

LEGO

MINDSTORMS™



INTRUDER
ALERT



VISION COMMAND™

CONSTRUCTOPIA

9731

Welcome

The Constructopedia is a building guide for Vision Command. It offers suggestions, hints and tips to help you build and program robotic inventions that respond to what they see.

Follow these steps to get started:

1. Build

The LEGO Cam snaps right into any LEGO construction. Use the Constructopedia or your imagination to build a stand for your camera.



LEGO Cam is a powerful PC Video Camera. Capture images and video that you can email to your friends.



2. Program

Choose different patterns to place over the Cam Viewer. Program each region to detect different events like motion, light or color.

3. Run
Run your program from your PC and see what happens.



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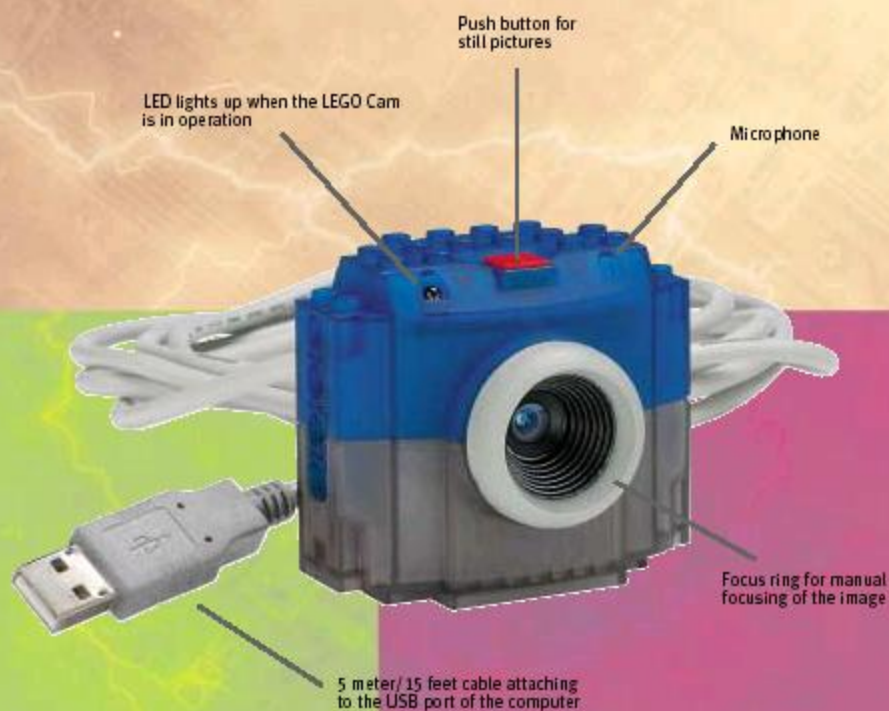
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LEGO CAM



This is the LEGO Cam, a powerful PC Video Camera. You can capture still images and video, which you can edit and email to your friends, or you can attach it to your LEGO robots to create robots that see.

Installing the software, and Camera Setup

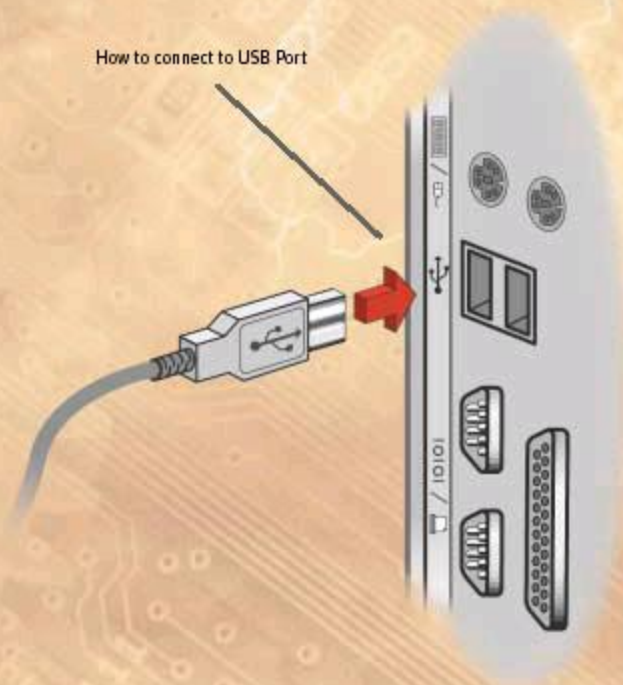
Be sure to install the software before plugging in the camera.

1. Insert the Vision Command software CD into the CD-ROM drive of your computer.
2. Wait a few seconds. The installation screen of the Vision Command software should automatically be launched when you insert the CD-ROM into your drive.

If you do not see the installation screen, double-click your CD-ROM drive icon in the Windows Explorer®. Then double-click the Setup.exe program. You should now be able to install the software.

3. During software installation, Setup will prompt you to connect the camera cable to your computer.
4. Remove the camera from the box.
5. Remove the protective cap from the end of the camera cable.
6. Insert the camera cable into the USB port. The USB port may be at the back of the computer, or on the monitor.
7. Continue with the software installation by following the on-screen prompts.

Note: Windows 98 CD may be required during installation.





HOW IT WORKS

Vision Command

Vision Command lets you build and program robotic inventions that respond to what they see. You can program your robot to watch for, and take pictures of intruders, play music when you move in front of the camera, or for those of you with the Robotics Invention System, follow you around the room.



Training Missions

By following the Training Missions and Challenges in the Vision Command Software, you will soon be programming robots that see.



Command Center

First build one of the camera stands shown in the Constructopedia. Next, using the commands in the programming environment, program your Cambot to respond to one of the following: Motion, light, or color.

Now run your program and watch Vision Command in action.



Camera Software

You can edit any photos your robot has taken and email them to family and friends, or create stop motion and time lapse photography in the camera software.





CAMBOTS OVERVIEW

Here are some of the Cambots you can build with your Vision Command Set.

Turn to page 28 for more Cambots that are built using the RCX from the Robotics Invention System.



