tcea **Robotics**

BUILD: Widgets

2021-2022

TCEA Arena Robotics Challenge

Game Manual

Designed by Darren Wilson

Revision 1

SECTION 1: OVERVIEW

1.1 GAME OVERVIEW

1.1.1   The BUILD: WIDGETS robotics competition challenges teams to design a robot that will help them gather elements, build widgets, and move them to their scoring locations. There are a total of 22 game elements available for each team to assemble widgets. A widget is defined as a combination of 2, 3, 4, or 5 game elements that are connected together, but not touching a robot.

1.1.2   Matches consist of a 30-second autonomous period followed by a 90-second, driver-controlled period. During the 30-second autonomous period, robots will move on their own to accomplish predetermined tasks and earn points. At the end of the autonomous period, referees will pause the match and assess points before starting the 90-second, driver-controlled period. During the driver-controlled period, teams may remotely control their robot to accomplish tasks and earn points. At the end of the driver-controlled period, referees will again assess points and calculate the match scores.

1.1.3   Teams will play three (3) qualification matches with alliance partners. Team alliance partners for the qualification matches will be randomly assigned on game day, prior to the start of the competition. Alliance partners will work together to build as many widgets and earn as many points as possible during the matches. Points earned in each match will be awarded to both alliance partner teams. A team's scores from each of its three (3) qualification matches will be combined to get an overall team ranking score. At the conclusion of all qualification matches, teams will be ranked from first through last based on their overall team ranking score.

1.1.4   Once the qualification matches are complete and all teams have earned an overall ranking score, the alliance selection process will begin for the finals tournament. The top 50% of all ranked teams will be eligible for the finals tournament alliance selection process. A total of 16 teams will be identified at the end of the alliance selection process to participate in the finals tournament, organized into 8 alliance teams. The alliance selection process allows the top eight teams to choose an alliance partner with whom they will compete in the single-elimination Finals Tournament in order to decide the BUILD: WIDGETS robotics competition champion.

1.2 TEAM RULES

1.2.1 Teams are composed of two to four students. Students are not allowed to participate on more than one team for this competition.

1.2.2 Teams must register through a sponsor who holds an active TCEA membership. The team sponsor will be the primary contact and the source of communication leading up to competition day.

1.2.3 All teams are required to register for the BUILD: WIDGETS robotics contest using a unique team name. Team names must be less than 20 characters and should be "school appropriate."

1.2.4 Only registered team members are allowed to touch the robot and the computer used to program it. Student problem solving is central to the spirit of this robotics competition.

1.2.5 Sponsors and parents may help transport equipment before and after the competition, but they must not communicate or provide assistance to students during the competition.

1.2.6 Only registered team members will be allowed in the teams' work area (the pit) during the competition.

1.3 TEAM MEMBERS

1.3.1   During gameplay, only two team members are allowed at the playing field. These two team members will be identified as the Robot Driver and the Safety Zone Technician. Teams may also designate team members to serve as Network Representatives. Net Reps are vital to gameplay but do not participate at the playing field during the matches.

1.3.2 Robot Driver
The Robot Driver is the only team member allowed to operate the robot during the match, during and between the autonomous period, and the driver-controlled period.

1.3.3 Safety Zone Technician
The Safety Zone Technician is the only team member allowed to touch game elements during gameplay that are located inside the Safe Zone. This person is also allowed to touch and reposition the robot if it is touching the Safe Zone.

1.3.4 Network Representatives (Net Reps)
Teams may also designate team members as Network Representatives. Net Reps will serve as scouts, who communicate with other teams during the competition, planning alliance strategy, and coordinating gameplay in between matches.

1.3.5 All team members must remain aware of the progress of the contest match schedule and be prepared to report to the correct playing field prior to their match. Teams are expected to be at the "on deck" area and report to the playing field when called.

SECTION 2: PLAYING FIELD AND GAME ELEMENTS

2.1 PLAYING FIELD

The BUILD: WIDGETS robotics competition will be played on the Race Against Time mat on a standard 48"x96" TCEA competition field. Teams will play with an alliance partner on one-half of the table while two more teams play as another alliance on the other half. This means that four teams will compete simultaneously during a match, two teams per side. Each team will be stationed at one of the four Safe Zones around the playing field..

