



Official Rules of the Robotic Football League

Rev 6

1.0 Basics: Robotic Football is played similar to American Style Football. The game consists of teams with between 3 and 6 robots. Each team takes turns being Offense and Defense. The Offense attempts to score points by getting the ball into the opponent's End Zone, while the Defense attempts to prevent this. The team with the most points at the end of the game wins.

2.0 Game Versions: There are 4 versions of the RFL. These are 3 vs. 3, 4 vs. 4, 5 vs. 5 and 6 vs. 6. In all versions both teams field the same number of robots. Also all versions follow the same rules as listed below.

3.0 Elements of the Game.

3.1 Coin Toss: At the beginning of the game a coin toss determines which team will start with the ball. The ball is then placed on the first tick mark on the team's own side of the field.

3.2 Offense: Each time a team takes possession of the ball they are given 4 downs to try to score a touch down.

3.3 Hiking the Ball: In Robotic Football, the ball is considered hiked and the play starts when any offensive robot moves (robot's controller moves the joystick) or enters PLAY mode (robot's controller presses the hike button on remote). See Game Flow section for more detail on starting a play and assessing offsides penalties.

3.4 Passing: In Robotic Football the ball may be passed at any time during the play and at any point on the field as long as the robot passing the ball has not been tackled. The Robot catching the ball may be lying on the ground when the catch is made as long as the ball does not touch the ground.

3.5 Running: Handoffs are allowed and may take place at any time and point on the field as long as the robots involved in the handoff have not yet been tackled

3.6 In Motion: No driving motion is allowed prior to hike, for instance back field motion of an offensive robot. The play starts when any offensive robot moves on the field. Note that non-driving motion such as moving the hands does not count as driving motion.

3.7 Scoring:

3.7.1 Touchdown: A team scores a touchdown (6 points) when they carry the ball into, or catch the ball in their opponent's end zone. To be a touchdown the ball must only pass over (while being carried) the opponent's end zone line. After doing so the team is given the opportunity to score extra points.

3.7.2 Extra point: There are two methods of scoring an extra point. Both involve a single play in which the offense must try and get into the end zone again. The difference between the two methods is in number of points scored. The ball is placed one tick mark away from goal line. For a 1 point conversion the ball must be carried over the goal line. A complete pass into the end zone results in a two point conversion. Note that for two points, the ball must be caught in the end zone. A complete pass outside the end zone and then carrying the ball across is a 1 point conversion. Whether the offense is able to score on the extra point or not the ball is then placed on the first tick mark and turned over to the other team.

3.7.2.a. If a touchdown is scored after the first half time is expired (and the ball is still live when the horn sounds), the offensive team will be given one play to attempt to score an extra point. This play time will not count against the 2nd half game time. If all defensive players are tackled during the play, the offense team has 10 seconds from that point to score before the play is declared ended.

3.7.3 Safety: The defense may also score a safety (2 points) by tackling the ball carrier in the opponent's end zone if the ball started within one tick mark of the goal line. (See tackling rules which state that a maximum of only two tick marks of field can be lost). If the ball starts at two tick marks, then a safety is not scored, but the next down starts on the goal line and if another push back occurs then a safety is scored.

3.8 Dead Ball: A play is over once the ball has touched the ground or once a robot carrying the ball touches any of its upper body to the ground, to include hands.

3.9 Line of Scrimmage: The Line of Scrimmage is the line dividing the two teams prior to the start of play. The line is where the ball is placed after the last play. (Note: Because the Quarterback holds the ball prior to hiking (i.e., the ball will be behind the quarterback and thus behind the line of scrimmage) the ball will not be on the line of scrimmage after the teams line up.)

3.10 Ball Placement: The ball is placed on the ground at the point where the ball was when the robot was tackled. If the robot is moved after being tackled (i.e. pushed) the ball will be placed back at the point of the tackle. If a robot is forced out of bounds the ball will be placed where the ball was when the robot went out. If a robot is pushed backwards and is not tackled prior to being pushed past the Yard Marker behind the line

of scrimmage then the ball shall be placed on that Yard Marker line even if the robot is tackled after that. (Yard Markers include the Goal Line, 25 and 50) At the beginning of a half or after a scoring play the ball shall be placed on the Offense's first tick mark. The ball must always be placed within the 12 inches at center of field on line of scrimmage. The tick marks are 12" wide and can be used to judge placement.