LEGO Cam Mount (LCM)

page 10



QuadPod
page 16



QuadPod + LCM



Monitor Stand
page 24



Monitor Stand + LCM

You can build all three models on this page with the LEGO elements from your Vision Command product.

LEGO Cam Mount (LCM)



The following pages show you how to build the LEGO Cam Mount. This mount can be used to attach your camera to all of the other stands included in this Constructopedia.



1

1x



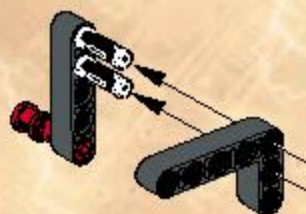
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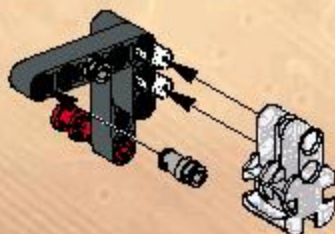
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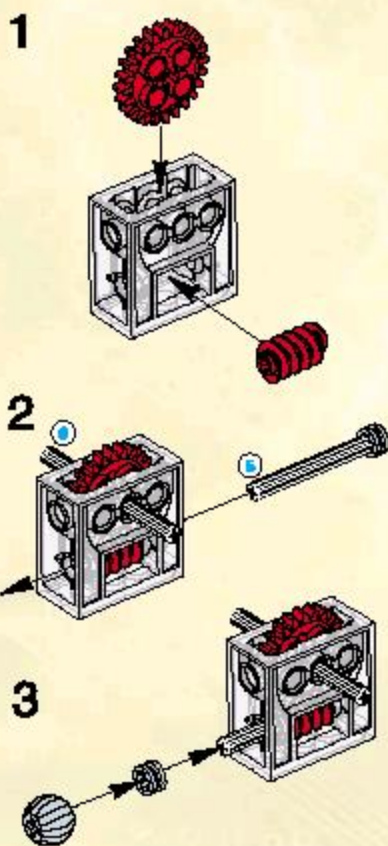
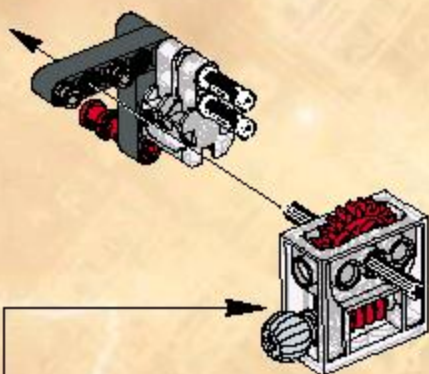
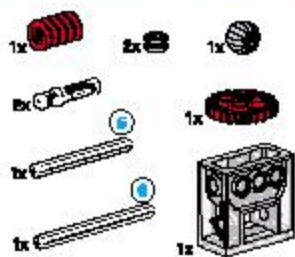
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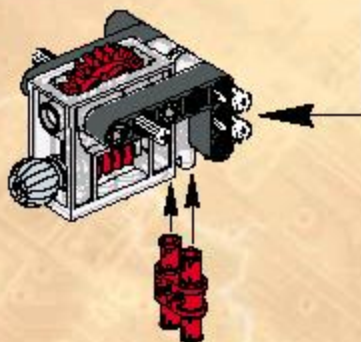
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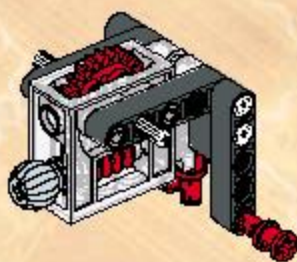
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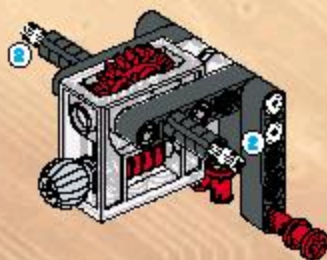
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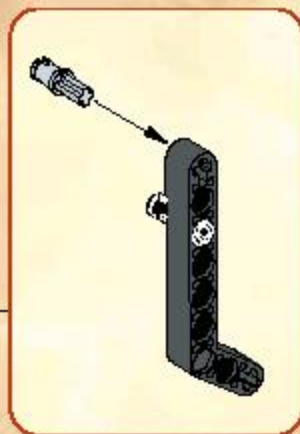
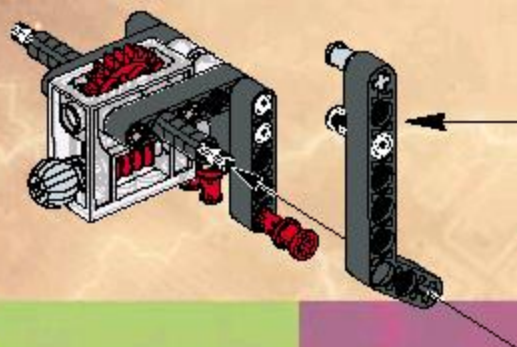
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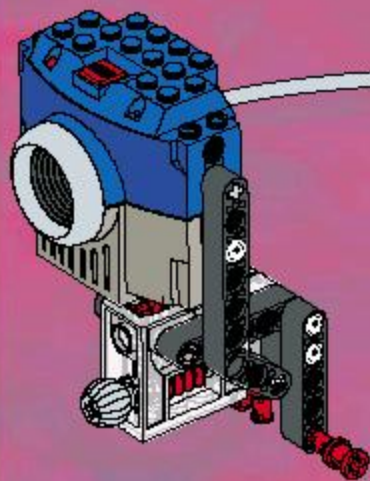
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9