Diagram A
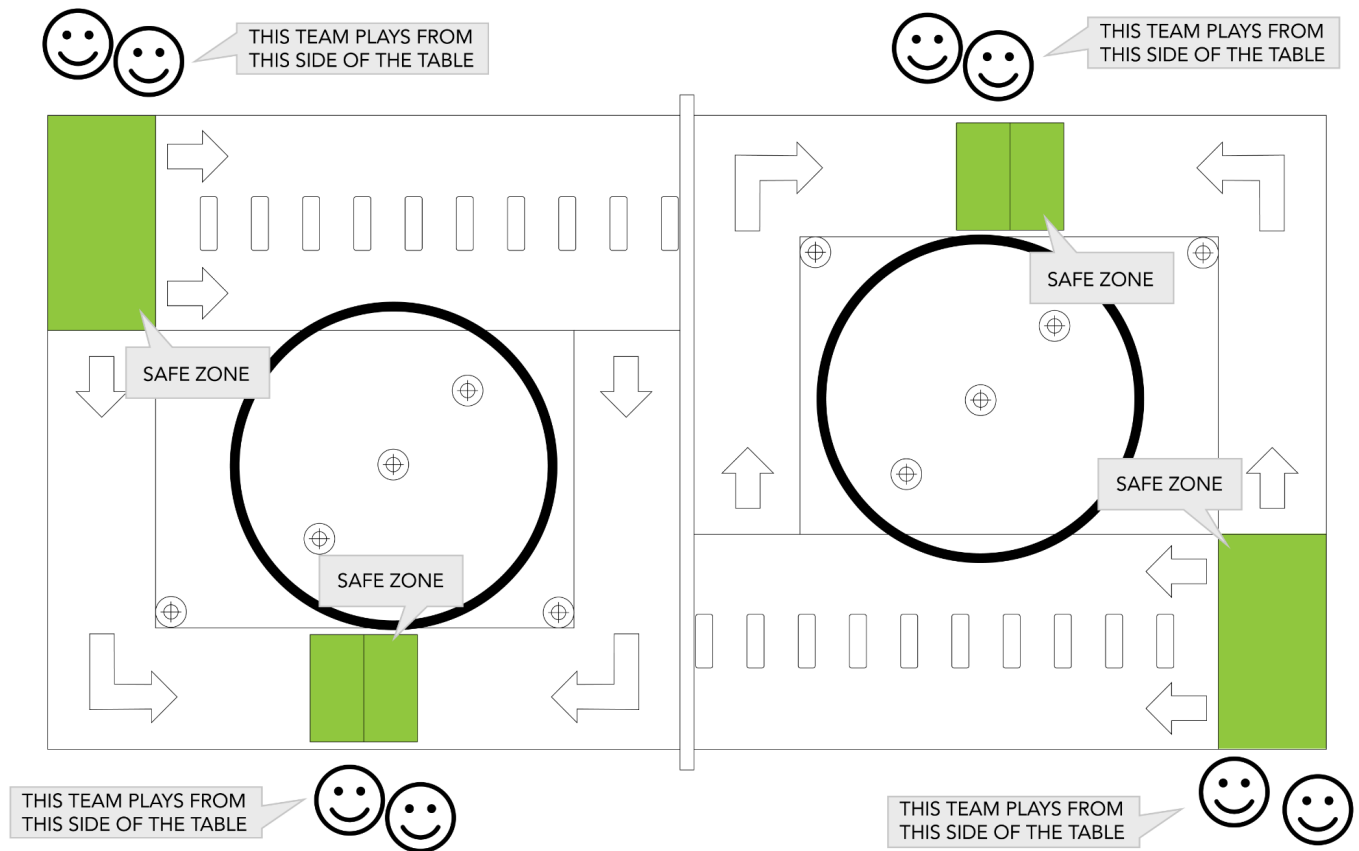
2.1.1 The Safe Zones are the only area of the playing field where students are allowed to touch robots or game elements. When a robot is touching a Safe Zone, team members may change and restart programs, reconfigure robot elements, and reposition or reorient the robot. If the robot is repositioned or reoriented, it must be touching the Safe Zone before continuing with gameplay. When game elements are inside a Safe Zone, team members may pick them up, reconfigure them, and reposition or reorient them. Game elements are considered "inside the Safe Zone" if they are inside the black line (breaking the plane) defining the perimeter of the Safe Zone.

2.1.2 There are two Safe Zones on each side of the playing field. The Safe Zones are slightly different in size and shape. Alliance teams will decide which partner team will use each Safe Zone prior to the start of each match. Teams must be prepared to play the game from either Safe Zone.

2.1.3 The other named features of the playing field are: the big circle, the small arrows, the right-angle arrows, the rounded rectangles, and the scoring targets. These features will be used to determine the starting position of game elements and to score points during the match.