3.11 Punting: Prior to running its Fourth Down Play the Offense may choose to Punt. By doing so they may place the ball on the next Yard Marker after the Line of Scrimmage and the ball is turned over to the other team.

3.12 Turnovers: There are three types of turnovers, stripping the ball, interceptions, and turnover on downs.

3.12.1. Stripping: At any time during the game any robot may physically take the ball from another robot as long as the robot originally carrying the ball was not tackled first. This is called stripping the ball.

3.12.2. Interception: Any robot may catch a thrown ball. When done by the defense this is called an interception. If two or more opposing robots are holding the ball after being tackled then the Offensive team shall retain the ball. This includes if a Defensive robot catches the ball and is then tackled by an Offensive robot who, in the process of tackling, also strips the ball.

3.12.3. A Turnover on downs occurs when the offense is unable to score within 4 downs. After the Fourth Down the Defense takes possession of the ball in place.

3.13 Defense: The role of the Defense is to prevent the Offense from scoring. After the any offensive player moves (driving motion, motion of arms does not count) the defense may begin to move and attempt to tackle to ball carrier or cause the ball to touch the ground.

3.14 Tackling: Any Robot may be tackled at any time. There are no restrictions on who, how or when you may tackle. A robot is considered tackled once any part of its upper body touches the ground.

3.14.1 A robot is considered tackled if it has been pushed 2 tick marks behind the Offense's Line of Scrimmage. No further loss of ground is possible than 2 tick marks past line of scrimmage.

3.14.2 Players may not touch robots during play. This means that a robot who is tackled may not be helped up during a play.

3.14.3 If all Defensive robots have been tackled and are thus incapable of tackling the Offensive robot with the ball during a play, then the play will stop 10

seconds after the last defensive robot is tackled. This prevents the Offensive team from unnecessarily running down the remaining game time.

3.15 Penalties: There are only four possible penalties in the RFL, off sides, delay of game, illegal procedure and Unsportsmanlike Conduct.

3.15.1 Off sides is when a defensive robot, moves during the freeze period prior to the quarterback hiking the ball. This penalty will move the ball to the next tick mark in favor of the offensive team. If the ball is already within the last tick mark before the goal line than the ball moves half the distance. An “In Motion” robot which moves in any direction other than up field or crosses the line of scrimmage prior to the ball being hiked will be considered an offensive off sides, resulting in movement to next tick mark in favor of defense.

3.15.2 Delay of game is called in one of two instances. First is when either team is not off of the playing field before the last 5 seconds of setup period is over. Second is when the quarterback fails to hike the ball before the 5 seconds of the freeze period has ended. This penalty will move the ball to the next tick mark against the offending team. If the ball is already within the last tick mark before the goal line than the ball moves half the distance.

3.15.3 Illegal Procedure is called when a team breaks one of the rules covered in this rule book. Examples of this are the offense moving its robots in the last 5 seconds of the setup period, or a team utilizing an unauthorized robot. This penalty will move the ball to the next tick mark against the offending team. If the ball is already within the last tick mark before the goal line than the ball moves half the distance.

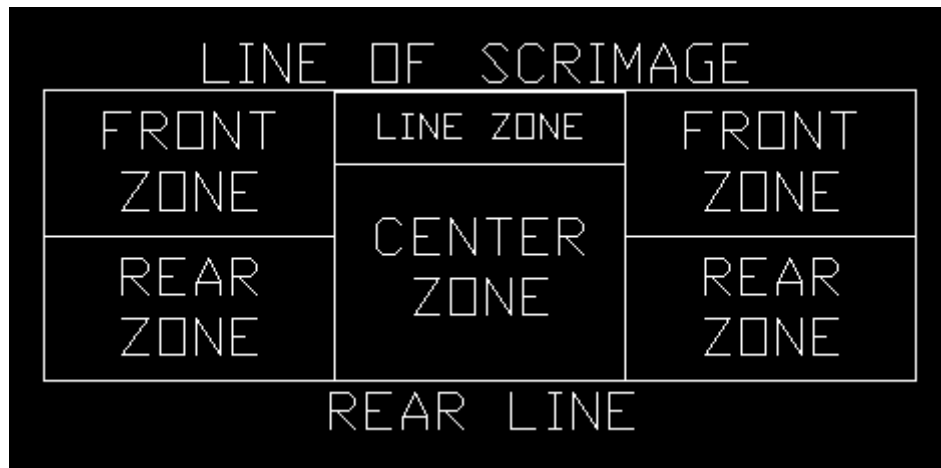
3.15.4 Unsportsmanlike conduct may be called for any behavior that is deemed unacceptable by the referee. This penalty will move the ball two tick marks. If the ball is already within the last tick mark before the goal line than the ball moves half the distance.

