

# Contact Us

The Lee's Summit North Broncobots

FIRST Team 1987

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The Broncobots (Team 1987)

**Youtube:**

[www.youtube.com/brncobots1987](http://www.youtube.com/brncobots1987)

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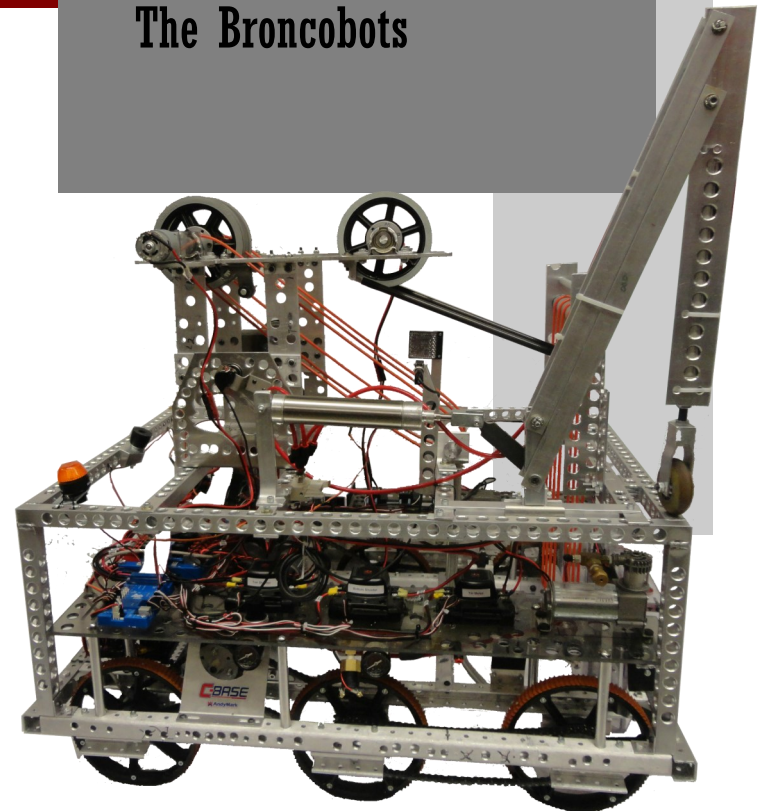
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FIRST TEAM 1987  
LEE'S SUMMIT, MISSOURI

# The Robot

The Broncobots



Lee's Summit North High School

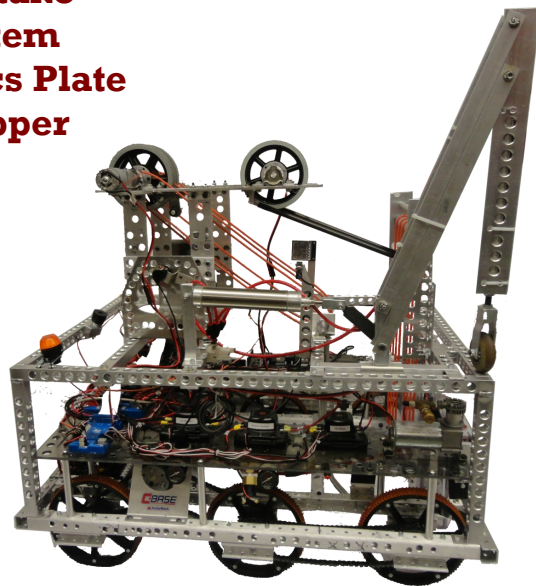
# Drill Sergeant

## Drill Sergeant can...

- Overcome "The Bump"
- Tip & balance on The Bridge
- Pick up & shoot basketballs

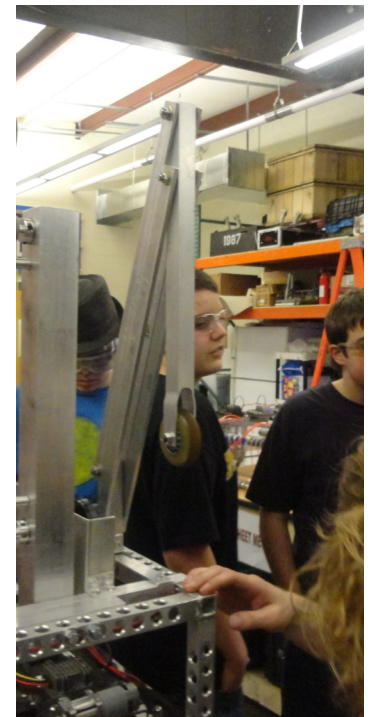
## Highlights:

- Shooter
- Intake-Uptake
- Drive System
- Electronics Plate
- Bridge Tipper

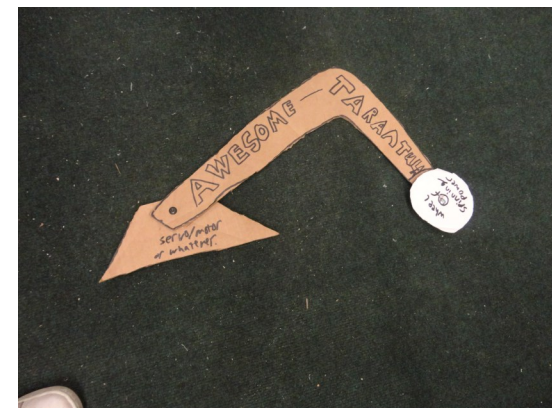


# Bridge Tipper

The bridge tipper is a pneumatic-powered arm with a second pneumatic cylinder on the end. Together, these actuators provide over 19 pounds of downward force.

