



# WILD WEST WRANGLE

## FRC 2410



All was well in FIRST Robotics city until a horrendous tornado struck two neighboring farms; livestock and debris were loose everywhere, farmers quickly closed the gaps in their fences. The farmers desperately need their mixed-up cows back in their pens and need to repair the fence along with clean up the debris. Furthermore, the dreaded Tornado knocked down the shelter, during the endgame it is your alliance's to help repair it and bring it back up.

### GAME OVERVIEW:

#### Autonomous (15 seconds):

The autonomous takes up the first part of the game, robots will gather at the start and during autonomous robots can cross the Autonomous line to earn 5 points.

- Bringing the debris to the human players during autonomous will earn an additional 2 points per piece (scoring increased in auto phase compared to teleoperated, a horseshoe during autonomous may be worth 8 points compared to teleoperated where it would be 6 points).

#### Teleoperated (1 minute 45 seconds excluding endgame):

- Robots will care for their pasture and cows by removing debris from their pasture, repairing their respective irrigation systems, and rebuilding their water tower.
- If the chain was not removed during the autonomous period, alliances may remove it for 5 points WITHIN the first 15 seconds of the teleoperated period, furthermore bots can remove chain in the first 15 seconds if not done during teleop already.
- Irrigation systems can be repaired by rotating the handle by a minimum of 360 degrees. This action is worth 8 points.
- Prior to the start of the teleoperated portion of the game, alliances will receive a randomized order of debris to be placed on the shelves of the water tower, horseshoe, jack, and supply cube. Each team will place the debris in their respective locations on the water tower shelf to repair the water tower and to earn 20 points. The debris MUST be placed in the correct order to receive points.
- Robots will remove the excess debris from their field and deliver it to the human players. Each jack

successfully delivered to the human players will be worth 4 points, each horseshoe will be worth 6 points, and each supply-cube will be worth 4 points.

- Cows will be scored depending on how long they have grazed on the clean and healthy pasture. 1 PPS (Points Per Second) will be awarded per cow if they are on the field after the irrigation system has been repaired. Another 1 PPS will be awarded for each cow if they are placed in the barn after the debris has been cleared from the pasture. A maximum of 2 PPS may be earned per cow. If a cow is placed on the field after the irrigation system is repaired and the debris has been cleared from the pasture, a bonus of 8 points will be awarded per cow.
- If a cow is placed on the upper level of the barn, the alliance will receive 10 points. If the cow is placed on the lower level of the barn, the alliance will receive 5 points.
- Once a cow is placed into the barn, the cow will stop earning the points it received on the field.

#### Endgame (final 30 seconds):

- Both teams close chains on fences
- 2 bots lift shelter using jacks and one bot can park under the shelter before the timer hits zero.
- If both the chain is closed and the shelter is lifted with a bot underneath, the alliance earns 1 Ranking Point (RP).
- If the chain was removed during autonomous, replacing it is worth 10 points, if it was removed during teleoperated, it is worth 5 points.
- If a bot is parked under the shelter at the end of the match, the alliance earns 15 points (no points are awarded for lifting the shelter)

# SCORING

An alliance may earn up to 4 ranking points per qualification match. No ranking points may be awarded during playoff matches.

AWARD	AWARDED FOR	AUTO	TELEOP	Qual.
Cows	Placed in Lower Barn Level	-	+5	-
	Placed in Higher Barn Level	-	+10	-
PPS	Cows on the Right Alliance Side After Irrigation System has been Repaired	-	+1 PPS	-
	Cows on the Right Alliance Side after remaining Debris has been cleared off Field	-	+1 PPS	-
DELIVERING Debris to Human Players	Horseshoes	+8	+6	-
	Jacks	+6	+4	-
	Supply Cubes	+6	+4	-
AUTONOMOUS Points	CROSSING THE START LINE	+5	-	-
	REMOVING Chain From Fence	+5	-	-
TELEOPERATED Points	REMOVING Chain From Fence	-	+5	-
	TURNING Valve	-	+8	-
	REBUILDING Water Tower	-	+20	-
	Debris Has Been Cleared & Water Tower Has Been Rebuilt	-	-	+1 Ranking Point
ENDGAME Points	ONE BOT PARKED BENEATH THE SHELTER	-	+10	-
	CLOSING the Fence Gap (If Chain Was Removed During Autonomous)	-	+10	-
	CLOSING the Fence Gap (If Chain Was Removed During The First 15 Seconds of Teleoperated)	-	+5	-
	BOTH bot parked AND chain replaced	-	-	+1 Ranking Point
Tie	Match completed with the same number of points as the opponent.	-	-	+ 1 Ranking Point
Win	Match finished with more points than the opponent.	-	-	+2 Ranking Points