Diagram B
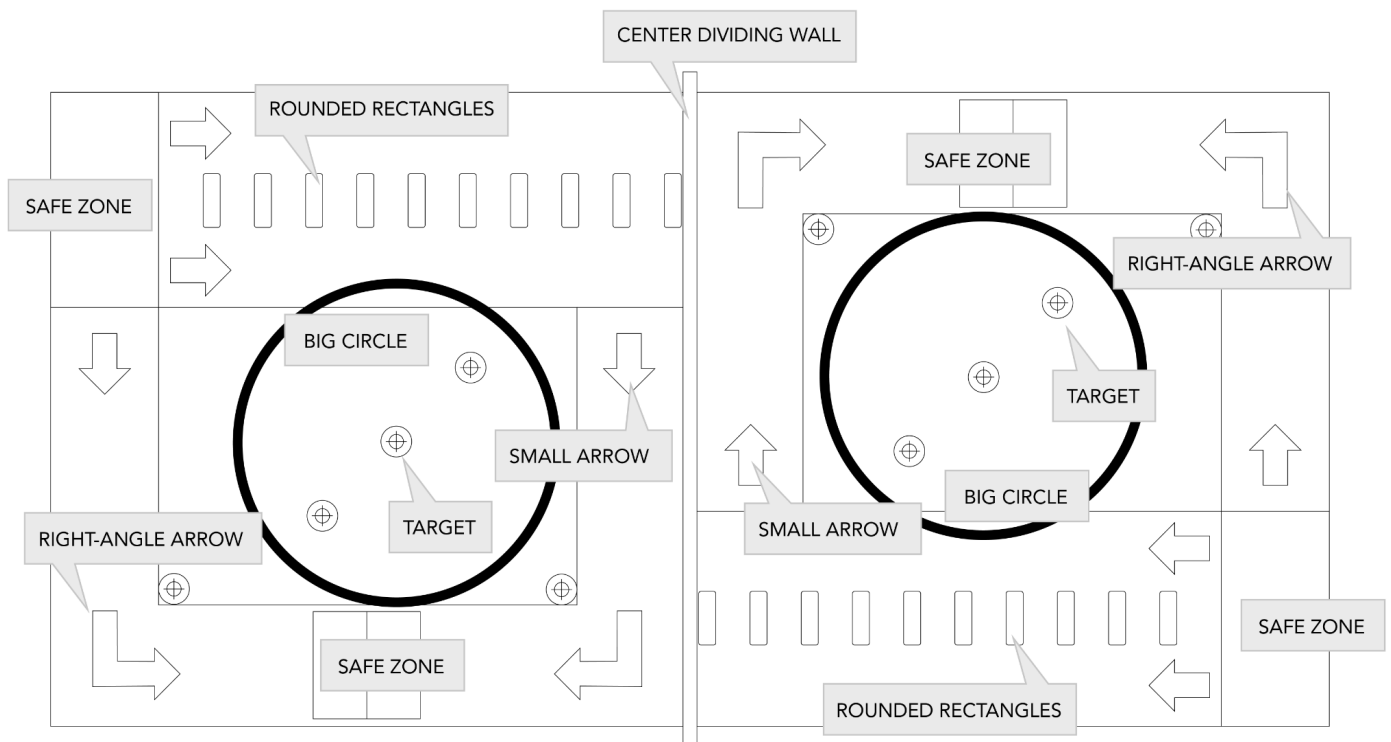
2.2 GAME ELEMENTS

There are a total of 22 game elements available for each team to use to build widgets. These game elements will be placed on the playing field by the referees prior to the beginning of each match. Some elements will be immediately available to a team and some will be potentially available. These elements will be combined during gameplay to create widgets. A widget is defined as a group of 2, 3, 4, or 5 elements that are touching each other, but not touching a robot.

2.2.1 Fake Money
There will be one (1) fake dollar bill available to each alliance to use to build widgets. The fake dollar bill will be placed inside the big circle by the referees prior to the start of the match. "Inside" means that the entire fake dollar bill will be located inside the thick black line defining the perimeter of the circle. Because the area of the circle is greater than the area of the fake dollar bill, there will be some degree of randomness to the exact placement of the fake dollar bill within the circle.

2.2.2 KEVA Plank
There will be one (1) KEVA plank available to each alliance to use to build widgets. The KEVA plank will be placed on the short arrow located nearest the center dividing wall. The KEVA plank will be placed parallel to the center wall and centered horizontally and vertically on the short arrow.

2.2.3 LEGO Bricks
There are a total of eight (8) LEGO 2x4 bricks available to each alliance to use to build widgets. These eight bricks will be configured in four stacks/groups of two bricks each. The four stacks/groups will be placed inside the right-angle arrow farthest from the center dividing wall. Inside means that all four bricks will be located completely inside the black line defining the outermost perimeter of the arrow. Because the area of the right-angle arrow is greater than the area of the four stacks/groups, there will be some degree of randomness to the exact placement of the LEGO stacks/groups within the arrow. The referees will determine the location of the stacks/groups inside the arrow and teams should expect that to vary each match.

2.2.4 Dice
There are a total of four (4) dice available to each alliance to use to build widgets. These four dice will be placed inside the four rounded rectangles farthest from the center dividing wall. The dice will be centered horizontally and vertically on each of the rectangles.

2.2.5 Red Checkers
There are a total of eight (8) red checkers available to each alliance to use to build widgets. These red checkers will be placed individually, flat along the top of the center dividing wall. Because the length of the center dividing wall is longer than the width of the eight red checkers, there will be some degree of randomness to the exact placement of each of the red checkers along the top of the center dividing wall. These eight (8) red checkers are a shared

resource and are available to all teams on both sides of the game field table. Once a robot moves a checker from the top of the wall onto the playing field, it will remain in play only on that side of the table for the remainder of the match.