1x

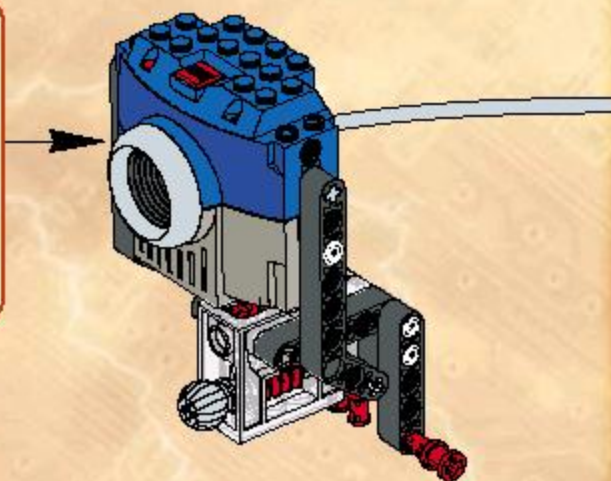
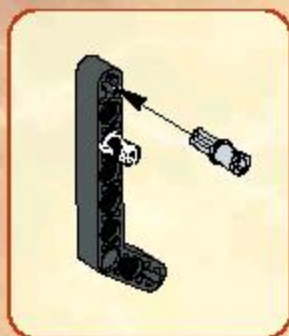


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1x (35)

1x (36)

1x





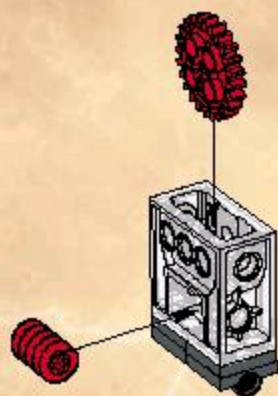
The following pages show you how to build the QuadPod, a base stand for the camera.



