

For the 2022 FRC game I was given the task to design a climbing mechanism that would extend out hook onto a bar and pull the robot up. The mechanism had to be designed to sustain holding up large weights but light enough so that the robot did not exceed the weight limitations.

The mechanism consisted of two exterior guide arms and an internal metal frame which had hooks at top of it. The metal frame would extend and the hooks would grab on to the pole and then the system would pull itself up. A custom bearing block, chain and gears were designed for the mechanism to make the parts as light weight as possible. Along with this a gear lock was designed so once the robot had lifted up the mechanism would stay in a closed position and keep the robot gifted above the ground.

