Why we designed this part:

In vex, we have some ideas about catching the ball. The first thing that comes to mind is like grasping the claws of a doll machine. By controlling the force of the claw and the Angle at which it opens, the ball is held steady. However, I did not find any similar claw in the official accessories. The only official claw is the one between the two sides, which can only grasp the sleeve with the cover folded at most. It must be very unstable to grip the ball. Although the cars used in the competition did not use claws to grasp the ball, I wanted to try to design the claw structure while I was in this machine.

What it is:

These are two 3d-printed structures. The first is a tetrahedron with four vertical holes on each of the four sides. The second is the cross structure of the middle shell with eight holes on the side, which can penetrate the shaft. The last one is the lighter claw structure.

How he works:

The tetrahedron with holes can fix four track bars, and the movement of rack on the track bar can realize the rolling of gears in four different positions, and then drive the rotation of four different axes. The four axes allow the claw to grab or release. To achieve four axis with the speed of rotation, only need to make the four rack at the same speed forward or backward.

3d software used:

In the modeling process, we used inventor2018 3d software. We first watched the teaching video before using it, and then looked for vex structural parts and moving parts to use together on the official website.

Learning experience:

I found that the most important thing in the modeling process is the design idea of the structure. I thought of first finding relevant information, and then generating the relevant modeling structure in my mind (at this time, we just have a vague concept). Finally, in order to make the mind more clear, we used the inventor 3d software for modeling. In the modeling process, we first thought of looking for vex structural parts and moving parts, in order to find parts that can be used in the structure of the process, I found the rack and pinion structure, which gave me a very good idea. Let four axis fixed on the same tetrahedron, make four rack at the same time in one direction with the same speed movement, so that the four axis can achieve simultaneous transmission.