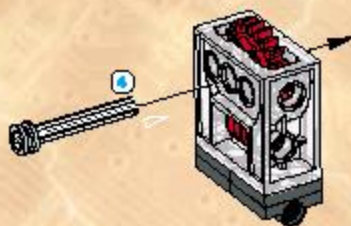
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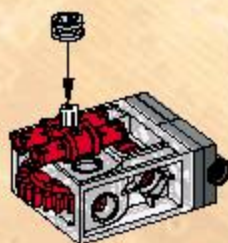
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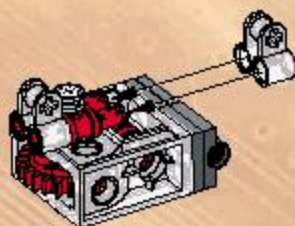
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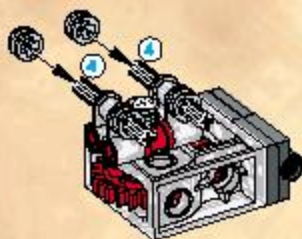
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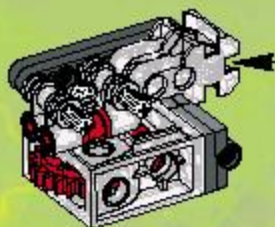
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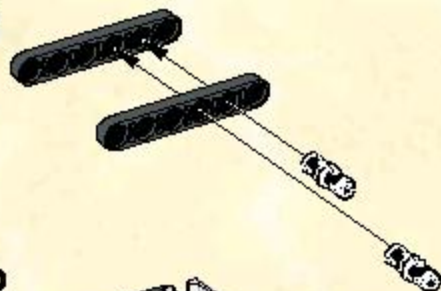
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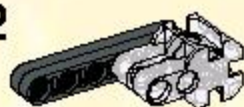
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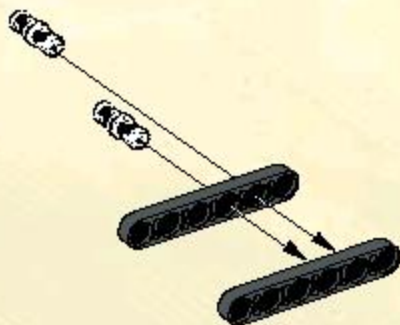
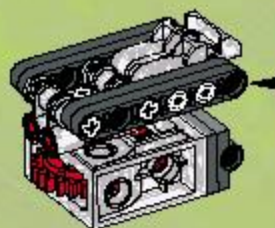
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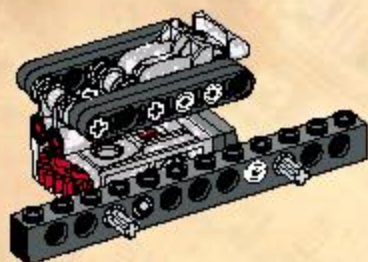
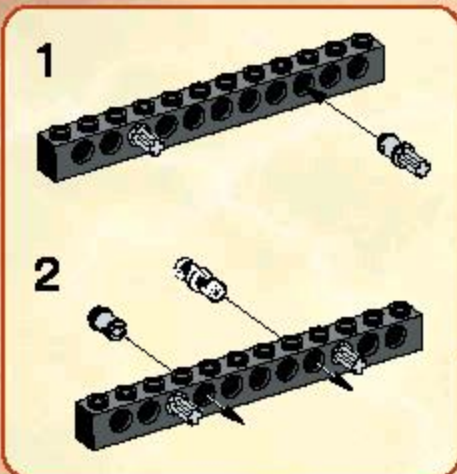
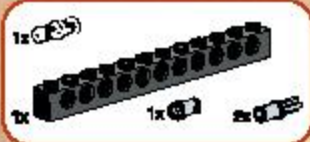
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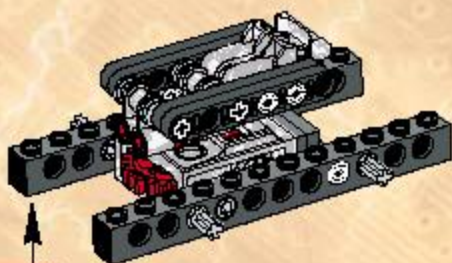
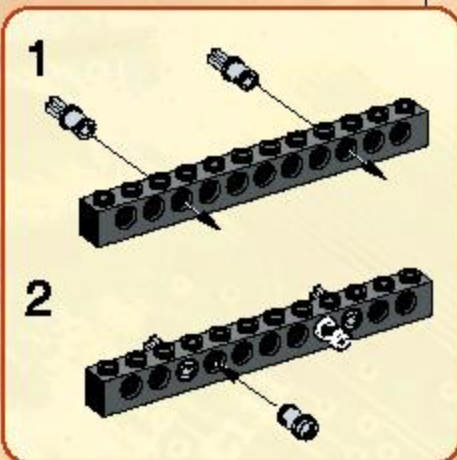
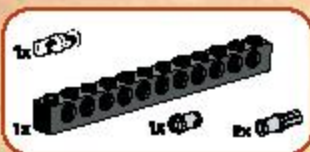
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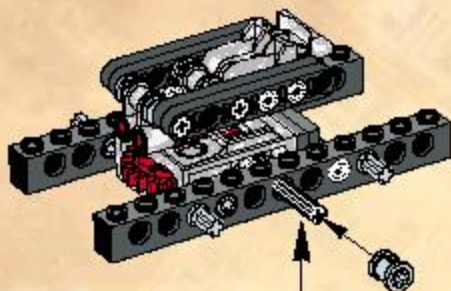
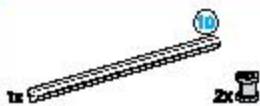
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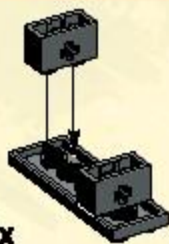
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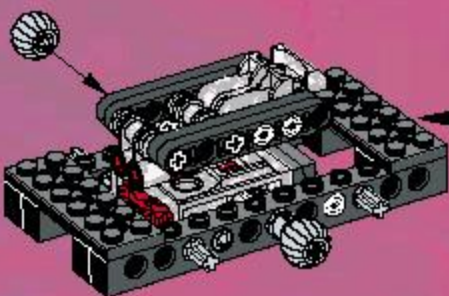
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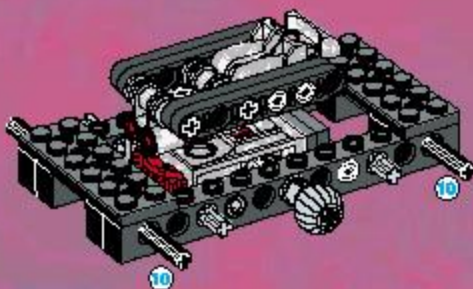
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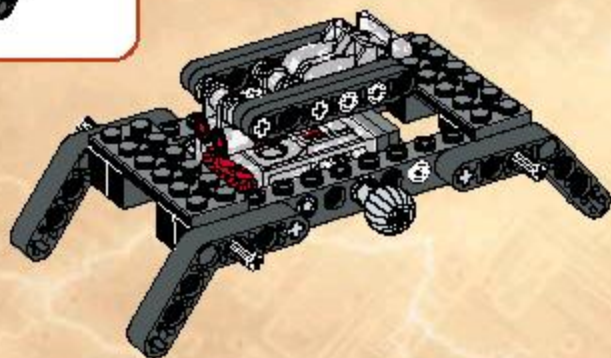
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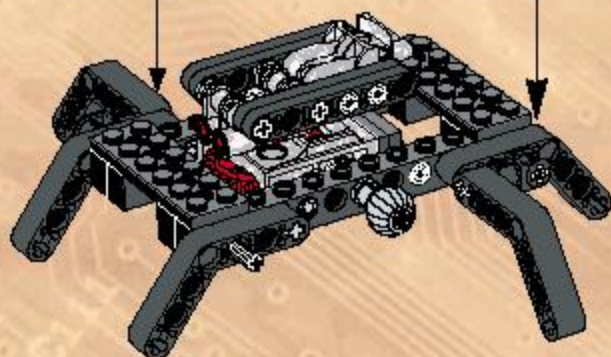
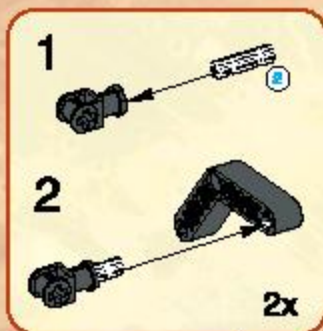
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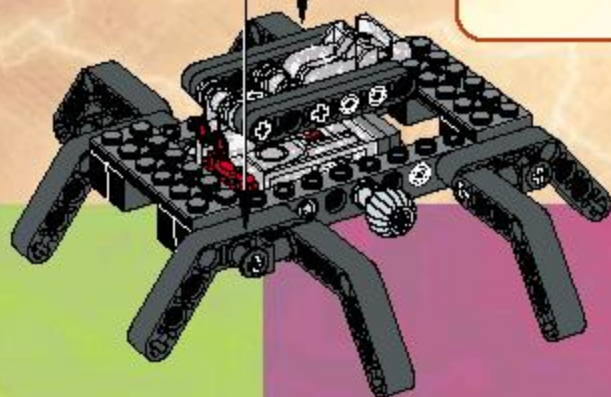
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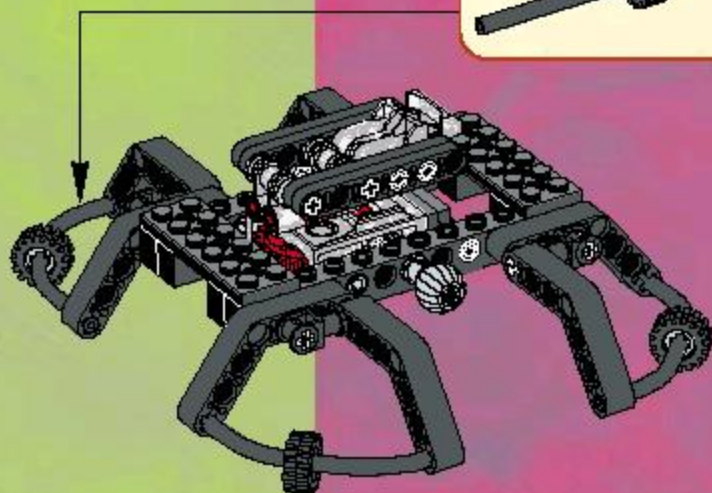
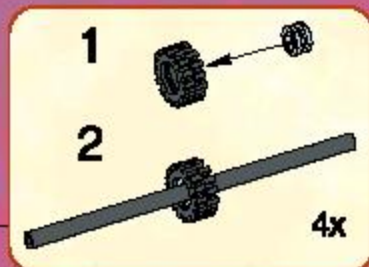
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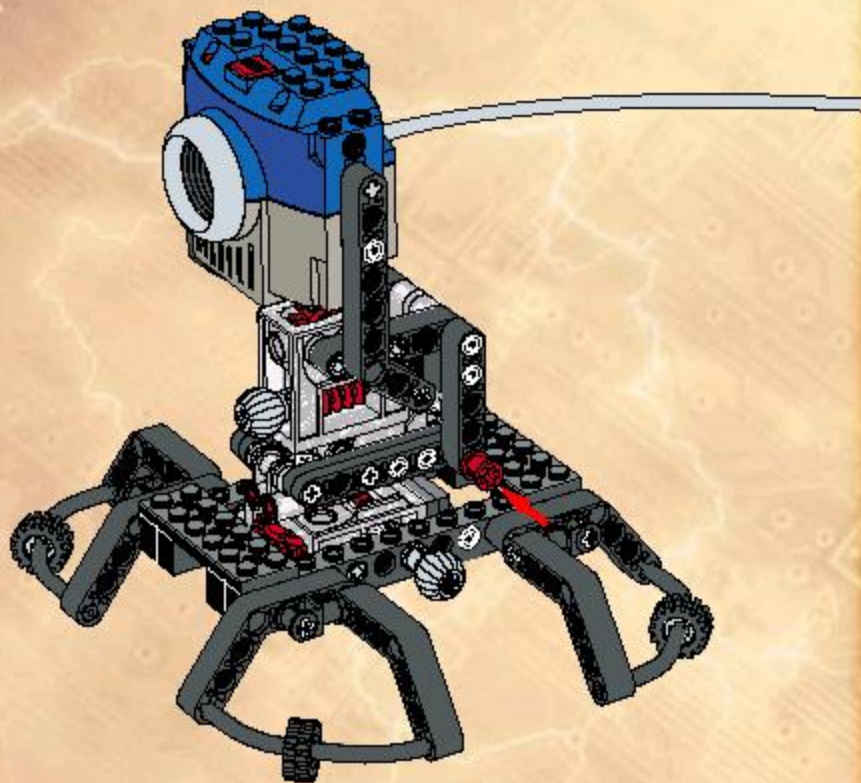


