

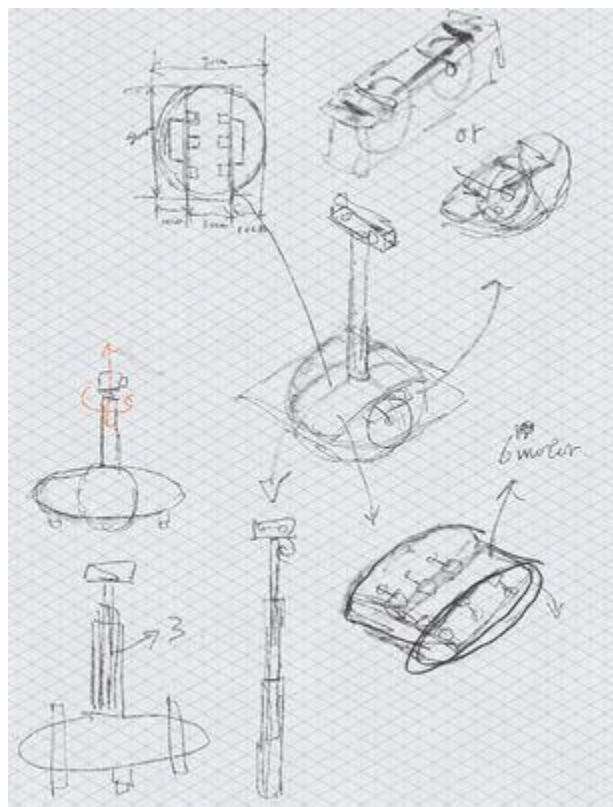
# Rio-1

## Summary

Because of the epidemic, we can no longer move around on the street, travel abroad, and real estate agents cannot show clients houses. As a result, commercial activities suffered major setbacks and a countless number of people were affected. Would it not be exciting if people could use their mobile phones or laptops to control a robot that can transmit back real-time images within a certain area? This would be a boon to those of us who have to stay home because of the epidemic. Our concept is to create a robot that can be controlled and transmit real-time images according to individual needs. The viewing height, the tire size, tire type, and chassis for special geography all can be customized as much as possible to conform to cost, safety, use, and design concepts. Examples of practical applications would be monitoring by international corporations, online remote house viewing, and using robots to see exhibitions and collect tickets. This not only can allow the user to be unrestricted by time and space but can also create significant business opportunities so that people around the world can see everything at your site in real-time!

## Design Objective

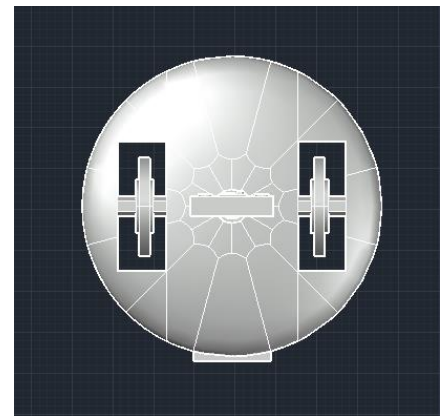
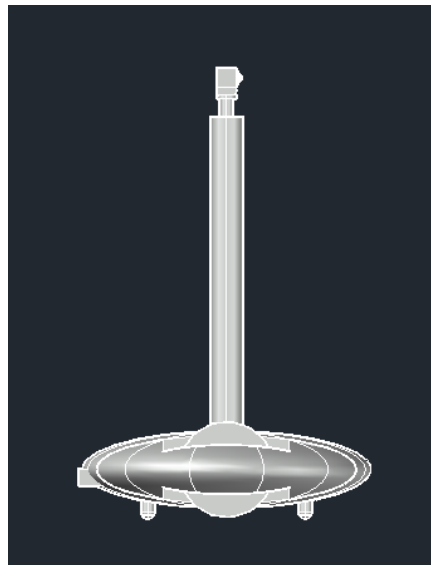
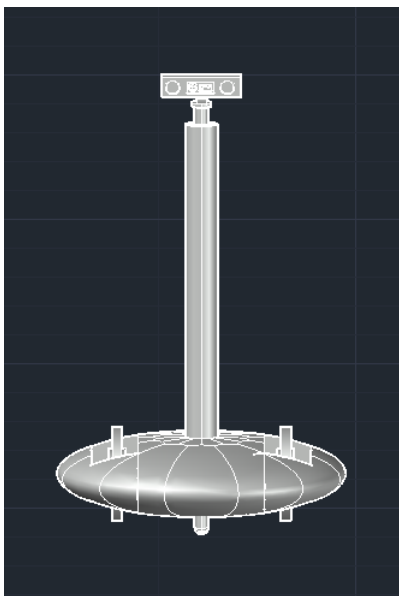
Why do we need to improve? Because the epidemic has limited our ability to go out or travel abroad. Even real estate agents cannot take clients to see houses. Would it not be exciting for those who are trapped in our homes by the epidemic if people could use their mobile phone or laptop to control a robot that can transmit back real-time images within a certain area?