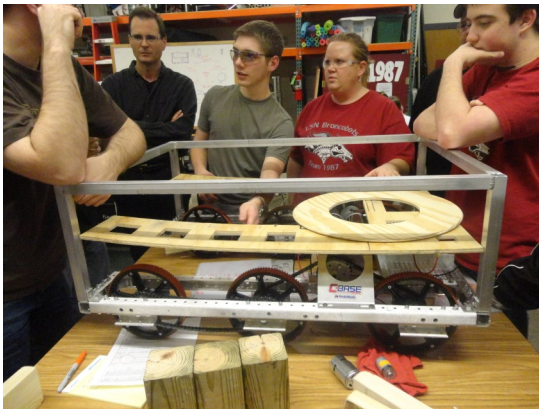
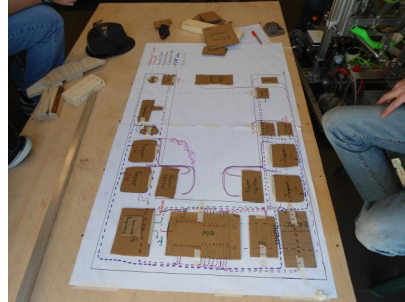


Originally, a single, motor-powered arm was to be the design; however, we found this design would not perform as we needed



# Electronics Plate

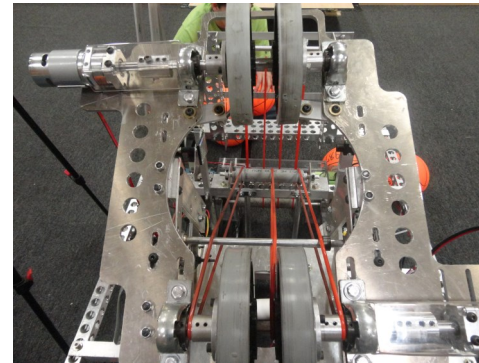
The electronics plate is a custom-designed slab of 1/4 polycarbonate. It is specifically designed to match the footprint of the robot. To facilitate the Intake-Uptake, it is shaped like a "U."



Every electronic component was integrated onto this plate. The holes for fastening bolts were drawn into the CAD file, as were the lightening holes. There are even holes to fasten zip ties through to manage cable conduits.

# Shooter

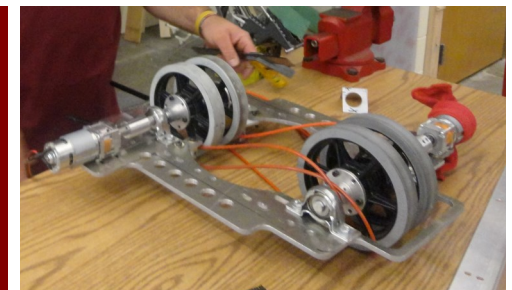
Our Shooter is a two-wheeled system that is oriented vertically to facilitate as much topspin as possible.



The two wheels' speed can vary independently, so that we can shoot at different distances and with different arcs.

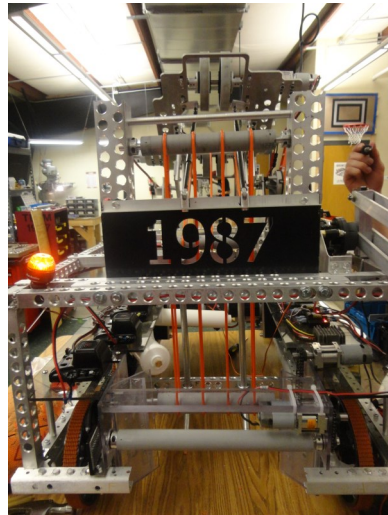
The shooter not only varies in speed, but also in angle. It varies between approximately 30 and 60 degrees.

The uptake rollers that take balls into the shooter are powered by the shooter, which prevents jamming.

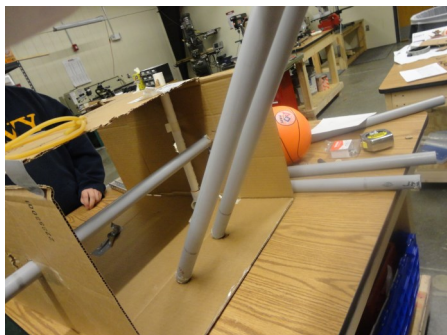


# Intake-Uptake

Our ball handler is a series of belts and rollers that moves balls from the floor to the shooter. It consists of three parts: the "combine," the first uptake, and the second uptake.

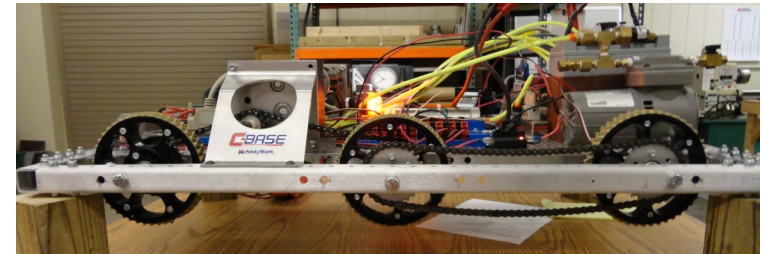


The two uptakes are a row of 1/8" poly-cord that rolls basketballs against a pair of dead rails. The second uptake's dead rails telescope to facilitate the shooter's variable angle.



# Drive System

Our drive system is a six-wheel dropped center with 8" Andymark Plaction wheels. The center wheels are offset by 1/4 inch.



The robot is able to traverse the bump without damaging its chain because of the distance the wheels are from each other.

The wheels are driven by Andymark Super Shifters that offer two different speeds.

