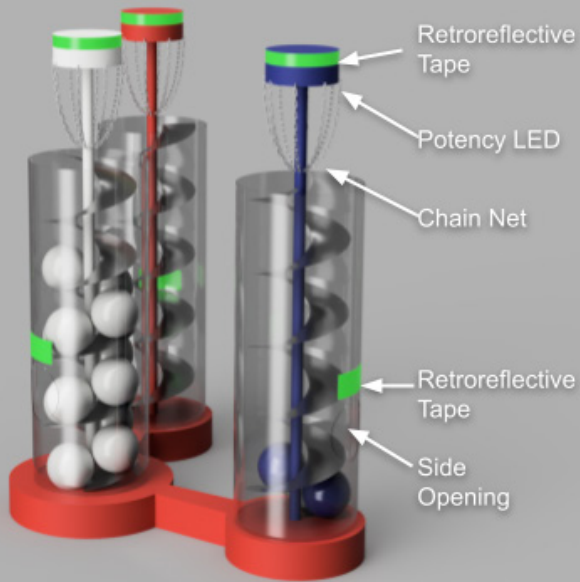


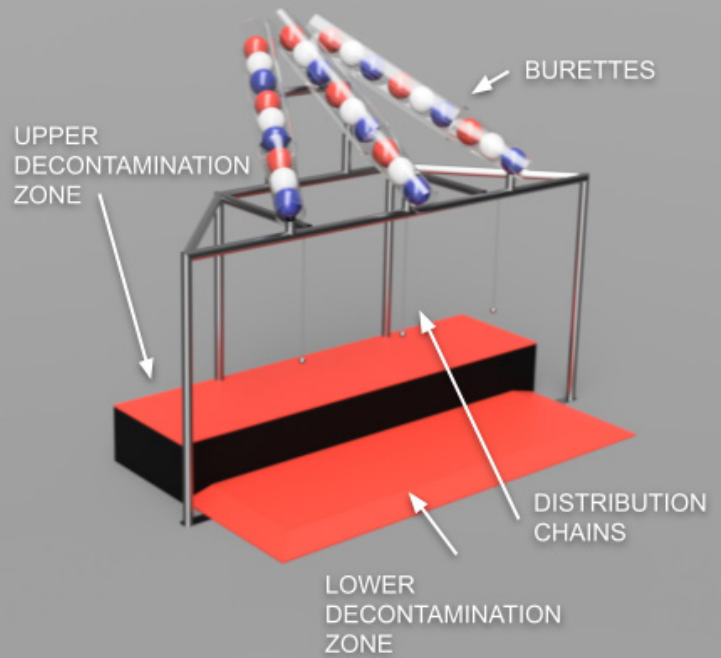


FIELD ELEMENTS DETAILS

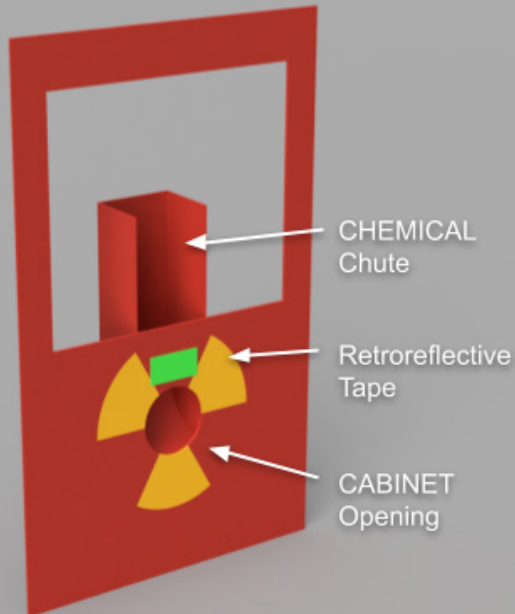
BEAKERS



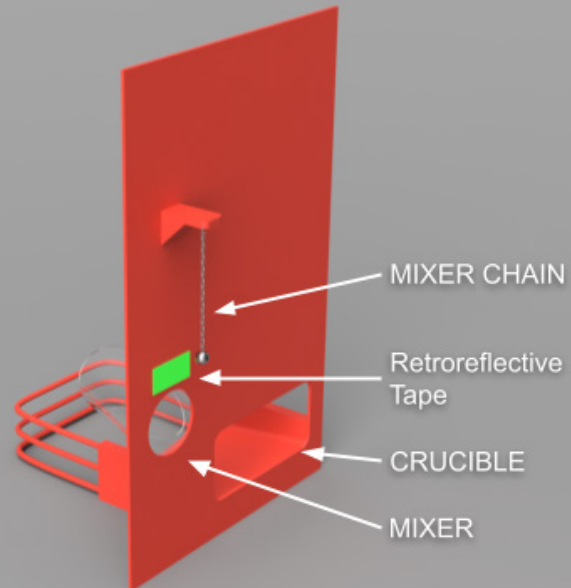
DECONTAMINATION ZONE



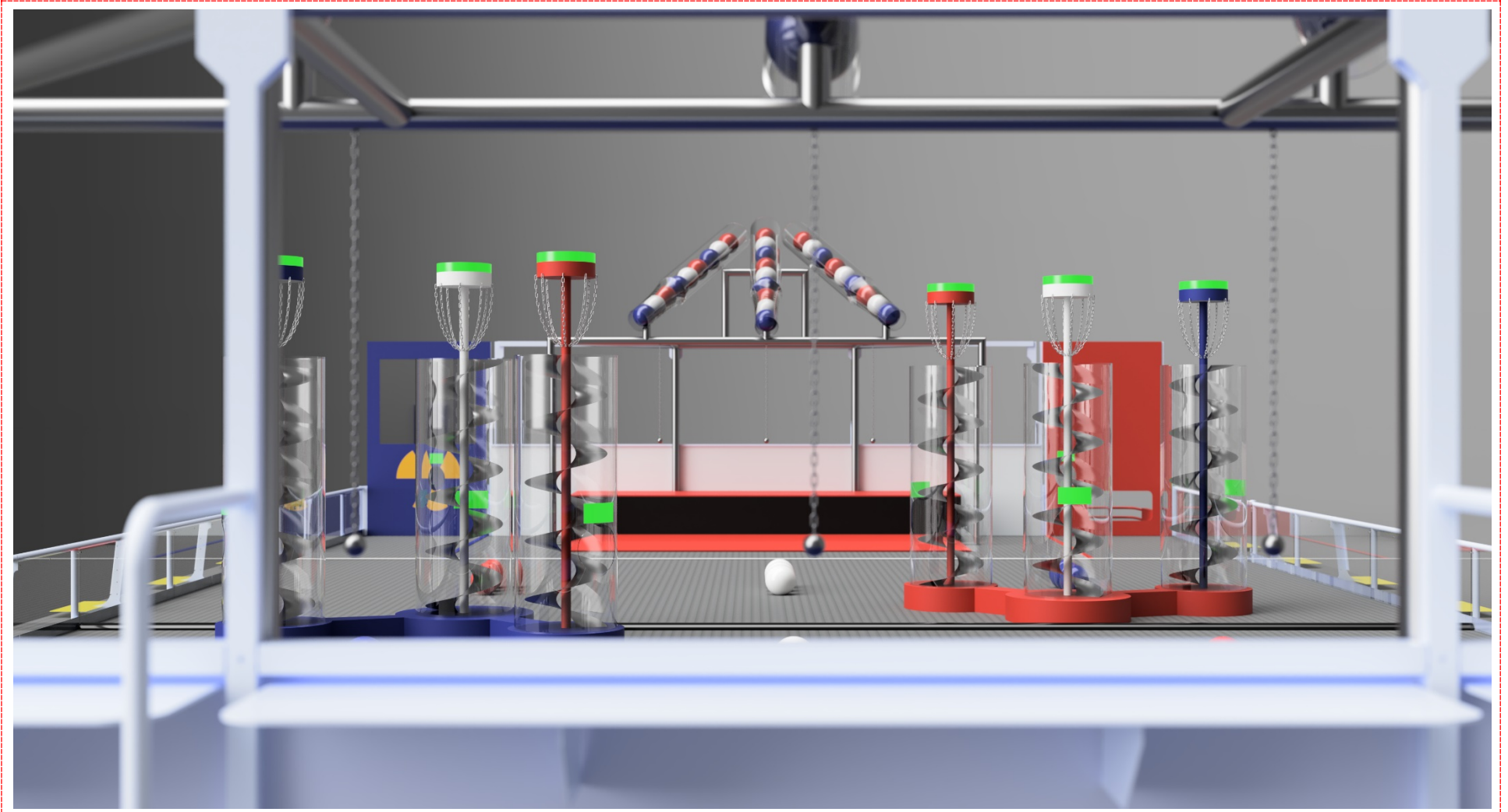
CABINET



MIXER & CRUCIBLE



DRIVER STATION VIEW



Additional Gameplay Rules

SAFE ZONES are defined as a marked area where: (1) a ROBOT may not contact an opponent ROBOT if that opponent ROBOT'S BUMPERS are fully in their SAFE ZONE, and (2) ROBOTS may not shoot CHEMICALS while fully enclosed in a SAFE ZONE.

There are SAFE ZONES located in front of the CABINETS, CRUCIBLES, & MIXERS.

ENDGAME Rules

ROBOTS' bumpers may not enter the opposing ALLIANCE'S DECONTAMINATION ZONE because the DECONTAMINATION ZONES become SAFE ZONES for the remainder of the match at the start of ENDGAME.

