the goal.
- some mean of contacting the Elevation Bar at the end, this will need to allow the robot to pass below the elevation bar at the start of the match.

Robot B



1. Robot B starts at point 1.
2. Deposits preload green ball in offensive side [worth 2 points at this stage however, at the end of the stage this will be in the goal so worth a total of 5]
3. collects Alliance triball.
4. Scores Alliance tribal in goal. [5]
5. Moves towards Elevation Bar

Required equipment

- The guidance system could be blind, know where the robot is based on where it has been, so no other guidance equipment.
- some means of moving the acorn to the goal.
- some mean of contacting the Elevation Bar at the end, this will need to allow the robot to pass below the elevation bar at the start of the match.

Summary

The robots mostly keep to their own sides

The equipment required for this concept is low, no complicated guidance systems. Just a means to move the balls from point a to point B, and a means to contact the elevation bar. Both robots need to pass below elevation bar.

the point to which the robots need to travel are far more then the previous concepts, and therefore the error in position is going to increase with every move. An experiment to how many moves the robot can make before getting lost would be useful before choosing this concept.

This will give a score of 20.

Concept D

A 'catapult' to throw the Tri-balls to the other side of the arena.
A 'hungry hippo' mechanism to trap the Tri-balls. This will collects the thrown balls.

Robot A

Robot A will be the 'hungry hippo', this will be positioned on the Alliance goal side of the field. This will identify acorns, collect them, then place them in the goal.