3.16 Formations: During the setup period the teams must place their robots on the field based on the allowed formations. The formations are broken up into zones in which a certain number of robots may be placed. Each team places between 3 and 6 robots on their side of the line of scrimmage for a play depending on which type of game you are playing.

3.16.1 Zones:

- The Line Zone extends 6 inches from the line of scrimmage and is 24 inches wide.
- The Center Zone begins at the back of the Line Zone and extends 18 inches back. This Zone is also 24 inches wide.
- The Front Zone extends back 12 inches from the line of scrimmage. It also extends from the edge of the Line and Center zones to the edge of the field.

- The Rear Zone extends back 12 inches from the Front Zone. It also extends from the edge of the Center zone to the edge of the field.



Offense:

- May place no more than 2 robots within the line zone
- The Quarterback must begin within the center zone

Defense:

- May place no more than 2 robots within the line zone
- May not place any robots in the front zone

3.17 Game Flow: Each play goes through three distinct periods. The Setup, the freeze and the play.

3.17.1 During the **setup** controllers place their robots in the appropriate formations. Robots may move during this time. Setup period lasts 30 seconds. During the last 5 seconds the Offense must leave the field allowing the defense the opportunity for last minute adjustments. When the 30 second setup seconds are up all humans must be off the field. Any teams' human members who are not off field at end of setup will be given a delay of game penalty.

3.17.2 The next period is the **freeze** period. During this period no defensive team robots are allowed to move (driving motion only, arm motion is legal). Any defensive robot movement will result in an off sides penalty. This period last 5 seconds.

Prior to the end of the 5 second freeze period, the offense must start the play by moving a robot or pressing hike on a controller. Failure to start the play within the freeze period results in a delay of game penalty against the Offensive team.

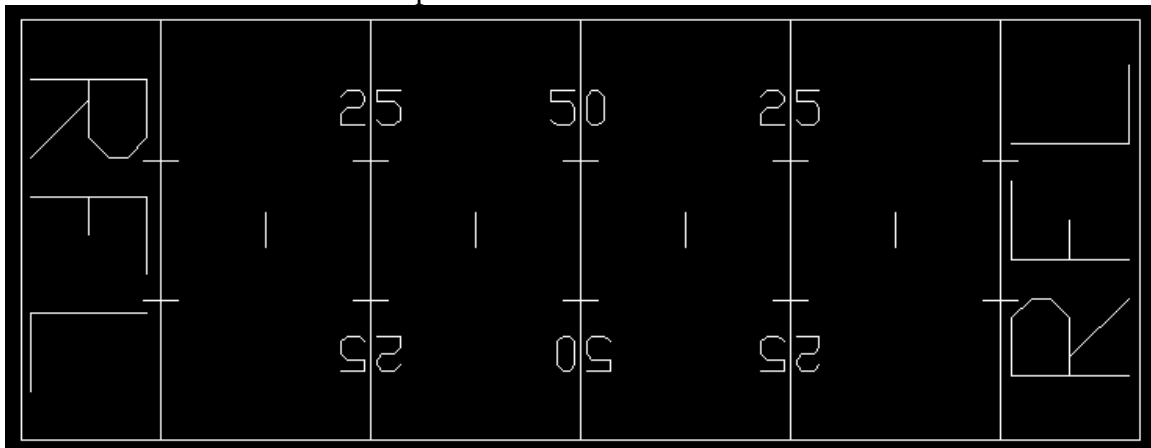
3.17.3 The **play** ends when the ball is dead or a score occurs (see 3.14 Tackling).

3.18 The Clock: RFL games are divided into 2 halves. Each half consists of 5 minutes. The clock starts as soon as the quarterback gives the hike signal or an offensive player does a drive motor motion for each play. Once the clock starts it will continue to run until the ball hits the ground or the robot with the ball is tackled. Each play run uses a minimum of 5 sec of time. Any plays that are over quicker than 5 seconds will be rounded up to 5 seconds.

3.19 Overtime: If at the end of regulation play the game is tied then the teams will begin playing 1 minute over times. A coin toss will determine the first team to get the ball. First team to score wins.