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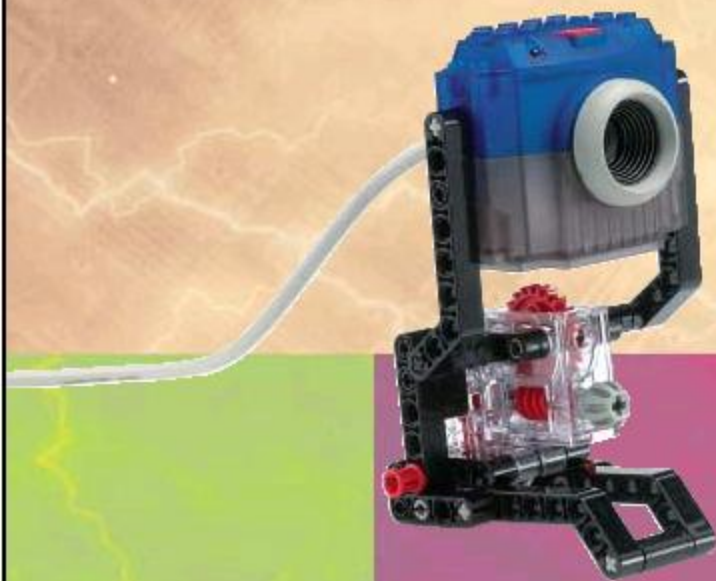




Monitor Stand



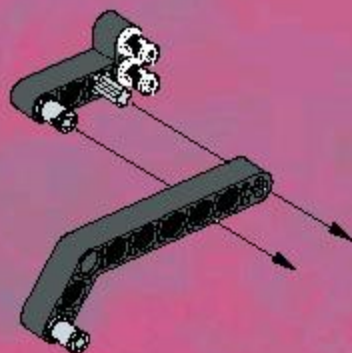
The following pages show you how to build the Monitor Stand.
Use it to mount your camera on your monitor.



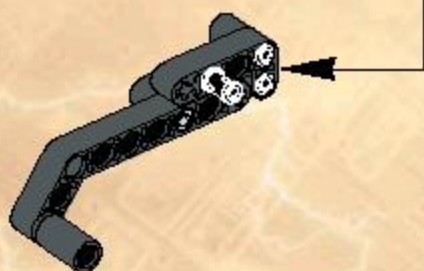
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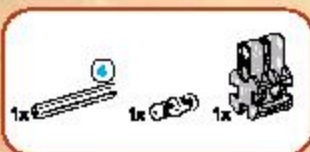
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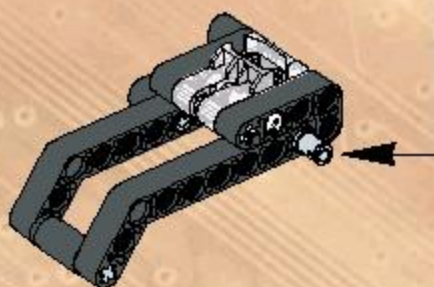
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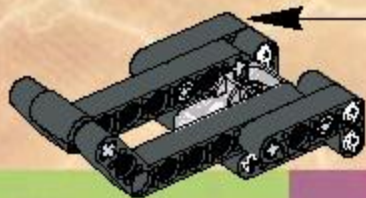
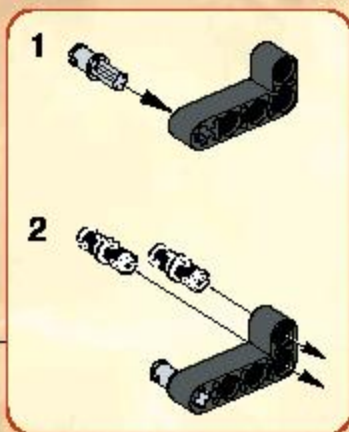
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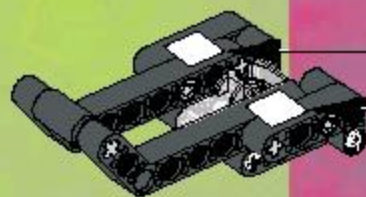
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6



7





MOTORIZED CAMBOTS OVERVIEW

Here are some of the Cambots you can build when you combine elements from the Robotics Invention System* with Vision Command.