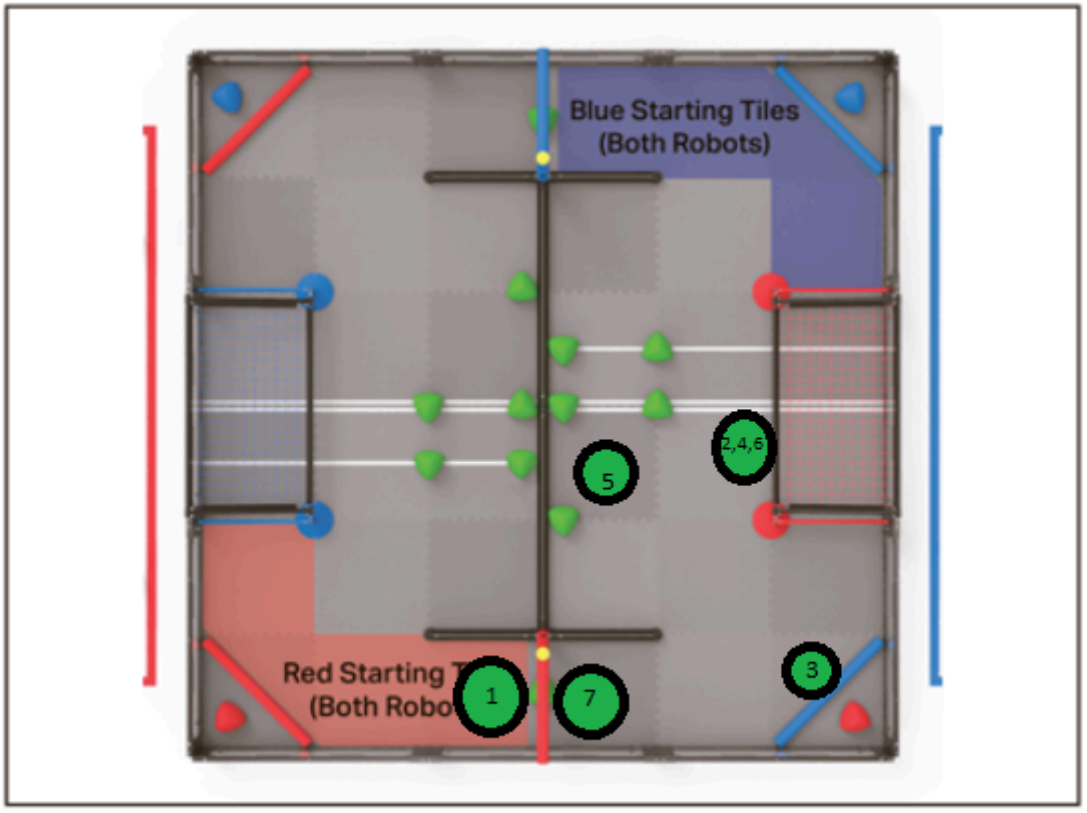


Figure 42: VEX U Starting Positions

1. Robot A starts at point 1.
2. Scores goal with green preload [5]
3. collects Alliance triball.
4. Scores Alliance tribal in Alliance goal. [5]
5. collect balls from point 5, then scores them, repeat as many times as possible.
6. Scores goal [5]
7. moves towards Elevation Bar

Required equipment

- The guidance system need to identify acorns so it can collect them and position them in the goal. Depending on the number of moves it my become disorientated.
- some means of moving the acorn to the goal.
- some mean of contacting the Elevation Bar at the end, this will need to allow the robot to pass below the elevation bar at the start of the match.

Robot B

Robot A will be the 'catapult', this will be positioned on the starting side of the field. This will collect acorns from the Alliance Match Loads and launch them to the other side of the field.