Penalty	Description of Penalty
Foul	(3) Points will be awarded to the opposing team
Tech Foul	(15) points awarded to opposing team
Yellow Card	A warning to the head referee for rule violations, a subsequent red or yellow card can lead to a red card.
Red Card	A red card results in a team being disqualified for the match.
Disabled	The robot is mandated to deactivate all outputs, leading to it being inoperable.
Disqualified	The occasion where a team receives (0) match points and (0) ranking points. This results in their alliance receiving a total of (0) points in a playoff match.

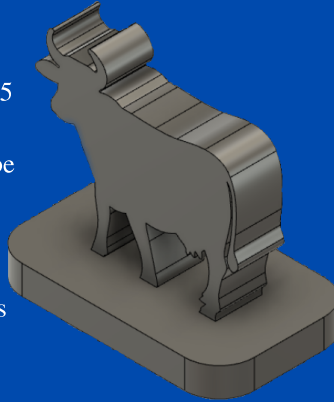
## Rule Violations/Penalties:

- Gracious Professionalism must be adhered to at all times during competition.
- Do not intentionally hit referees or other alliance members
- Do not intentionally collide with other robots, contact is not necessary to play defense
- If any piece is thrown out of bounds (excluding the human player gate), the piece is considered void and a penalty is imposed.
- If teams remove or replace their chain outside of the designated times (auto or first 15 seconds of teleop), the alliance will be penalized with a Yellow Card

# GAME ELEMENTS

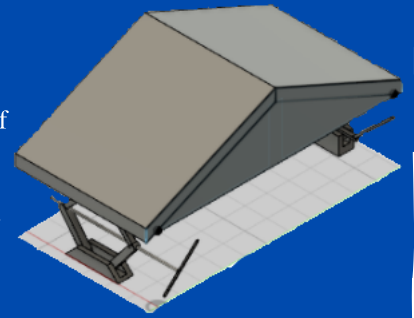
## Cows:

- 10 cows on field - 5 on each alliance.
- Alliances will begin with 3 out of 5 of their cows on their side of the field, the remaining two cows will be placed on the opposing side.
- Sliding panel that reveals color, each alliance has own color
- Cows are stored in your alliance's barn, and aim to put the cows in higher areas of the barn for more points



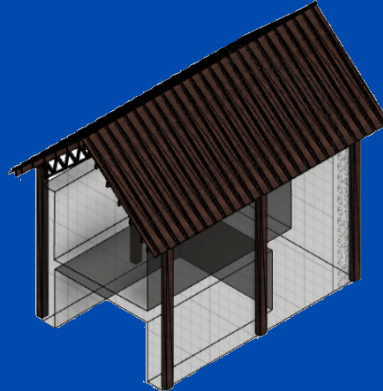
## Shelter:

- The Shelter is a roof that is lifted by two car jacks. It is important to note that the roof of the shelter is fixed to car jacks. Alliance members must work together to control the speed of lifting the roof and prevent the roof from bending.



## Barn:

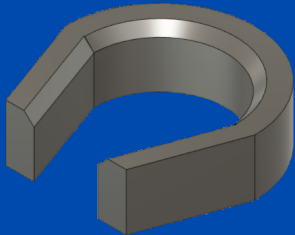
- Each alliance's side of the field contains a barn, the barn consists of two levels and is located next to the drivers station. Teams must maneuver their cows into the barn for points. The sides of the barn are made of plexiglass and the top is wood.



## DEBRIS

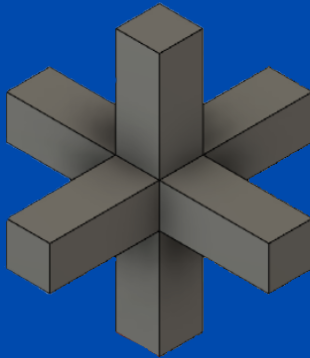
### Horseshoe:

- Each horseshoe successfully given to the human players during the autonomous portion of the game will be worth 8 points.
- Each horseshoe successfully given to the human players during the teleoperated portion of the game will be worth 6 points.