2.2.6   Team members are not allowed to adjust the initial placement of game elements themselves. If the team wishes to contest the initial placement of game elements prior to the beginning of gameplay, the team must request the referee to correct the placement.

2.3 GAME ELEMENT PLACEMENT

The diagram below shows the initial set-up of the playing field with placed game elements. Note: the exact placement of some of the elements (fake money, LEGO bricks, and red checkers) may differ slightly in each match due to the conditions described above.

Diagram C
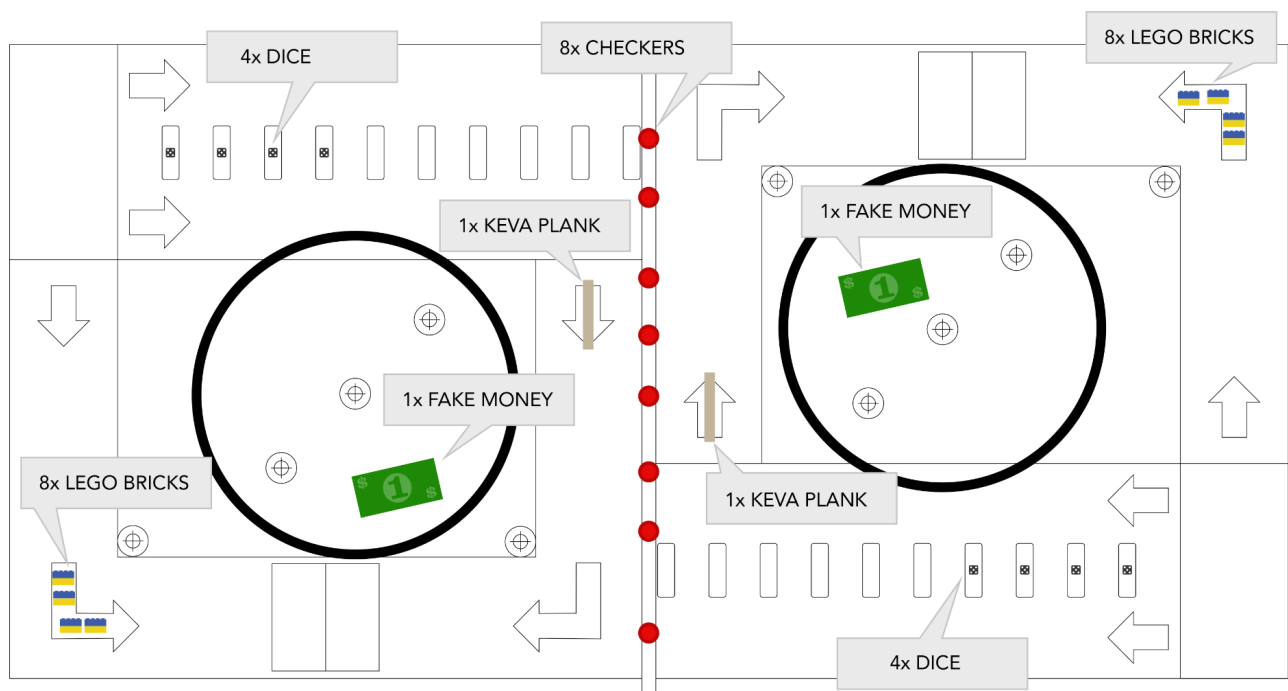
2.4 INTERACTING WITH GAME ELEMENTS

There are a total of 22 game elements available to teams to be repositioned, combined, and used to make widgets. A widget is defined as a combination of 2, 3, 4, or 5 elements that are touching each other, but not touching a robot.

Teams can interact with game elements in two ways:

2.4.1   Game Elements in Playing Field
When located in the playing field, game elements can be pushed, picked up, stored, manipulated, and relocated by the team's robot. The only way to interact with elements on the playing field is with the robot. Team members may not touch game elements located in the playing field. Game elements are considered "in the Playing Field" if they are NOT inside the black line (breaking the plane) defining the perimeter of the Safe Zone.

2.4.2   Game Elements in Safe Zone
If game elements have been moved inside the Safe Zone, the team's Safety Zone Technician may touch, pick up, hold, or reconfigure them as long as they remain inside or are eventually returned to the Safe Zone. The team's Safety Zone Technician may pick up and hold those game elements during the match, but they must be returned to the same Safe Zone that they were picked up from. Game elements are considered "in the Safe Zone" if they are inside the black line (breaking the plane) defining the perimeter of the Safe Zone.

2.4.3 If any game element is touched by a team member under circumstances that do not conform to the rules of the game, it will be immediately removed from play by the referees for the remainder of the match.

SECTION 3: ROBOT AND SOFTWARE

3.1 ROBOT REQUIREMENTS

3.1.1   Teams are allowed to use LEGO EV3, SPIKE Prime, Robot Inventor, or the VEX IQ platform to build and control their robot for the BUILD: WIDGETS Robotics Competition.