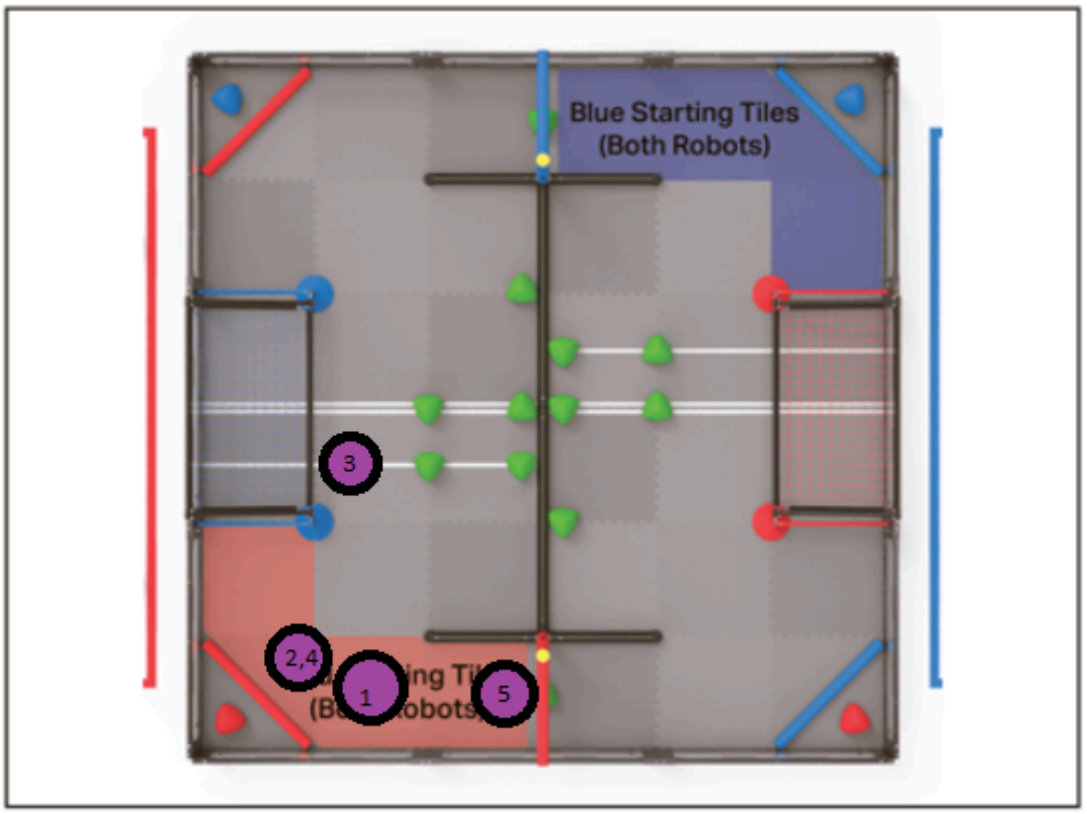


Figure 42: VEX U Starting Positions

1. Robot B starts at point 1.
2. Moves to Point 2, and launces the green preload to the other side of the field. Then collects the Alliance triball.
3. Scores Alliance tribal in goal. [5]
4. Stays at the Alliance Match Load and launces acorns to the other side of the field. [2+]
5. moves towards Elevation Bar

Required equipment

- The guidance system could be blind, know where the robot is based on where it has been, so no other guidance equipment.
- some special equipment for launching the triball to the other side of the field.
- some mean of contacting the Elevation Bar at the end, the robot stays on its side of the field, so no need to retract.

Summary

The robots mostly keep to their own sides

Robot A needs some sort of acorn locating systems and means to move acorns from point a to point B. Both robots need a means to contact the elevation bar, only robot A needs to pass below the elevation bar.

Some testing into whether the combined error of repeated moves for a blind guidance system is suitable.

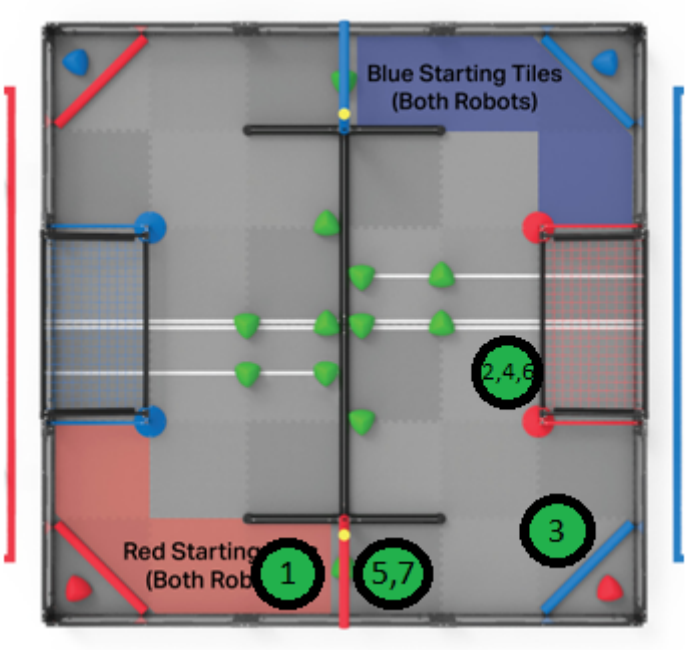
the point to which the robots need to travel are far more then the previous concepts, and therefore the error in position is going to increase with every move. An experiment to how many moves the robot can make before getting lost would be useful before choosing this concept.

This will give a score of 22+ depending on how many balls are scored withing this period.

Concept E

A 'catapult' to throw the Tri-balls to the other side of the arena.
A 'hungry hippo' mechanism to trap the Tri-balls. This robot will not identify the thrown balls.

Robot A



1. Robot A starts at point 1.
2. Scores goal with green preload [5]
3. collects Alliance triball.
4. Scores Alliance tribal in Alliance goal. [5]
5. collects green preload deposited by robot B
6. Scores goal with robot B deposited preload [5]
7. moves towards Elevation Bar

Required equipment

- The guidance system could be blind, know where the robot is based on where it has been, so no other guidance equipment.
- some means of moving the acorn to the goal.
- some mean of contacting the Elevation Bar at the end, this will need to allow the robot to pass below the elevation bar at the start of the match.

Robot B

Robot A will be the 'catapult', this will be positioned on the starting side of the field. This will collect acorns from the Alliance Match Loads and launch them to the other side of the field.