* (Robotics Invention System elements not included in Vision Command)



LEGO Cam Mount (LCM)

Cam Rack + LCM

**Cam Rack mounted
on the RCX**
page 30



**Power Stand
(LCM not needed)**
page 34

**Power Stand + Camera****S'Cargobot**
page 38**S'Cargobot + LCM**

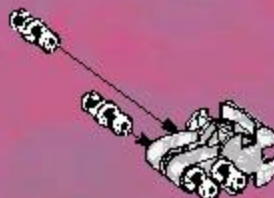
Take the challenge!
Design and build the S'Cargobot yourself.



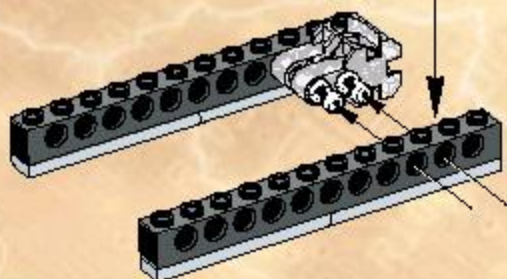
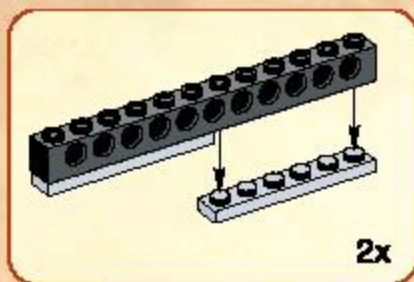
The following pages show you how to build the Cam Rack, which is used to mount your camera on the RCX which comes with the Robotics Invention System.



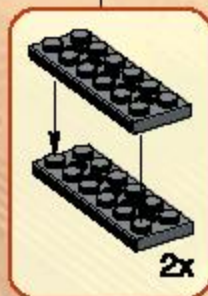
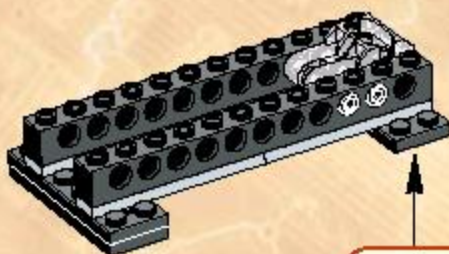
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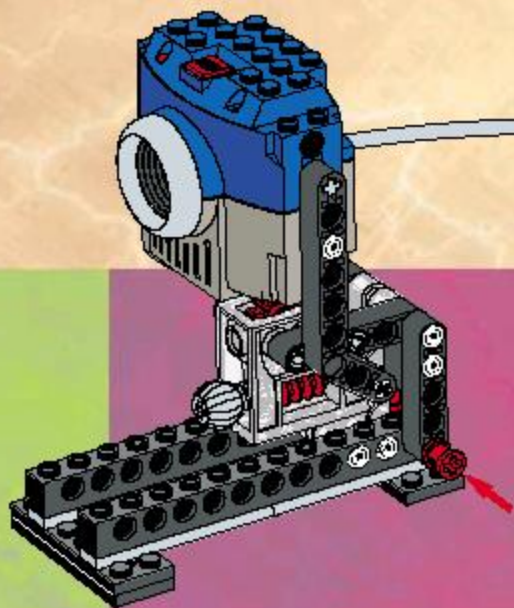


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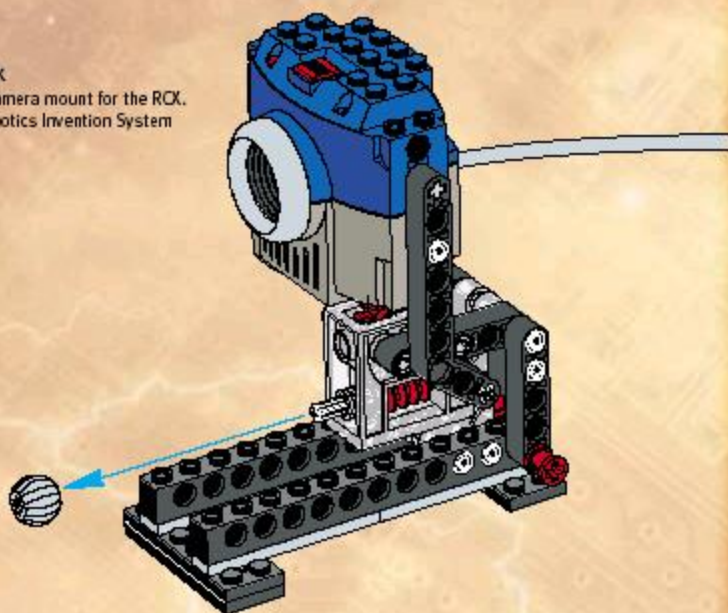