3.1.2 There is no restriction or limit to using outside elements for the construction of the robot as long as the control system, motors, and sensors are from one of the approved building systems listed in 3.1.1.

3.1.3   Teams are not allowed to melt, deform, cut, bend, glue, solder, or otherwise alter LEGO or VEX IQ elements (plastic and electrical) for use in their robots.

3.1.4   The robot must be able to fit inside a 12" by 12" footprint at the beginning of each match. There are no constraints on the height of the robot at the beginning of the match. Referees will check for compliance prior to the start of every match. The robot must stand alone during referee measurement and no team member may touch the robot during or after measurement, except to position and start the robot.

3.1.5   Teams are allowed to employ different attachments on the robot to be used for different game tasks. These attachments must be touching the robot and must fit within the 12" by 12" footprint while checking for robot compliance prior to each match. These attachments can be detached and reattached during the match.

3.1.6   Parts of the robot that are no longer touching the robot (detached) are not considered part of the robot as long as they are detached. If the parts are reattached to the robot, they are once again considered part of the robot.

3.1.7   Teams are required to enter a custom name on their programmable processing unit prior to arriving at the competition venue. The name must match the official team name they are registered under. This will ensure that any wireless signal coming from the robot is clearly identifiable.

3.1.8   Teams are encouraged to enable Bluetooth on their robot's programmable processing unit and pair with it before arriving at the competition venue. This will ensure that the unit does not show as "available" to devices belonging to other teams. Students are NOT allowed to attempt to pair/connect to any device that does not belong to them.

3.2 SOFTWARE & CONTROLLERS

3.2.1   Teams are allowed to use their choice of software to program for the 30-second autonomous period of gameplay. Teams must ensure that their software choice is compatible with the LEGO EV3, SPIKE Prime, Robot Inventor, or the VEX IQ platforms.

3.2.2   Teams are allowed to use their choice of driver-control system for the 90-second, driver-controlled period of gameplay. Most teams will use the remote control unit supplied by the platform manufacturer (VEX IQ) or use a mobile app connected to the robot using Bluetooth (LEGO EV3, SPIKE Prime, or Robot Inventor.)

3.2.3   Bluetooth is the only allowed form of remote control. IR, WiFi, or other modes of wireless or wired connectivity are not allowed for this competition.

SECTION 4: COMPETITION

4.1 ALLIANCE PARTNERSHIPS

Teams will play three (3) qualification matches with alliance partners. Team alliances for the qualification matches will be randomly assigned prior to the start of the competition. Alliance partner teams will work together to accomplish as many tasks and earn as many points as possible during the match. Points earned in each match will be awarded to both Alliance

partner teams. For example: If the qualification match score is 120 points, each team on the alliance is awarded 120 points.

4.1.1   In the BUILD: WIDGETS robotics competition, there is an expectation that alliance partner teams will communicate in advance of their match to discuss tactics and plan a strategy for the match. Every team will have designed their robots to be able to accomplish a unique set of tasks, so each team will have their own strengths and their own specialty. Teams are encouraged to use their time in the "pit" and in the "on deck" area prior to their match to coordinate their efforts and create a strategy for accomplishing game tasks together.

4.1.2   During the qualification matches alliance partners will be randomly assigned, but in the Finals Tournament, top-ranking teams will be able to choose their own alliance partner. Because of this, teams will want to select alliance partners with abilities that complement their own strengths. Scouting during the qualification matches is a good way to learn the capabilities and limits of the other teams and robots at the competition. Scouting is also important to find out how you will complement other teams in your alliance and how you will match up against your opponents.

4.2 QUALIFICATION MATCHES

During the qualification matches, there is a great deal of communication between alliance teams and interaction between team members and their robots. Teams will play three (3) qualification matches with three different alliance partners.

4.2.1   BUILD: WIDGETS matches consist of a 30-second autonomous period followed by a 90-second, driver-controlled period. During the 30-second autonomous period, robots will move on their own to accomplish predetermined tasks and earn points. At the end of the autonomous period, referees will pause the match and assess points before starting the 90-second, driver-controlled period. During the driver-controlled period, teams will remotely control (via Bluetooth) their robot to accomplish tasks and earn points. At the end of the driver-controlled period, referees will again assess points and figure the match scores.

4.2.2 Referees will check for robot compliance prior to the start of every match. The robot must be able to fit inside a 12" by 12" footprint at the beginning of each match. There are no constraints on the height of the robot at the beginning of the match. The robot must stand alone during referee measurement and no team member may touch the robot during or after measurement, except to start the robot. NOTE: the only time a referee will check for robot compliance is immediately preceding the 30-second autonomous period.

4.3 30-SECOND AUTONOMOUS PERIOD

4.3.1 The robot must start each qualification match touching its Safe Zone. "Touching the Safe Zone" means that some part of the robot must be touching the white mat inside of the black line defining the perimeter of the Safe Zone.