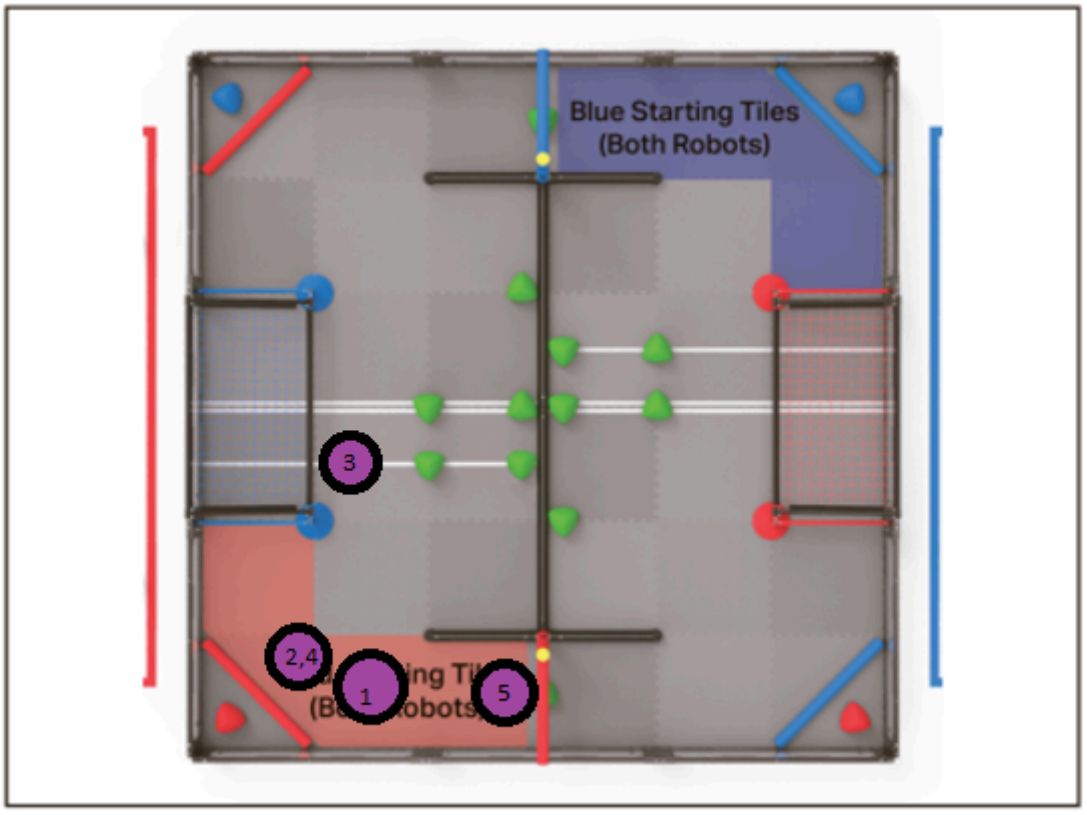


Figure 42: VEX U Starting Positions

1. Robot B starts at point 1.
2. Moves to Point 2, and launces the green preload to the other side of the field. Then collects the Alliance triball.
3. Scores Alliance tribal in goal. [5]
4. Stays at the Alliance Match Load and launces acorns to the other side of the field. [2+]
5. moves towards Elevation Bar

Required equipment

- The guidance system could be blind, know where the robot is based on where it has been, so no other guidance equipment.
- some special equipment for launching the triball to the other side of the field.

- some mean of contacting the Elevation Bar at the end, the robot stays on its side of the field, so no need to retract.

Summary

The robots mostly keep to their own sides

No complicated guidance systems. Robot B will need some launcher, Robot A Just needs a means to move the balls from point a to point B, and a means to contact the elevation bar. Only robot A needs to pass below the elevation bar.

the point to which the robots need to travel are far more then the previous concepts, and therefore the error in position is going to increase with every move. An experiment to how many moves the robot can make before getting lost would be useful before choosing this concept.

This will give a score of 22+ depending on how many acorns are launched to the other side of the field.

This is the preferred Concept.