4.0 The Field: In Robotic Football the field is divided into six sections. The dimensions may vary but must remain a 2 (length) to 1 (width) proportion. The recommended play mode is 4 robots against 4 robots on an 8 x 16 feet field.

The exact layout of the field can be seen in Figure 1. On a 16 foot long field each end zone is 2 feet deep and 8 feet wide. All First Down lines are 3 feet apart thereby dividing the playing field into four even sections 3 feet long by 8 feet wide. In the center of each of these is a tick mark marking the half way point. The tick marks should be 12 inches wide. This will assist in the setup of robots.



4.1 Field types: There are two types of fields in Robotic Football, an open field and a closed field. Open fields have a flat sideline that the robot may roll over. A closed field has a 1 to 3 inch tall edge along the perimeter of the field. The field side of the edge is in play while the top is out of bounds. This means a robot may run into the edge and is still in play as long as they do not go over it. All official play must be done on a closed field.

4.2 Surface: The playing surface can be any hard, even, and level surface that the robot is capable of operating on. This can include concrete, wood, and very short carpet. The surface can be of any color except white. All field lines must be white.

5.0 The Ball: An RFL ball is a 44mm diameter ball that consists of three interlocking rings of hook fasteners (Loop and Hook, more commonly known as Velcro™). The total ball weight may not exceed 5ozs.

6.0 The Robots: RFL robots must meet the following criteria to play in an RFL tournament. All robots sold as Officially Licensed RFL robots will meet these criteria in their unmodified state.

6.1 Dimensions: The robot dimensions are divided into two sections: above and below the waist. The purpose of this design constraint is to ensure that robots are vertically oriented and thus capable of being tackled. A low to the ground wedge style robot would be impossible to tackle.. Dimensions are referenced to a robot that is standing on its wheels or locomotive actuators facing the reader. Width is a right to left horizontal measurement. Height is vertical measurement and depth is distance that robot occupies from side facing reader to the side that is facing away from the reader.

6.1.1 Below the waist dimensions: This section can be no larger than 6 inches wide by 6 inches deep and must be 6 inches tall.

6.1.2 Above the waist must be at least 6 in wide by 4 inches deep and no larger than 8 inches wide by 8 inches deep. The upper body must be between 4 and 6 inches tall.

6.1.3 Total Height: The total robot height must be between 10 and 12 inches tall. All robots must be able to fit within a box of the above listed dimensions. This includes all of the robots appendages which must be able to fully actuate within the box.

6.1.4 Extension: No robot may at any time during the game intentionally extend beyond these dimensions.

6.1.5 Vertical orientation: All Robots must play the game in an upright orientation.

6.1.6 Weight: The total weight of a Robot to include all equipment necessary to play (i.e. Batteries) must not exceed 5 lbs.

6.2 Hook and loop fastener: All players except for the Quarterback may have up to 4 inch by 6 inch continuous piece of loop and hook fastener. To inspect this, an inspection card with a 4 inch by 6 inch hole must be able to be held up to the robot and all of the fastener must fall within the cut out. Quarterbacks may not have any loop and hook fastener on them.

6.3 QB grip on ball: The quarterback may not have a positive grip on the ball. To inspect this the ball must freely go onto and come off of the quarterbacks throwing hand.

6.4 Weapons: Robots may not have destructive capabilities outside of tackling. This means no saws, hammers, flamethrowers, knives, guns, missiles or similar apparel may be attached to the robot during game play.

6.5 Interference: At no time should any robot, sideline gear, or fan equipment prohibit an operator from controlling their robot. This includes signal jammers of any type.

6.6 Remotes: All Remotes must comply with the RFL Remote Protocol.

7.0 Teams: An RFL team consists of between 3 and 6 robots and between 0 and 4 human controllers. Any type of robot may play any position except on Offense where the quarterback must conform to the quarterback rules. Each team may also have a complete team of additional robots on the sideline who may substitute during the setup phase.

8.0 Referee: All official games will have one referee. The referee is the final word on ball placement, possession, penalties and the Clock.

9.0 Tournament Rules: In addition to the rules governing a standard RFL game, tournaments must also meet the following rules.

9.1 A tournament field can be no smaller than 16 feet by 8 feet in total dimension.

9.2 All games within one tournament must play on fields of the same size and general makeup.

9.3 A tournament field must be a closed field.

9.4 All remotes must conform to the RFL remote control protocol to be eligible. (Any remote sold with the Official RFL logo will qualify)

9.5 During Tournament play the hosting agency may set additional rules.