4.3.2 When time begins for the 30-second autonomous period, the robot may only move as a result of a program stored on its processing unit. Team members are not allowed to touch or pick up the robot once the clock begins and they have started their robot.

4.3.3 If the robot is touching the Safe Zone, the team's Safety Zone Technician may change and restart programs, reconfigure robot elements, and reposition or reorient the robot. If the robot is repositioned or reoriented, it must be touching the Safe Zone before continuing or starting a new autonomous task.

4.3.4 If game elements are moved in the Safe Zone (inside the black line (breaking the plane) defining the perimeter of the Safe Zone) the team's Safety Zone Technician may touch, pick up, hold, reposition, or reconfigure them as long as they remain inside or are returned to the Safe Zone.

4.3.5 At the end of the 30-second autonomous period, referees will assess points using the gameplay Score Sheet. Teams must immediately stop their robot at the end of the 30-second autonomous period. Teams will not be awarded any autonomous points for tasks accomplished after the 30-second alarm is sounded.

4.3.6 Once the referees have assessed points, teams will recover their robot and move it back to the Safe Zone to load and start their driver-controlled program.

4.3.7 Game elements will NOT be reset at the end of the 30-second autonomous period. All game elements will remain in position for the 90-second, driver-controlled period.

4.4 90-SECOND, DRIVER-CONTROLLED PERIOD

4.4.1 Like the autonomous period, the robot must be touching the Safe Zone at the beginning of the 90-second, driver-controlled period. Referees will NOT re-check compliance prior to the start of the driver-controlled period.

4.4.2 If needed, the Robot Driver may pick up and relocate/reposition the robot from its stopped location from the 30-second autonomous period to the Safe Zone for the start of the 90-second, driver-controlled period.

4.4.3   Before the referees start the 90-second, driver-controlled period, they will ensure that all teams have successfully connected their remote control system and are ready to continue. Bluetooth is the only allowed form of remote control. IR, WiFi, or other modes of wireless or wired connectivity are not allowed for this competition.

4.4.4   Teams will be given up to two minutes to reset their robots and switch to their driver-control programs. Teams must ensure that they are able to deploy and troubleshoot their driver-control program quickly, without delaying gameplay.

4.4.5   During the 90-second, driver-controlled period, team members are not allowed to touch or pick up the robot while it is on the playing field.

4.4.6   If the robot is touching the Safe Zone (some part of the robot must be touching the white mat inside of the black line defining the perimeter of the Safe Zone) the team's Safety Zone Technician may change and restart programs, reconfigure robot elements, and reposition or reorient the robot. If the robot is reconfigured, repositioned, or reoriented, it must be touching the Safe Zone before continuing with gameplay.

4.4.7   If game elements are moved into the Safe Zone (inside the black line (breaking the plane) defining the perimeter of the Safe Zone) the team's Safety Zone Technician may touch, pick up, hold, reposition or reconfigure them as long as they remain inside or are returned to the Safe Zone.

4.4.8   Teams must take special care to stop all movement of their robot at the end of the 90-second, driver-controlled period. Teams will not be awarded any points for tasks accomplished after the 90-second alarm is sounded. At the end of the 90-second, driver-controlled period, referees will assess points using the gameplay Score Sheet.

4.5 SCORING FOR 30-SECOND AUTONOMOUS PERIOD

4.5.1   Acquire Elements

During the 30-Second Autonomous Period, alliance partner teams can earn points by acquiring the checker game elements from the center divider wall. As long as the checker elements are on the wall, they are available to both alliances. Once a checker is removed from the wall, however, it is only available to the alliance on one side of the playing field. Alliance partner teams will earn 10 points for every checker game element on their side of the playing field at the end of the 30-Second Autonomous Period.

4.5.2   Gather Elements

During the 30-Second Autonomous Period, alliance partner teams can earn points by gathering game elements and moving them inside the Safe Zones. Game elements are considered "inside the Safe Zone" if they are inside the black line (breaking the plane) defining

the perimeter of the Safe Zone. Alliance partner teams will earn 10 points for every game element located inside the Safe Zones at the end of the 30-Second Autonomous Period.

4.5.3   Claim Money

The fake dollar bill will be randomly placed by the referees inside the big circle at the beginning of the match. Alliance partner teams can earn 50 points by parking their robot on the fake dollar bill at the end of the 30-Second Autonomous Period. "Parking their robot on the fake dollar bill" means that the robot must be stopped on (touching) or over (breaking the vertical plane of) the fake dollar bill at the end of the 30-Second Autonomous Period.

4.6 SCORING FOR 90-SECOND, DRIVER-CONTROLLED PERIOD

4.6.1   Acquire Elements

Alliance teams are allowed to acquire any remaining checker game elements from the center divider wall during the 90-Second, Driver Controlled Period, but they will not bring any additional points beyond their value as widget elements.