## Use

The robot can be controlled and real-time images be viewed according to personal needs. The robot's height, the size of the tires, and the chassis and tires for special geography can also be adjusted according to the user's visual sight. Practical applications include the following:

1. If a CEO of an international corporation wishes to personally observe the situation at a foreign branch office, but does not have the time to visit and see for himself/herself, the CEO can control this robot from the other side of the world and conduct site observation of any location at the foreign branch office. This not only allows the CEO to see any place in real-time remotely, but can also significantly reduce commute time. Although the user cannot personally experience the feeling on-site, it does solve basic visual requirements.
2. Because of the epidemic, real estate agents cannot take their clients to see houses. In addition, there is no end in sight for the epidemic, and clients' willingness to see the house in person has decreased. If a robot is installed in the house so that customers can go online at any time and register to see the house they are interested in, they can freely explore every corner of the house when the registered time arrives. No matter what time of the day, clients will have the ability to see the real estate they are interested in.
3. Famous museums are spread across the world, and not everyone can visit or see their famous collection in person. Thus, museums can use the collection of tickets or rental of robots to provide interested audiences who cannot visit in person the ability to get up and see the famous artifacts and artworks they are interested in. Although this is not the same as seeing it in person, it is still much better than just looking at books, pictures, or videos.



## Mechanism Introduction

### Central column lifting mechanism:

Adjust the height according to the individual's visual sight (let the customer adjust the visual height themselves)

### Main chassis:

Including the robot's processor, the network receiver box, the control board, and rechargeable lithium batteries.

### Power transmission chassis:

1. General type (commercial) – has a simpler exterior. The standard is two wheels as the driver, with one front and one rear auxiliary wheel. The movement is slower.
2. Cross-country type (industrial) – the exterior looks more robust. The standard is four-wheel drive. Movement is more agile.

### Detection system:

1. Infrared distance sensing – detect obstacles around the robot. This prevents damage to the robot resulting from improper control by the customer.
2. Ultrasound sensor – used as a supplement to the infrared. Located at the bottom of the robot.

### Wheels (can be changed according to need):

Install expansion sets according to need.

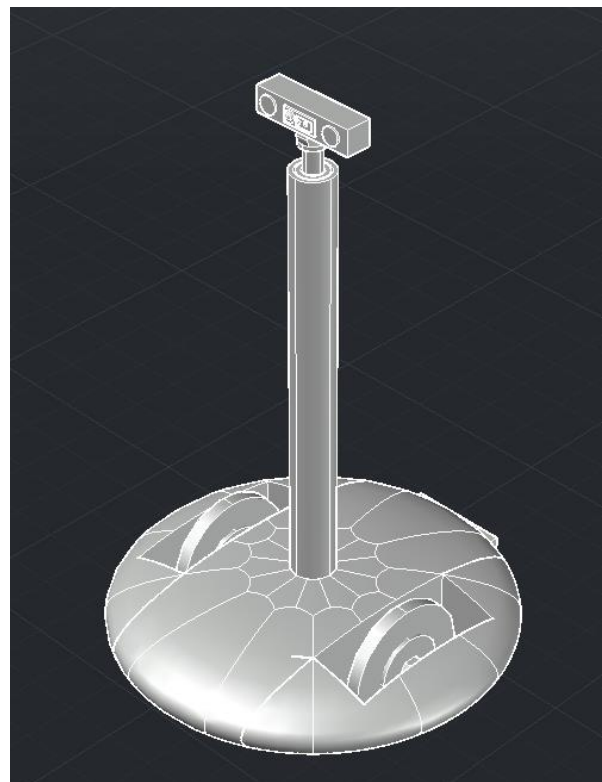
1. Home-use small rubber wheels
2. Home-use small mecanum wheels
3. Home-use small mecanum wheels
4. Outdoor wear-resistant rubber wheels
5. Outdoor wear-resistant mecanum wheels

### Material:

PC

### Manufacturing method:

All 3D printed



## User Instructions

### Conditions:

The robot must be able to connect to the Internet within its entire movement range. The robot also requires a fixed charging base plugged into a power socket.

### Method:

The client needs to select the service item and use period on the designated website, enter the website at the designated time and follow instructions to enter the robot operating interface. At this time, the real-time camera will start and the interface will begin the two-minute teaching session. Once the teaching session is over, the client can freely control the robot. Two minutes before the service ends, the screen will show a reminder to the client. Once the service is over, the client can exit the screen directly and close the website.

### Charging:

The battery has a duration of three hours. After use, the robot will return automatically to the charging base and start recharging. The robot will stay in idle mode until two minutes prior to the next use, at which time the robot will start up.

### Camera:

Each robot can be attached with a camera that the customer likes (the camera transmission wire needs to be USB specification).

### Caution:

1. The robot cannot get wet or be rained on.
2. The robot cannot be used if there is a child younger than 12 in the robot's operating space.
3. If the robot encounters faulty software, cannot be operated normally, or has severe structural damage, the use of the robot must be stopped immediately.
4. The robot cannot carry a heavy load.