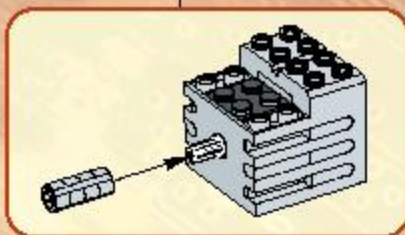
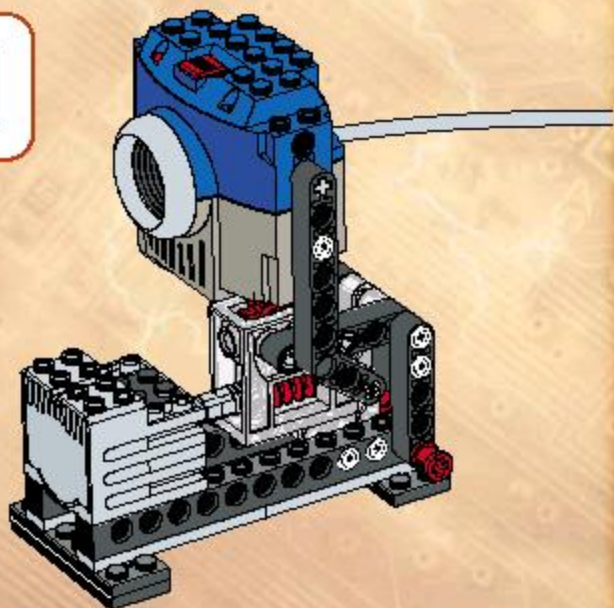
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Power Cam Rack

This is a motorized camera mount for the RCX. You will need the Robotics Invention System to use this stand.



2



Power Stand



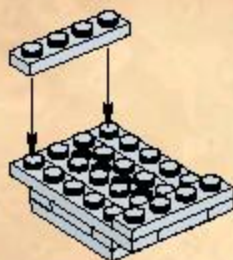
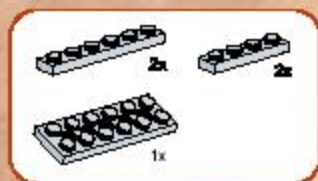
The following pages show you how to build the Power Stand, a motorized turntable and pivot stand. You will need the Robotics Invention System to use this stand.



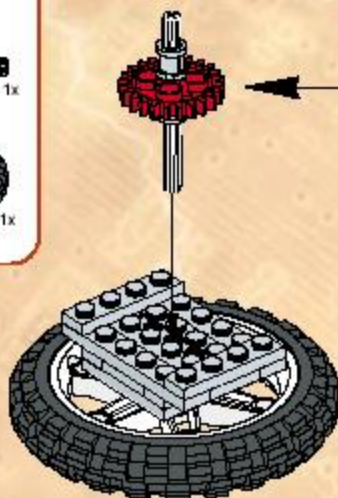
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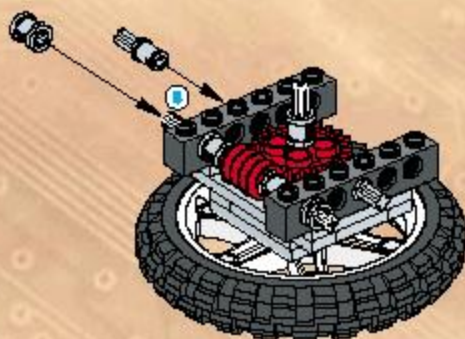
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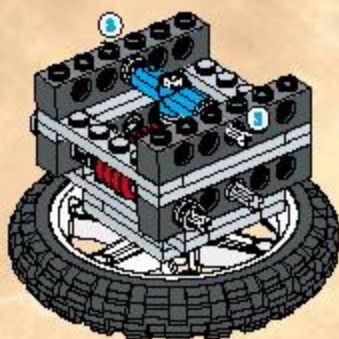
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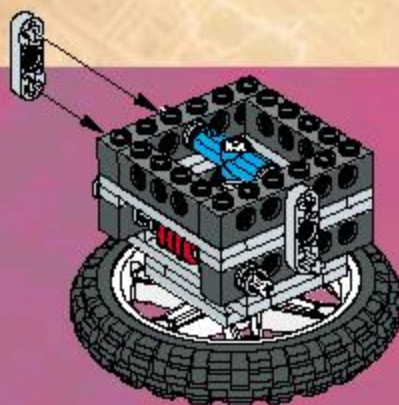
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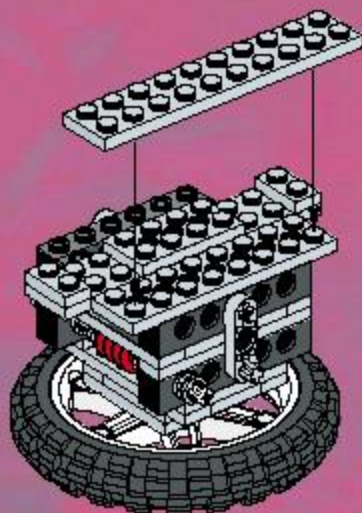
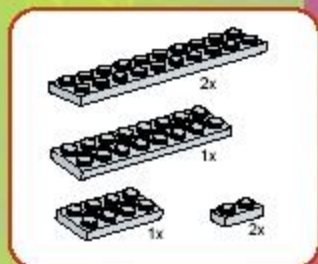
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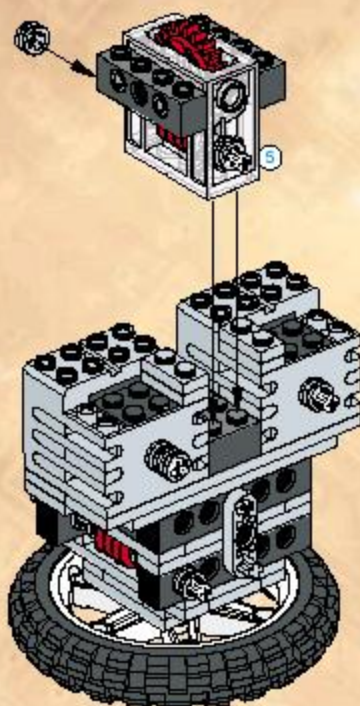
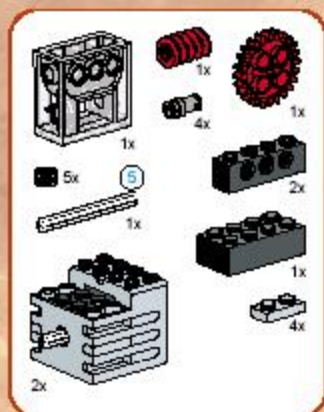
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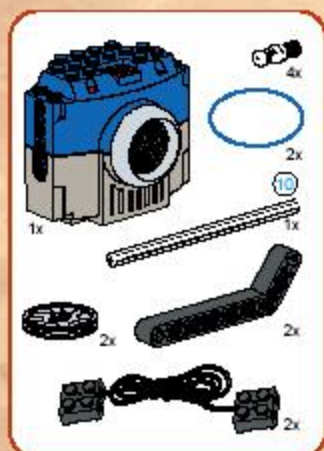
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8