4.6.2   Make Widgets

Alliance teams will earn points by building widgets and transporting them to scoring locations. A widget is defined as a combination of 2, 3, 4, or 5 elements that are touching each other, but not touching a robot. Widgets are scorable only if they are moved to a scoring location. Widgets touching one of the five (5) small targets will earn 20 points for every element that makes up the widget. "Touching a target" means that one part of the widget must be touching the black line that defines the target's shape.

4.6.3   Claim Money

Alliance Teams can earn 25 points by parking their robot on the fake dollar bill at the end of the 90-Second, Driver Control Period. "Parking their robot on the fake dollar bill" means that the robot must be stopped on (touching) or over (breaking the vertical plane of) the fake dollar bill at the end of the 90-Second, Driver Control Period.

4.6.4 Clean Up

At the end of the 90-Second, Driver-Controlled Period, alliance teams will receive a 5-point penalty for each game element that is not part of a widget and located inside the big circle. Game elements are considered "inside the big circle" if they are inside the black line (breaking the plane) defining the perimeter of the Safe Zone. The 5-point penalty will NOT apply to the fake dollar bill that may be located inside the big circle.

SECTION 5: FINALS TOURNAMENT

5.1 QUALIFICATION RANKING

A team's scores from each of its three (3) qualification matches will be combined to get an overall team ranking score. At the conclusion of all qualification matches, all teams will be ranked from first through last, based on their overall team ranking score.

5.1.1   If multiple teams are tied with the same ranking score, ties will be broken based on the highest individual match score. If a second tie-breaker is needed, the tie goes to the highest individual 30-second autonomous score. If a third tie-breaker is needed, the tie goes to the team that had the highest individual 30-second autonomous score first.

5.2 ALLIANCE SELECTION PROCESS

Once the qualification matches are complete and all teams have earned an overall ranking score, the alliance selection process will begin for the finals tournament. The top 50% of all ranked teams will be eligible for the finals tournament alliance selection process. A total of 16 teams will be identified at the end of the alliance selection process to participate in the finals tournament, organized into 8 alliance teams.

The Alliance Selection process is as follows:

5.2.1   The contest chair will announce the top 50% of ranked teams that will be eligible for the Finals Tournament Alliance Selection Process. If there are fewer than 32 participating teams in the qualification matches, the contest chair will announce the top 16 ranked teams that will be eligible for the finals tournament alliance selection process. If there are fewer than 16 teams participating in the competition, there will be eight teams, rather than 16 teams, selected to play in the Finals Tournament.

5.2.2   Every team eligible for the finals tournament alliance selection process will choose one student to act as the team's representative for the alliance selection process. These representatives will be called to the competition area at the appointed time to represent their teams in the Alliance Selection. The team representatives will be arranged, left to right facing the audience, in order of their overall ranking score from the qualification matches.

5.2.3   The student representative of the highest-ranked team will be asked to step forward as an Alliance Captain to invite another available team to join their alliance. Any team is available to be chosen as an alliance partner as long as they are not already part of another alliance.

5.2.4   If a team accepts the invitation, they are moved into that alliance for the Finals Tournament. If a team declines the invitation, the alliance captain from the inviting team must extend an invitation to another team.

5.2.5 Once the first alliance is set, the next highest-ranked remaining team will be asked to step forward as an Alliance Captain to invite another available team to join their alliance. The selection process continues until eight (8) alliance captains have been identified and chosen eight alliance partners.
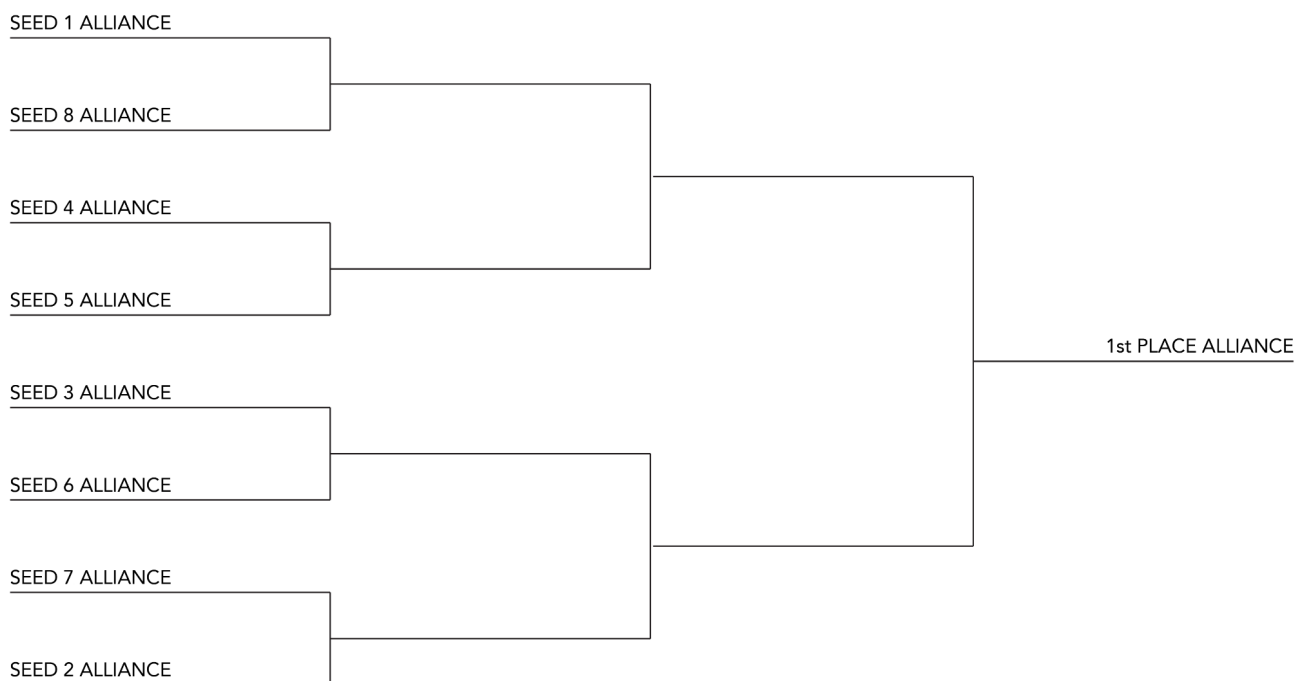
5.3 FINALS TOURNAMENT

