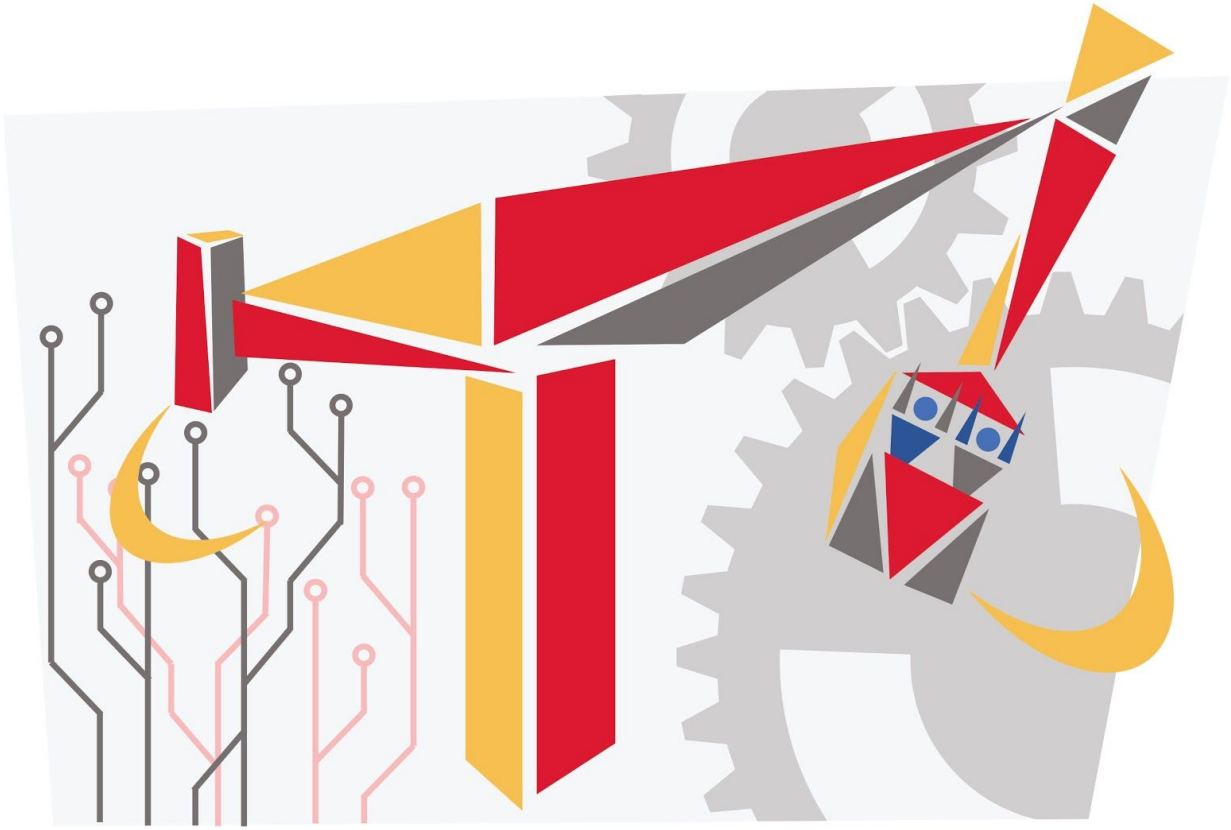
Theme Park Engineering Group
At Iowa State University