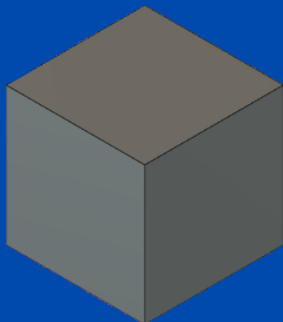
### Jacks:

- Each jack successfully given to the human players during the autonomous portion of the game will be worth 6 points.
- Each jack successfully given to the human players during the teleoperated portion of the game will be worth 4 points.



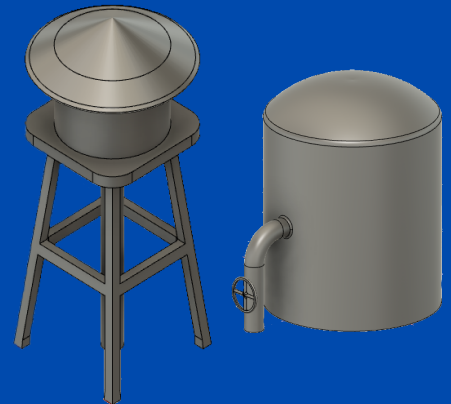
### Supply Cube:

- Each supply cube successfully given to the human players during the autonomous portion of the game will be worth 6 points.
- Each supply cube successfully given to the human players during the teleoperated portion of the game will be worth 4 points.



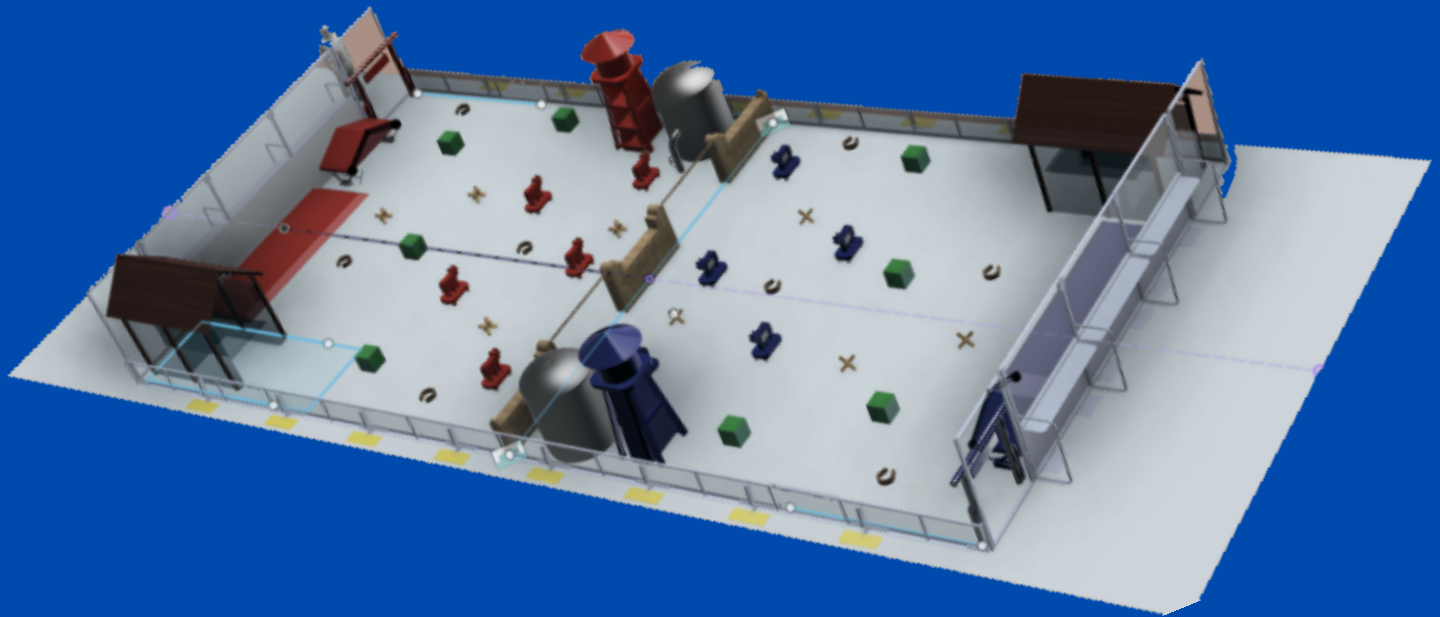
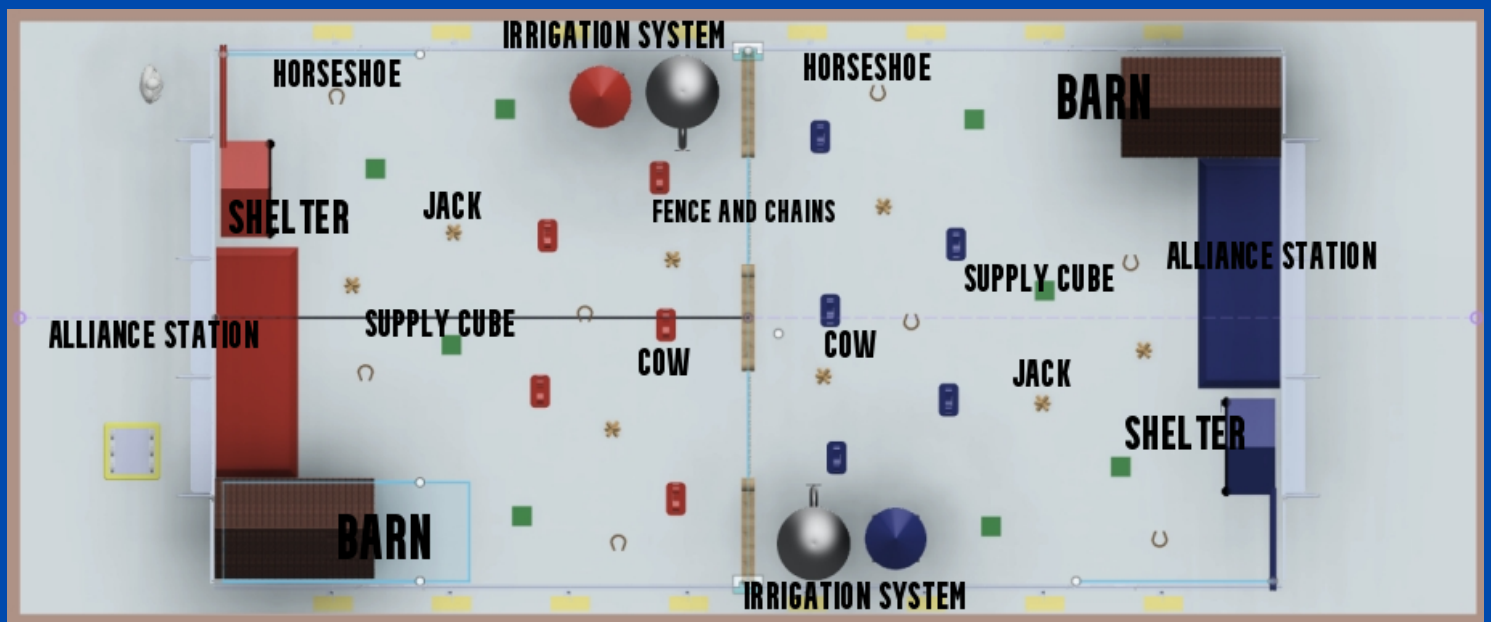
### Irrigation System:

