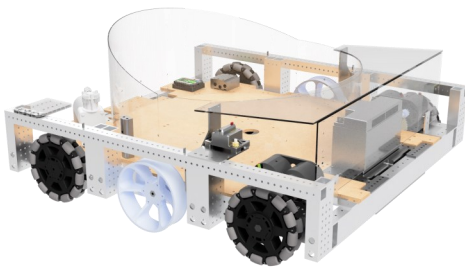
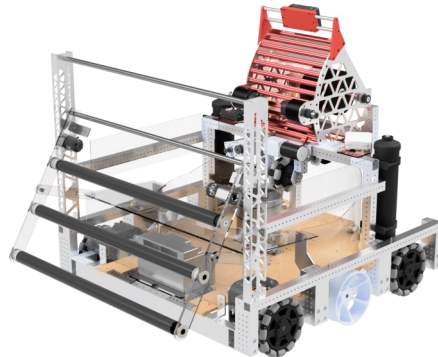
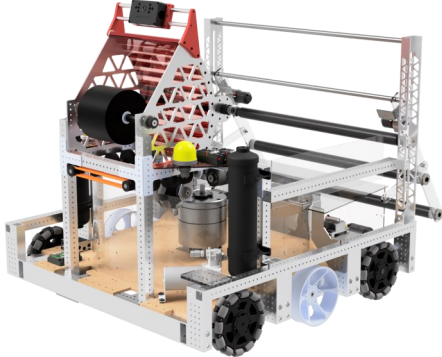


2021 Technical Flyer



FIRST Team 1987 The Broncobots

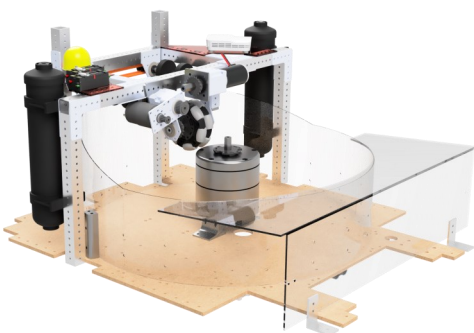


Chassis

- Two 6 inch performance wheels & Four 6 inch Omni-directional wheels
- West coast drive 4 Falcon 500 single flipped gearbox
 - 16.35 feet per second
- Uses the Falcon 500's integrated encoders to track drive distance for autos
- Upside-down electronics board to double as the Spindexer floor
- Autonomous commands use spline driving to create drive paths
- Roborio located within the center activates motors via intricate CAN Bus wiring

Collector

- Two Neo 550 motors
- Three VEX pro roller tubes
- Actuated using two pneumatic cylinders
- Collects using compression between rollers and bumper
- Pneumatics expel and retract to allow roller motors rotate to stimulate ball intake
- Instant command enables collector to continuously pickup balls autonomously.



Spindexer

- One bag motor powered on a 16:1 gearbox
- A 3D printed block holds 2 rows of 3 inch brushes to move the balls around the outer wall
- One bag motor with a 4:1 reduction spinning an omni directional wheel to push the balls into the compliant wheels
- One 180 gearbox with a 775-pro spinning 2 sets of compliant wheels
- Compliant wheels feed the balls directly to the shooter
- Balls are organized and fed to the shooter superstructure via an instant command

Shooter

- Powered 1:1 with two Falcon 500s
- Uses the Falcon 500's integrated encoders to track the flywheel's angular velocity
- Two 5 inch Fairlane wheels
- Custom CNC routed side plates
- Custom 3D printed Limelight™ mount
- Limelight™ camera used for fast and accurate aiming during auto and TeleOp
- Commanded to shoot balls only when shooter wheel reaches RPM tolerance