In order to complete a successful climb, ROBOTS must solely use the DISTRIBUTION CHAINS in order to elevate themselves to the height of the UPPER DECONTAMINATION ZONE.

Further, ROBOTS must be fully supported by the UPPER DECONTAMINATION ZONE, not the DISTRIBUTION CHAIN(S), in the 5 seconds following the end of match play to score UPPER DECONTAMINATION ZONE points. ROBOTS may still be touching the DISTRIBUTION CHAINS, but may not be supported by them. Support can be considered transitive between ALLIANCE ROBOTS.

The intent of the above rules is to force ROBOTS to only use the DISTRIBUTION CHAINS to climb to the UPPER DECONTAMINATION ZONE. ROBOTS must not deploy any mechanism to lift themselves up to the UPPER DECONTAMINATION ZONE, they must use the DISTRIBUTION CHAIN(S) to pull themselves up to the UPPER DECONTAMINATION ZONE.

Additional Game Design Considerations

Spectator Considerations

BEAKERS are aligned to benefit spectator, scouter, and referee visibility.

The basic premise of the game is easy to explain and understand.

Player Considerations

Teams will have to strategize their cycles carefully: the amount of MIXER point bonuses vs how full the BEAKERS are vs how many CHEMICALS are remaining to utilize during the match.

The DECONTAMINATION ZONE is positioned to not impede driver visibility.

All three BEAKERS are visible from all three Driver Stations.

Builder Considerations

All chains ROBOTS interact with are identical, and a small ball is located at the bottom of each chain, making it easier for ROBOTS to grab them.