The Finals Tournament matches are played to decide the BUILD: WIDGETS robotics competition champion. The matches are played in a seeded format where the top seed alliance goes up against the 8th seed, the number 2 seed goes up against the 7th seed, and so on.

5.3.1 Matches during the Finals Tournament will follow the same format, scoring procedures, and adhere to the same rules as the Qualification Matches.

5.3.2 In the Finals Tournament matches, teams do not get ranking points. The match score of the two alliance teams will determine the win, loss, or tie for that bracket. If an alliance wins a match, they continue to the next round of the tournament. If they lose a match, they are out of the tournament bracket. If there is a tie between two alliances, the tie will be broken by the 30-Second Autonomous Period score. If a second tie-breaker is needed, the tie will be broken by the number of highest scoring widgets.

5.3.3 FINALS BRACKET

5.4 AWARDS

The following awards will be presented at the conclusion of the BUILD: WIDGETS robotics competition:

5.4.1 1st Place Alliance (2 teams)
All members of the two alliance teams winning the final match of the tournament will receive an award recognizing them as 1st Place Alliance winners.

5.4.2 2nd Place Alliance (2 teams)
All members of the two alliance teams losing the final match of the tournament will receive an award recognizing them as 2nd Place Alliance winners.

SECTION 6: STATE CONTEST

6.1 ADVANCEMENT TO STATE CONTEST

6.1.1   The two teams recognized as 1st Place Alliance winners will automatically advance to the TCEA State Robotics competition.

6.1.2   Once all regional contests are complete, wild card teams will be selected to advance to the TCEA State Robotics competition based on the final match scores of all area competitions.

6.1.3   There will be a total of 60 teams selected to advance to and compete in the TCEA State Robotics competition.

6.2 STATE CONTEST VARIATION

There will be a state contest variation of the game rules for those teams advancing and competing in the state contest. This variation will be released at the same time the wild card teams are announced to ensure that all advancing teams will have the same amount of time to work on the state variation.

SECTION 7: FAQ's

7.1 Can we use tape or glue for the BUILD: WIDGETS Contest?
No. Absolutely no tape or glue can be used during competition. The only exception is to use tape for labeling wires and such.

7.2 Is there a place where I can ask questions if this FAQ isn't enough?
Every sponsor can join the Robotics Arena Contest Group in the TCEA Community

7.3   My mats appear to have two different textures, what's up?

Mats made after the 2014 competition season are made of a different mat material than those made by LEGO Education. The pattern printed on the mat is identical to previous years, and there are no distinguishing marks on the mat, so it may be difficult to distinguish a previous year's mat from the current mat. It is recommended that teams mark the underside of their mat as "2014+"mats immediately upon receiving (taking caution not to mark in an area or in a way that shows through to the front of the mat).

7.4   Where can I purchase the "Race for Time" mat for the contest?

TCEA is the sole source for the Race for Time mat. You may purchase the mat **here**.

7.5   Where can I purchase game elements?

It is recommended that game piece kits are obtained from TCEA. You may purchase the game equipment set **here**. This will assist with standardizations and reduce the possibility of different equipment at competitions. Below you will find the dimensions for the game elements if you wish to supply your own.

(1) Fake Dollar Bill (2 inches x 4 inches)
(1) KEVA Plank (pine wood, ¼ x ¾ x 4½ inches)
(8) LEGO Bricks (2x4 studs in any color)
(4) Dice (16mm in any color)
(8) Red Checkers (1 ¼ inch diameter by ¼ inch thick)

7.6   Where do I find the instructions to build the wooden frame also known as the Field Border?

Find the instructions **here.**

SECTION 8: Revision History

8/?/2021 Original release of Game Manual