## Create an Intake

We have provided drawings and images of team 2638's intake from 2022. Some measurements have been omitted, with the intention that you will reason out what those measurements should be yourself. There is no single right "answer," as there are plenty of measurements that might work.

You will find these measurements by keeping the following criteria in mind:

- 1. The ball is 9.5 inches in diameter
- 2. The ball can compress about  $\frac{1}{2}$  inch
- 3. 2 inch flex wheels can compress about ½ inch (you should use 2 inch flex wheels, by the way)
- 4. The intake should only be designed to collect one ball at a time
- 5. The intake should fit on a robot that is 20 inches wide

Again, there are no correct answers. Any measurements that you choose to use should be a conscious design choice. For instance, a wider intake may be easier for the driver to pick up balls, but it also adds bulk to the robot that may not be worth it. While these choices are up to you, the intake still has to work as intended.

Additional Notes:

- The lightly colored pieces are polycarbonate, though you should make them (and color them) from scratch
- Remember to use lock collars and bearings
- There are pulleys 4 pulleys on the 2 spinners, though you don't have to CAD the belts
- The spacing on the spinner is determined by yourself
- The intake should be able to move/pivot in CAD (if done correctly)
- You can assume that the intake will be placed optimally on the robot for the intake to work best. Of course, be reasonable with your measurements... we don't want to place the intake super high in the air or far back in the robot.
- Do not CAD the pistons, you will do that in a later assignment

This assignment is hard, so if you have any questions, please ask us.