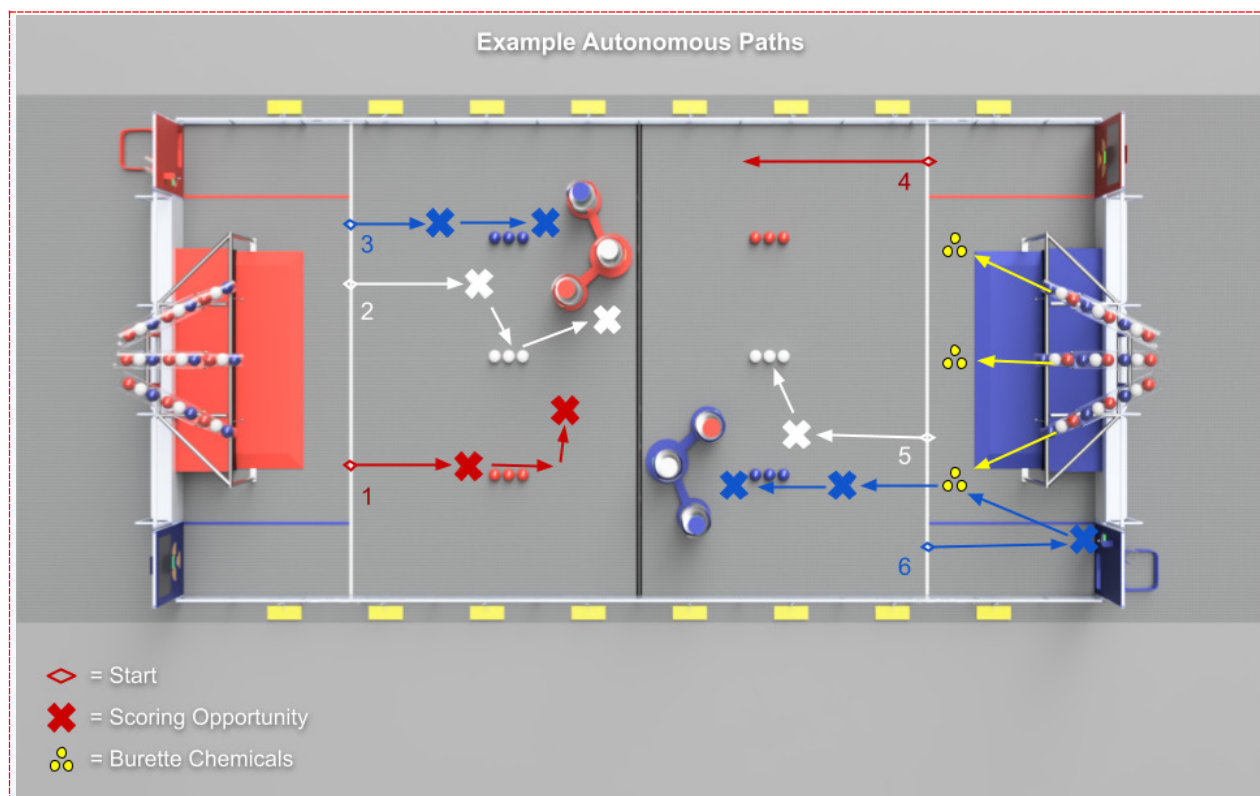
The BEAKER side opening, MIXER opening, and CABINET opening are all at the same height and have the same retroreflective tape markings.

The climb to the UPPER DECONTAMINATION ZONE presents a new challenge to build teams, as it's the first to use a chain for a vertical climb and then a horizontal transition to maneuver onto the UPPER DECONTAMINATION ZONE.

The UPPER DECONTAMINATION ZONE has enough width to house three robots and is only 15 inches off the ground, encouraging build teams to attempt climbing with multiple ROBOTS at once.



Autonomous Considerations



The game is designed with the intention of providing various levels of difficulty during AUTONOMOUS. ROBOTS can choose to score their pre-loaded CHEMICALS, or drive and pick up a set of three CHEMICALS placed on the field at the start of the match, and score them in the BEAKERS or MIXER. ROBOTS may also consider activating the MIXER to trigger the BURETTE to release more CHEMICALS for an initial advantage in TELEOP.

The figure represents different path possibilities ROBOTS may take. Path 4 is the easiest, as ROBOTS only need to drive off the INITIATION LINE to score points. Top tier teams can push to do more rewarding and complicated paths like path 6. In path 6, ROBOTS score their pre-loaded CHEMICALS into the MIXER and pull the MIXER CHAIN to release CHEMICALS from the BURETTE, then proceed to collect those and score them into the BEAKER, followed by picking up the three blue CHEMICALS from the floor and scoring them into the BEAKER. Path 6 is more rewarding but very challenging. ALLIANCES will have to make strategic decisions on choosing what path to take to best match their ALLIANCE'S capabilities.

Potential Game Modifications

Mixer combinations can be changed to increase or decrease complexity. For example, specific combinations with color order may be implemented to trigger different events.

A level of difficulty could be added by making the BEAKERS randomly assigned colors at the start of each match. Scored CHEMICALS that match the color of the BEAKER still count for extra points. Further, the LEDs on the top of the BEAKER could be modified or added to indicate which color of CHEMICAL should be scored in which BEAKER for maximum points.