



COBOTSYS SUPPORT

CASSEMBLYC2

...

Build Your Future with Both Hands

Human-Machine Cooperation,
Two-Arm Coordination

A Double-Arm Coordination Robot Focusing
on Scientific Research and Development



MAKE IT. UNIVERSAL

► Product Description

Robots have gradually stepped into people's life, it is omnipresent no matter in industrial production or in domestic service. In addition, the application and development for robots have appeared in people's field of vision, which became a hot research object in university education institutions etc.

Robot application research, for now, is difficult with a wide range of knowledge required, which made many troubles for users. As a result, building a good platform seems particularly important. The platform should not only be able to meet various application scenarios but also required to adapt to rapid and efficient development.

With the continuous progress of science and technology, products of Cobot are keeping forging ahead. CAssemblyC2 originated from CAssemblyC1-the first generation of two-arm product. With the support of powerful COBOTSYS, CAssemblyC2 became easier to develop, and more intelligent hardware could be extended. Thus, it has much more technical advantages in scientific research.

► Product Advantage



Advanced Hardware Platform

Flexible bionic hand, multi-modal sensor and 3D motion vision.



Powerful Library Of Algorithms

Independently developed algorithms including robotic vision, smart force control, motion planning, dynamics and robotics learning algorithms library.



Extensive Application Scenarios

Single arm operation, dual-arm collaboration, flexible grasp, force-controlled assembly, smart teaching and etc.



Top Technical Support

We have a team of 20 doctors and 30 industry experts giving full technical supports.



Cross-Platform Application

Compatible with Linux and Windows, and is deeply integrated with ROS.



Official Applications For Free

Based on COBOT+ and ROS , there are many build-in apps ready for usage and reference.

► Product Framework



C2VISION 002



- 3D Vision
- High resolution RGBD Image
- 30 Fps fast communication frame rate
- Good range of vision
- Adjustable moving vision
- Efficient visual processing algorithm

Robot End



- Flexible to expand, multiple smart components are available
- Capture product diversity
- Optional six-dimensional force sensor for tactile development
- Loading 2D vision for free recognition
- Wireless Wifi communication transmission data
- Accurate TCP positioning

Optional Smart Hardware:



COHAND201 / COHAND212 / COHAND304

- **Flexible control:**each finger has an independent position, speed, torque control, control could realize in one step.
- **Easy to develop:**provide SDK and development document based on Windows and Linux, provide ROS drivers and application routines as well.
- **Flexible grasp:**adopt the rope drive with flexible joints, which has the ability to adapt to the shape of the object.
- **The main body has strong drive:**driven by high torque motors, providing feedback of position, speed and torque, to from a closed loop control.



6-Dimensional force sensor

- Flexible Assembly
- Force Sanding
- Intelligent Teaching
- Dynamic Compensation



Brachial Visual Camera

- Move Guide
- Auxiliary Head Vision
- Feature Detection
- Visual Positioning

► Applications- Solve the Rubik's Cube intelligently



I 3D Visual Guidance:

The 3D vision of the head captures the characteristic product (Rubik's Cubes) in the spatial range, and conducts 3D visual positioning, using COBOTSYS to make path planning and flexible product grasping.



II Visual Identification & Algorithm:

The product is captured and placed into a 3D visually-identifiable space.

COBOTSYS was used to obtain the characteristic data of the color, including each surface of the Rubik's Cube, and the efficient Rubik's Cube solving algorithm was used to calculate the optimal solution of the cube.



III Path Planning:

Using visual guidance, flexible grasp, grasp planning, path planning, collision detection, and dual-arm cooperative algorithm by COBOTSYS, the dual-arm robot completed a series of complex actions from irregular color pattern to regular color pattern, and successfully solved the Rubik's Cube.

► Parameter Configuration

Parameter configuration of CAssemblyC2			
Physical properties			
Name	Features	Description	Comment
Robot	Degree of freedom	12 degrees of freedom Single arm 6 degrees of freedom	Optional 2D industrial camera, 6 dimensional force sensor
	Arm span	832mm	
	Load	Single arm load is 3kg terminal equipment is not include	
	Positioning accuracy	±0.03mm	
	Speed of the end	≤1.9m/s	
	3D visual	1920*1080 color map, 512x424 depth map, fastest : 30fps	
	End- effector	1.5kg clamping force 2-finger electric claw, maximum stroke 70mm	
	Device extension	Compatible with COBOT industrial camera, end claw, force sensor, etc	
	Size	Height: 1630 mm; Shoulder width: 580 mm; Thickness: 190 mm	
	Weight	120KG	
Controller	Voltage class	220VAC	-
	Machine power	550W	
	extension interface	Ethernet, HDMI, USB, IO	
	Teach pendant	Outboard 12 inch teach pendant	
	Size	Width, Height, Depth : 500mm*600mm*700mm	
	Weight	80KG	
Features of software			
System	Operating system	Ubuntu 14.04	-
	Robot operating system	CobotSYS V1.0.0	
	Simulation software	CobotStudio V1.0.0	
	System function	Read the CobotSYS , Cobot Studio manual for details	
	Development mode	Built-in development, No need for external equipment	
	Development tutorial	Robot rubik's cube show	

□ Contact Us □



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