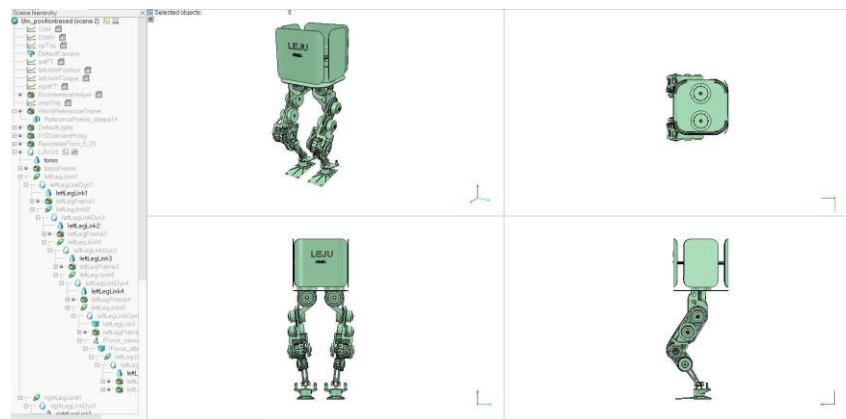
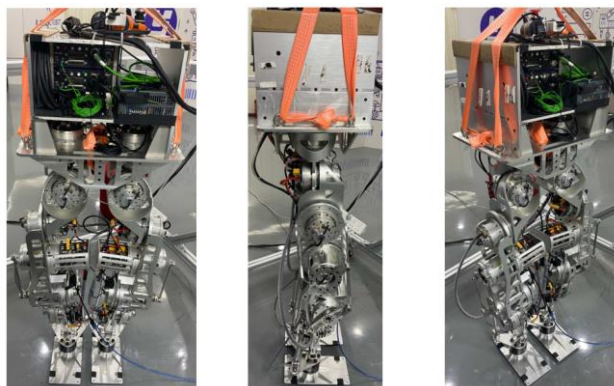


Based on the Vrep and Vortex simulation engines, we built a simulation platform to transfer data information through the ROS message mechanism. The simulation model and simulation interface are shown below.



We built an experimental hardware robot hardware system. The robot's motor is controlled by ELMO and is based on the EtherCAT bus. A software platform was built based on ROS and Ubuntu 16.04 (RTlinux patch), and SOEM was used to establish the EtherCAT host. The program transfers data information through the ROS message mechanism. All the hardware experiment data in the article are obtained through the ROS message. By switching the message channel, it is possible to switch between simulation control and physical robot. The physical picture of the robot is shown in the figure below.



### Data format description :

The data of the robot's five steps forward, with a step of 0.3m, a period of 1.2s, and a point of 10ms

The spatial trajectory data is

coprefx,coprefy,copx,copy,cprefx,cprefy,cpx,cpy, comrefx,comrefy,comx,comy, comvrefx,comvrefy,comvx,comvy

The simulation environment joint trajectory data is in turn Reference value of joints 1~12, actual value of joints 1~12