

At the beginning of the season our team **did not plan on hanging** because we calculated that the time taken to hang was not worth the 40 extra points. After the first competition however, we consistently had **enough extra time to hang**. To make our hanging mechanism we **researched** what other teams were doing on twitter and found that **using a tape measure** was an effective method to hang. In order to collect data necessary to build our mechanism, we **weighed previous years robots** (30 pounds on average), and we **found the amount of torque an AndyMark motor** could produce (1:8 gear ratio, about 40 pounds). Using this data, we calculated what gearing ratio would be necessary to lift our robot. We then built a mechanism with a **tape measure and waterjet parts** to raise and lower a tape measure. After further research, we found a **stronger tape measure with nylon reinforcement**. This worked extremely well and we did not do any redesigns.

Upon getting the new chassis ready, we began looking for places to mount the hanging mechanism. We revisited the question of what gear ratio would be necessary in our new chassis, and found that a 1-3 would be strong enough to lift, but crucially, it wouldn't hold. Because speed is so important to us, we went with the lower ratio and decided a pin mechanism to lock the hanging tape. This allows us to rapidly hang, and still have the ability to hold the hang.