Zig Zag
The Game

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Section 2 – The Game

2.1 – Overview

This section describes the CREATE Junior game called Zig Zag. It also lists the game definitions and game rules.

2.2 – Game Description and Field Drawings

Matches are played on a field initially set up as illustrated in the figure below. Two teams, making up an alliance, collaborate in each match. The object of the game is to attain the highest score possible by working together to push orange footballs off their towers, scoring green balls in the green ball ramp, pushing the large white balls onto their scoring platforms, flipping the flipper and by being parked on the starting platform when time has expired.

There are a total of sixteen (16) green balls, four (4) orange footballs, two (2) white balls, one (1) flipper two (2) wall buttons and two (2) starting platforms available as scoring objects in the game. Fourteen (14) green balls will be found on the field, while two (2) will be available to each alliance prior to the match. A robot is limited to 1 ball to preload. Two (2) starting platforms, one (1) flipper, two (2) white balls and four (4) orange footballs will also be found on the field at the start of the match. In addition to these scoring objects the flipper will also act as a bonus multiplier for the green balls. Green balls will double in value once the flipper has been flipped from its vertical starting position. There are also two wall buttons on the field at the start of the match. By alternately pressing these objects an alliance can score up to 20 points.
2.3 – Game Definitions

Alliance – Two randomly paired teams that work together for a match.

Coach - A student or adult designated as the team adviser during the match.

Driver - A team member responsible for operating and controlling the Robot.

Driver Change – Changing from the first to the second driver in the middle of the match.

False Start - A robot leaving the starting platform before the match begins and trips the starting platform sensor will be considered to have false started. A five (5) point penalty will be assessed for each robot that false starts. If the false start is severe, at the discretion of the referee, the robot may be disqualified.

Flipper – The dual purpose red and blue pivoting mechanism located in the center of the wall. The flipper acts as a green ball multiplier as the first flip doubles the green ball score and each subsequent full flip scores one point.

Goal – Either one of the two white ball scoring zones or one of the two green ball ramps. Each white ball scoring zone will allow one score, while the green ball ramps allow for multiple scores.

Green Ball – Any of the 16, 4” diameter green spheres.

Green Ball Bonus Multiplier – See Flipper.

Green Ball Goal – One of two triangular shaped covered ramps.

Orange Footballs – Any of the four (4) oblong spheroids to be found on the four towers lining the center wall.

Match - A match consists of a one minute and thirty second driver controlled period. A match starts when the referee says “Go”.

Starting Platform – The 12”x12” 3/4” inch high square located on the playing field.

Parked – A robot is considered to be parked when it is in contact with the starting platform in such a way that the center light sensor is covered blocking out enough light to trip the sensor.

Robot – Anything (which has passed inspection) a team places on the field prior to the start of a match.

Scored –
- A green ball is scored if it passes over the scoring sensor in the green ball ramp.
- A white ball is scored if it is in its goal so that the scoring sensor senses the presence of the white ball.
- The orange ball is scored if it is removed from its tower enough for its sensor to no longer recognize its presence.
- The flipper is scored when it has been completely flipped from one side to the other.
- The wall button is scored when fully depressed.

Team Station – The designated region where the drivers stand during any match.

White Ball – One or two large white spheres that start on the center wall.

Wall Button – The red or blue push mechanism mounted on the outside wall. This mechanism must be fully depressed before points are earned.
2.4 – Game Rules

2.4.1 – Scoring

- The flipper can be used to double the value of scored green balls. The multiplier is earned by pushing the flipper from its vertical position to either of its two horizontal positions.
- A flipper that is scored counts one (1) point.
- A green ball that is scored counts two (2) points.
- A green ball that is scored with multiplier counts four (4) points. (Only green balls scored AFTER the flipper is flipped count four (4) points.)
- An orange football that is scored counts three (3) points.
- The wall button can be used to earn up to twenty (20) points. By pressing the red or blue wall button an alliance earns five (5) points. By pressing the other wall button an additional fifteen (15) points is earned. Twenty (20) points is the maximum total points that can be earned using the wall buttons.
- A white ball that is scored in the white ball goal counts ten (10) points.
- A robot that is parked at the end of the match is worth five (5) points.
- If both robots are parked at the end of the match fifteen (15) points, five (5) for each parked robot and a five (5) point bonus, are awarded.
- If a robot false starts, a five (5) point penalty will be assessed. The match continues and is NOT restarted. If the false start is severe, by the judgment of the referee, a robot may be disqualified.

2.4.2 – Safety Rules

<S1> If at any time the robot operation is deemed unsafe or has damaged the playing field, surface, barriers or wall, by the determination of the referees, the offending team may be disqualified. The robot will require re-inspection before it may take the field again.

<S2> If a robot goes completely out-of-bounds (outside the playing field), the match will be over and the score will be taken at that point regardless of time left in the match.

2.4.3 – General Game Rules

<G1> At the beginning of a match, each robot must not exceed a volume of 13 inches wide by 13 inches long by 13 inches tall. An offending robot will be removed from the match at the Head Referee’s discretion.
   a. Alignment devices (templates, tape measures, lasers, etc.) that are not part of the robot may NOT be used to assist with the positioning of the robot.

<G2> Each team shall include two drivers and one coach.

<G3> During a match, the drivers and coach must remain in their team station.

<G4> Scoring objects that leave the playing field are considered out of play. They will not be returned to the field for that match.

<G5> Drivers and coaches are prohibited from making intentional contact with any game or field object. The first instance of intentional contact will result in a warning, with any following instances resulting in disqualification.

<G6> During a match, robots may be remotely operated only by the drivers. If a coach touches his/her team’s controls anytime during a match, the team will be disqualified for that match.
Scores will be calculated in real time by the scoring sensors/computer. However the score is not final until any adjustments to score, if required, are completed by the referee/score keeper.

Robots may not intentionally detach parts during any match, or leave mechanisms on the field. Multiple infractions may result in disqualification for the entire competition.

Robots must be designed to permit easy removal of scoring objects from any grasping mechanism without requiring that the robot have power after the match.

Field tolerances may vary by as much as +/-1”. Teams must design their robots accordingly.

### 2.4.4 – Zig Zag Specific Game Rules

At the beginning of each match, the robot must be placed such that they are on the starting platform, have tripped the parking sensor and no part of the robot is in contact with the foam tiles.

Prior to the start of each match, each alliance will have two green balls available to pre-load into their robots. Pre-loading is optional. If pre-loading is not used, the balls are removed from the field of play and will not be used in that match. Each robot may load one, or a single robot may load both green balls.

a. A green ball is considered to be legally preloaded if it is touching the robot and not touching any part of the playing field or game objects.

Drivers must change (Driver change) sometime between the 30th and 60th second of the match. Driver one may hand the remote to driver two anytime between 31 and 59 seconds on the clock. If a team exchanges the remote too early or too late in a match they will be disqualified for that match and the alliance will receive a zero score for that match.