Ride Engineering Competition



2021 Prompt

October 2020

Intro

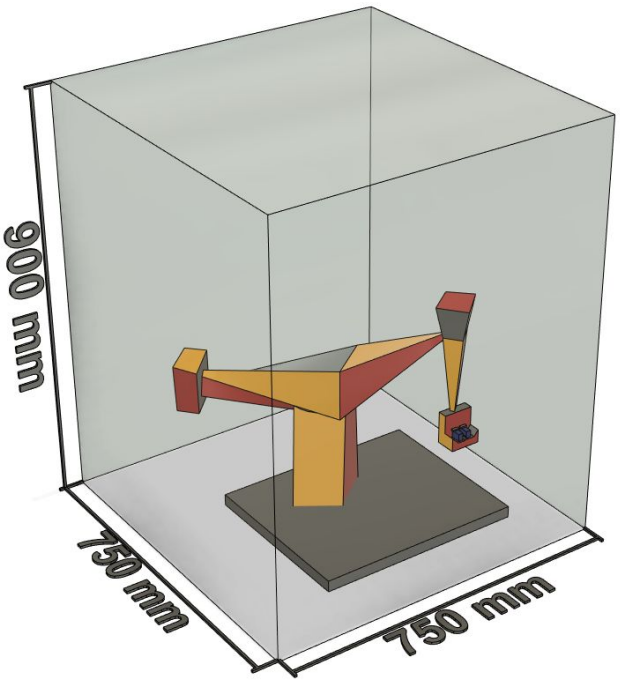
The REC Committee is looking for thrill rides for our pop up amusement park! This ride shall operate on a flat table. The ride will not be connected to the table in any way.
Rides that passively follow a track for the majority of the ride experience such as roller coasters are strongly discouraged in this year's competition.

Size

Rides shall be no bigger than a theoretical size box 750mm wide, 750mm deep, and 900mm tall.

Ride footprints may be any size or shape that fits within the stated size box.

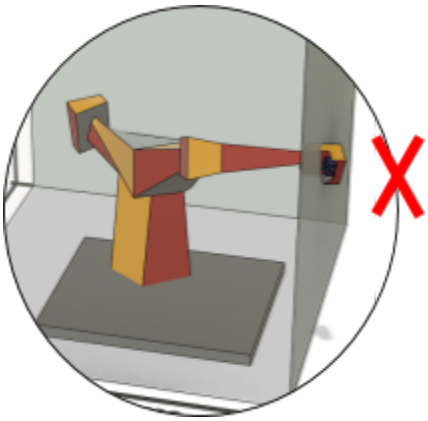
No part of the ride may exit the size box at any point during operation



Design

Ride designs may emulate existing rides, be an original design, or anywhere in between.

The REC Committee does not hold any Ride Design Intellectual Property and does not provide any Intellectual Property protection to ride designs introduced in the Ride Engineering Competition.



Ride systems may make use of any Commercial-Off-The-Shelf (COTS) parts or custom manufactured parts.

COTS parts or kits that are designed for the intention of emulating a Thrill Ride may not be used in the case they were designed for. *E.g. a CDX Tie and 2 rail Track and Carriage system, may not be used as a 2 rail track and Carriage within the Ride Design. These parts may still be used in the design. For any needed clarification on this rule, please contact the REC Committee.*

Ride Operation

Rides will operate in a window of 8 hours.

An operation Cycle consists of the ride program, followed by a pause of 0.5 seconds per rider to emulate loading and unloading.

Rides will operate primarily in a Continuous Automatic Operation, where no operator intervention is required between operation Cycles.

Riders will stay on the ride for one hour as the ride operates in Continuous Automatic Operation. Every hour on the hour during the 8 hour day of Operation the riders must be removed from the ride and new riders shall be placed on the ride.

Rides will have a throughput between 32 and 64 Passengers per Minute when in continuous automatic operation. Throughput = (# of Riders per Cycle) / (Cycle Time)

There will be a minimum of 8 riders allowed on the ride during a single cycle. There is no maximum allowable riders per cycle.

Rider Experience

Height
Riders shall be lifted 300mm above their initial loading height at least once during every ride cycle

Acceleration
Riders shall experience at least 2G (19.62 m/s^2) of acceleration in any direction at least once during every ride cycle.

Facilities Input

Each Team will have access to:

A 30” x 96” (760 x 2440 mm) table for their ride and any Tools or equipment they need to service their ride. Virtual Teams may use any surface with similar area.

1 Standard 120VAC Outlet for the Ride.
1 Standard 120VAC Outlet for additional Tools or Equipment.
Teams may add a Surge Protected Power Strip for their Tools or Equipment.
Teams may not draw more than 15 Amps total.