- The irrigation system consists of the water tower as well as the water tank. Alliances will work to rebuild the water tower and to repair the water tank. By repairing the water tank, alliances will receive 8 points and by rebuilding the water tower, alliances will receive 20 points.



### Fence and Chains:

- The chains found on the field, are made up of several metal links.
- Each alliance has one chain on their side of the field until removed, both chains can be found in the gaps between the outside fence and middle fence.
- The fences are what the chain is initially connected to and must be reconnected to in order to score points.
- Chains can only be removed during the first 30 seconds of the game and then replaced during endgame.
- The chain reduces the playing field for both alliances moreover limiting the points that each alliance can score.



## FIELD PLACEMENT

**Randomization:** A repair list will be sent out prior to each team's match, there are various combinations of debris that could be found in your match. The various combinations of debris will be made up of three types of debris that are randomly ordered, it is important to note that both alliances will receive the same randomized debris order.

## LOGISTICS

**Drive Team:** A drive team is a set of up to (5) people from the same team responsible for the team performance of a specific match, there are (4) specific roles for the team members, and only (1) can be an adult mentor. The available roles are (1) adult mentor, (3) drivers and/or human players, and (1) technician.

**Humans:** Drive team and human players start behind the starting line behind their driver stations. Technicians must remain outside the alliance station and may NOT come into contact with the operator console. During the match, humans may not contact ANYTHING outside their designated area. (Exceptions may be granted in certain situations).