

This Document has some key tips and solutions to problems that team 1241C faced in this year's game Vex Round up.

Chassis:

- Chassis should be made out of aluminum parts if robot is made to hang. This will also make your robot faster. However, this will also make your robot easier to push so the more weight the less it will get pushed around but the slower it will be.

Arm:

- The arm should be made out of aluminum parts and have as less weight as possible to allow it to raise faster and hold itself in mid air. The arm towers should be reinforced with cross braces. it is important that the cross braces are connected in the middle because that is where the arm will get the strength from
- To further help the arm, a long bar should extend past the gears to the other side of the arm. Latex tubing should be tightly wrapped from base of the chassis to that bar. This will act as a see-saw helping the arm lift up
- High strength gears should be used on the arm as they have more surface area than the normal gears. This means that there will be more points of contact which will provide additional strength to the arm.
- We had problems reaching the high post because our arm wasn't reaching high enough. At that the point the arm bars were perfectly parallel to each other so the claw would always be parallel to the ground. However, to fix the height issue we tried offsetting the arm bars so that they were not parallel anymore but just a little off. This made the arm tilt back a little when it was at the top giving us the extra height we needed to score on the high post.

Mobility:

- If you are are going with a tank drive it is recommended that you use 2 traction tires and 2 Omni wheels. This is because when you have 4 traction tires you have 4 solid points of contact which will prevent your robot from turning properly. When you add the 2 Omni wheels, you now have 4 points of contact, 2 of which are not solid, allowing your robot to turn freely.
- Where to put the 2 Omnis is entirely up to you. However, when you put them at the front, your robot will turn with a slightly more curve to it like a car, but when you put them at the back it will turn more on the spot.

Programming:

- It's good to have pre-programmed presets for your arm because they help you score faster during a match. You need to have a potentiometer on your arm to measure the angle of the different presets. Some key positions could be the top and bottom of the high goal post, and the top and bottom of the low goal post.