

Time Machine Game Design Document

Visual theme:

- Digital / LED / FIRST themed with a lot of gears, chains, weights, etc. like a grandfather clock. LEDs light up as progress is made, making everything look more “futuristic”, visually show how we’re travelling from past to future

Storyline:

- Go back to the past to make sure teams have the parts they need to compete, to ensure the existence of FIRST

Core pillars of design:

- Accessibility - Almost entirely playable with just a drive base or simple mechanisms
- High skill cap - Rewarding to teams who can build complex mechanisms
- Meaningfully multiplayer - some level of strategy coordination
- Gameplay variety - different challenges require interesting mechanisms
- Easily understandable scoring and strategies
- Entertaining to someone with little to no knowledge of FIRST

Lenses:

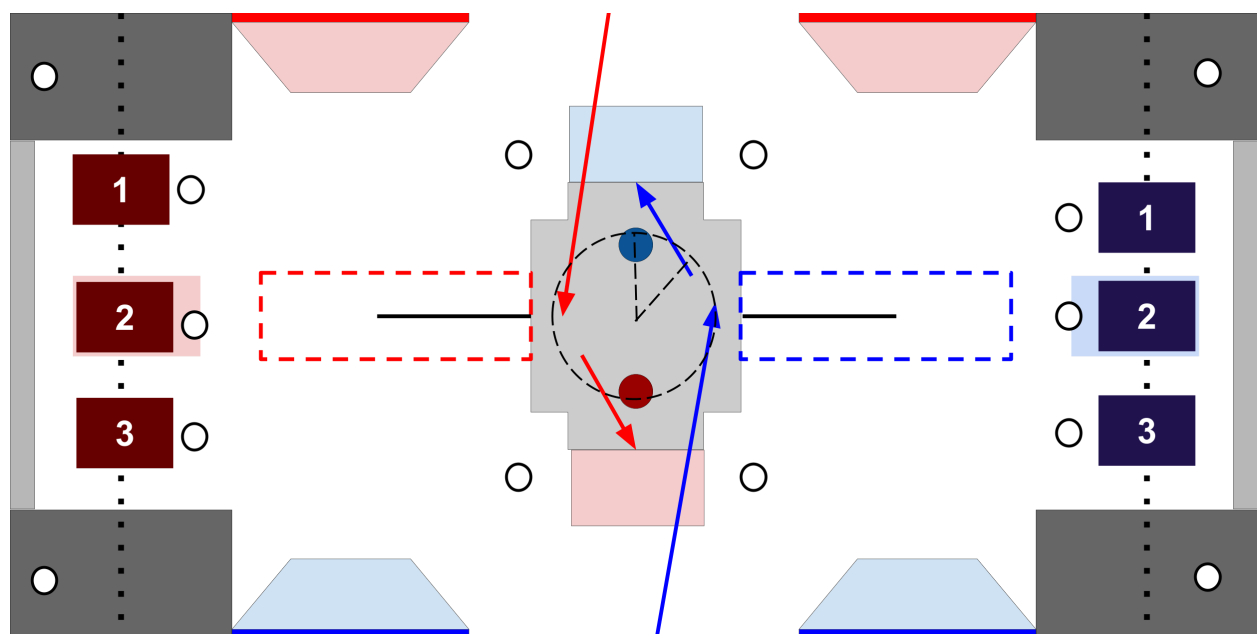
- Every mechanic is relevant
- Unique Challenge - Should not play the same or be won the same as previous year’s games
- No team should be a winner by making another team a loser (defense should not be too powerful)
- Should use the game design element somehow (Chain)
- ~~—Themed around “Game Changers”~~
- Should be relevant to an international audience
- Avoid being Steamworks v2
- Use human player, autonomous, and endgame mechanics
- Game must be able to be played until the time limit, no theoretical maximum score

Gameplay Mechanics:

- Autonomous each robot starts with a tube in possession or in front/behind it, score points by:
 - Scoring tube in goal but not in trough (2x normal points)
 - Touch tube that’s on top of ramps (10 points)
 - End autonomous across the starting line (5 points)
- PVC Tubes as a central game piece, can be rolled into a slot on the side of the field for human players to recycle, additionally they can be fed into a hole high above the slot for more points.
- Two scoring stations are located along the side of the field left of each alliance’s driver’s station

- Behind each of the two scoring stations is a human player from the *opposite* alliance. These players take scored pieces and either return them to play underneath one of the two ramps adjacent to the scoring station, or send them down a central overhead tube. This tube feeds into a central structure, which one human player from each alliance inhabits. These human players can then return tubes to play on the side of the structure that faces away from their team's goals
- There is a trough along the driver's station walls that teams can roll tubes into, if they can put X tubes in the trough they get bonus points
- There is a weightlifting challenge attached to the central clock / human player station, increasing weight as teams lift using a chain around a pulley, chain dangling down in front of the clock. Teams can grab chain and pull back to lift the weights, chain cannot back drive (one way ratcheting), teams cannot pull the full length of the weight in one drive back from the field element, it will require multiple drive backwards, or lifting using a straight down pull mechanism
- If both alliances lift the weights then the opportunity to extend the match presents itself. A light on top of the clock lights up for each weight that's pulled. There are two pressure pads one on each side of the field (close to the driver's stations) that if both are depressed gives the time extension. Most natural is for one robot from each alliance to be on the two pads, but two robots from the same alliance can trigger. A ranking point is given as well as a time extension if triggered.
- A big LED clock exists on top of the central human player station for the audience's viewing pleasure
- Endgame: In the final 30 seconds of the game, robots may hang from horizontal chains that are slightly above the robot's height. Robots must drive up onto one of the corner ramps on their side of the field to begin the hang. Robots that can shimmy across the chain towards the center gain bonus points.
- Safe zones: In front of human player stations and goals, safe zones cannot be inhabited by opposing robot for more than 5 seconds, touching an opposing robot in a safe zone results in a penalty. Touching an opposing robot who is interacting with the weightlifting chain also results in a penalty, although the weightlifting area is not considered a safe zone

(what does a tube represent? Pieces for robots? Time capsule? Wormholes?



Sketch of weightlifting mechanic:

