Learning Series

Rotating flying chair



This robotics kit is a building block programming robot research and development by Joinmax.

The kit is equipped with various sensors such as sound sensitivity, color sensor, touch sensor, photoelectric sensor, color light, ultrasonic, camera and many building blocks parts. Students can build various building block robots with their imagination, and use graphical programming software to program the robot and experience the joy of hands-on creation.

Learning Target

01

Knowledge goal

Power transmission between machines and the ratio of rotational speed

02

Ability goal

Know the transmission deceleration and speed increase and build a rotating flying chair robot

03

Emotional attitudes and values

Teamwork, the ability to work together.

Learning Target

01

Learning focus

The learning of the rotation speed ratio.

02

Learning difficulties

Transmission components, deceleration and speed increase.

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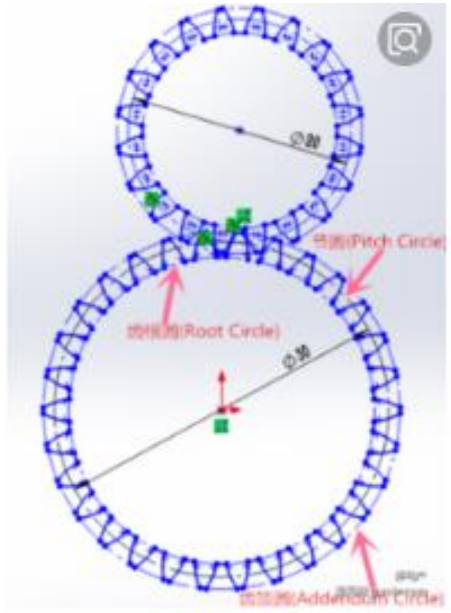
Course Introduction



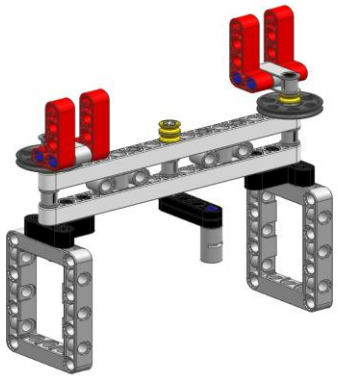
Course Introduction



Observe the above picture, which side accelerates, and slow down there.

Gear ratio In the mechanical transmission system, the ratio of the angular velocity or the rotational speed of the starting drive wheel to the end driven wheel, the ratio of the instantaneous input speed to the output speed in the mechanism is called the transmission ratio of the mechanism. The large gear has a pinion to speed up, and the small gear has a large gear to reduce the speed.

Course Introduction



Rotating flying chair

Know the rotating flying chair

There are many applications for gear ratios in life. Enhance the understanding of the transmission ratio by learning the "rotating flying chair robot".

Today we will build a "rotary flying chair robot" whose gear ratio is 1:1 constant speed.

Teaching New Knowledge



Teaching New Knowledge

The number of revolutions of the gear is inversely proportional to the number of teeth

The two gears mesh, and the number of revolutions of each gear is equal to the product of the number of teeth, that is, their linear velocities are equal. It can be seen that the number of teeth is much slower, and the number of teeth is smaller. Therefore, the number of teeth is inversely proportional to the number of revolutions.



Teaching New Knowledge

Transmission speed increase and deceleration

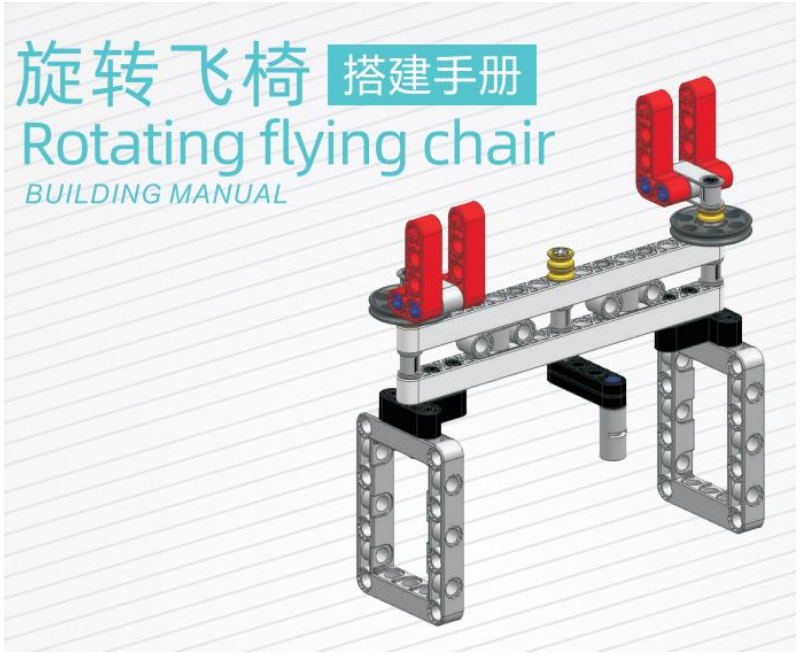


The transmission speed increase is that the large gear drives the pinion gear, and the acceleration inside the belt drive is similar to that of the transmission, and the transmission speed of the small wheel drives the small wheel. The pinion drives the large gear to achieve a certain deceleration effect.

Task Practice



Task Practice



Assembly requirements

1. stable structure
2. focus is right
3. shape match

Checking Effect



Test Effect



Review the learning content and deepen your impression.

Question 1 What is the name of the robot made today?

Question 2 What is the gear ratio?

Thank you for watching

BE STEM READY