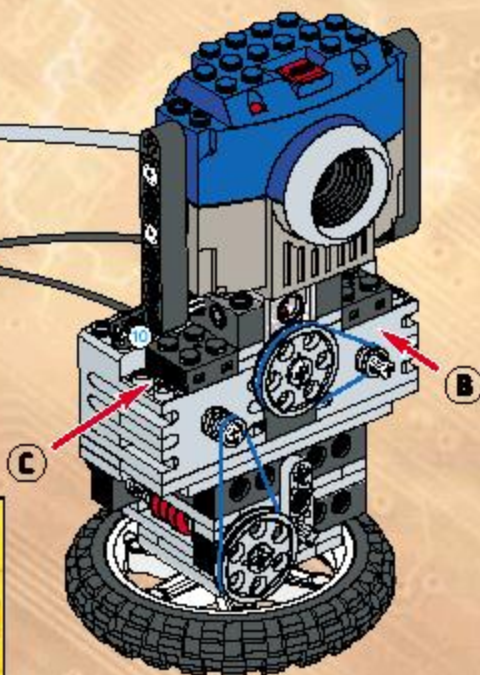
9



Connect the motor wires to your RCX.



For vertical motion attach wire to port B
For horizontal motion attach wire to port C



special features - s cargobot

This is a very slow moving robot that can be built using elements from the Robotics Invention System, combined with the camera mount...

2



2



3



4



9731-VC-S-04

5

9731-PC-S-05



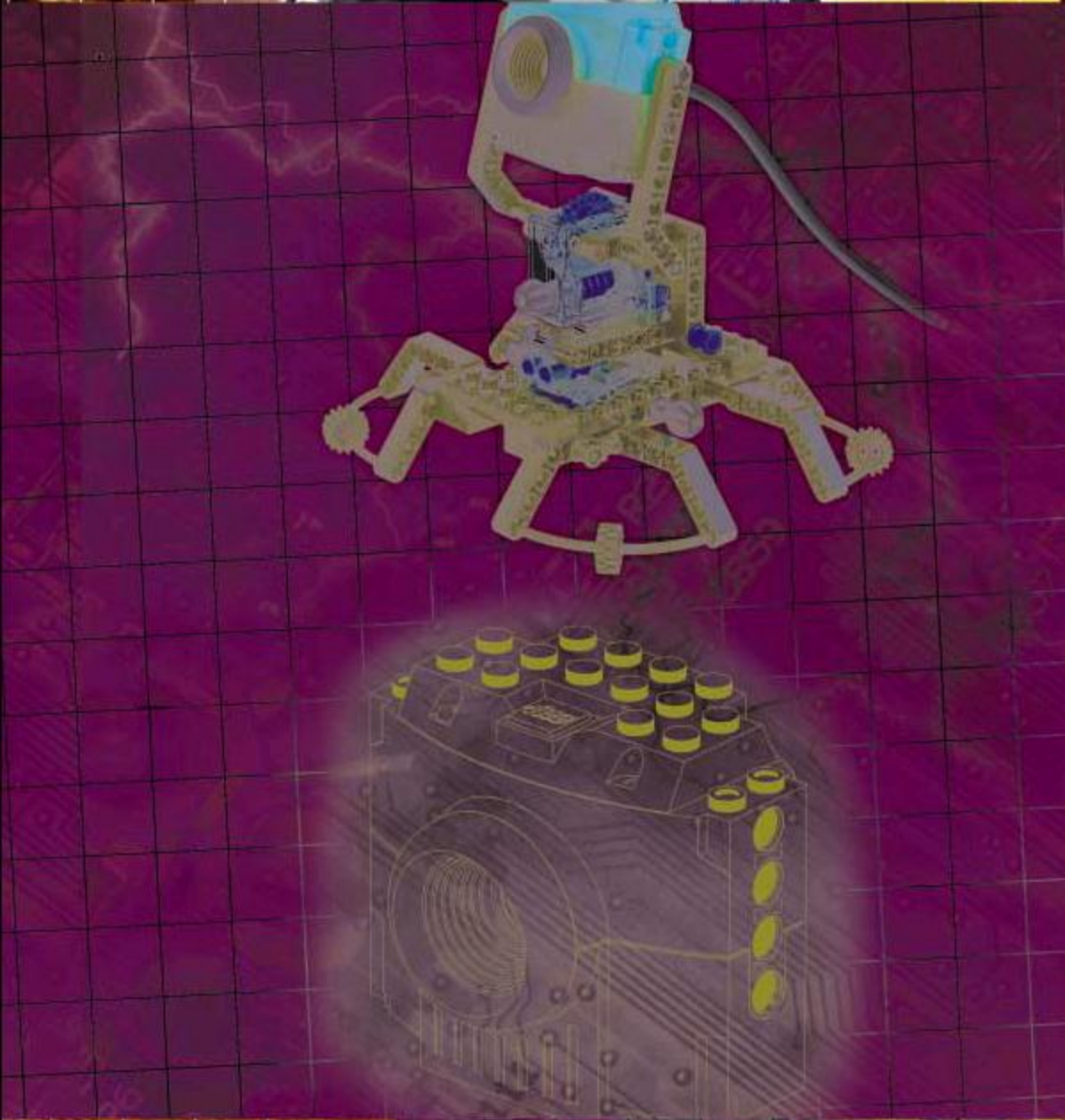
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9731-PC-S-07

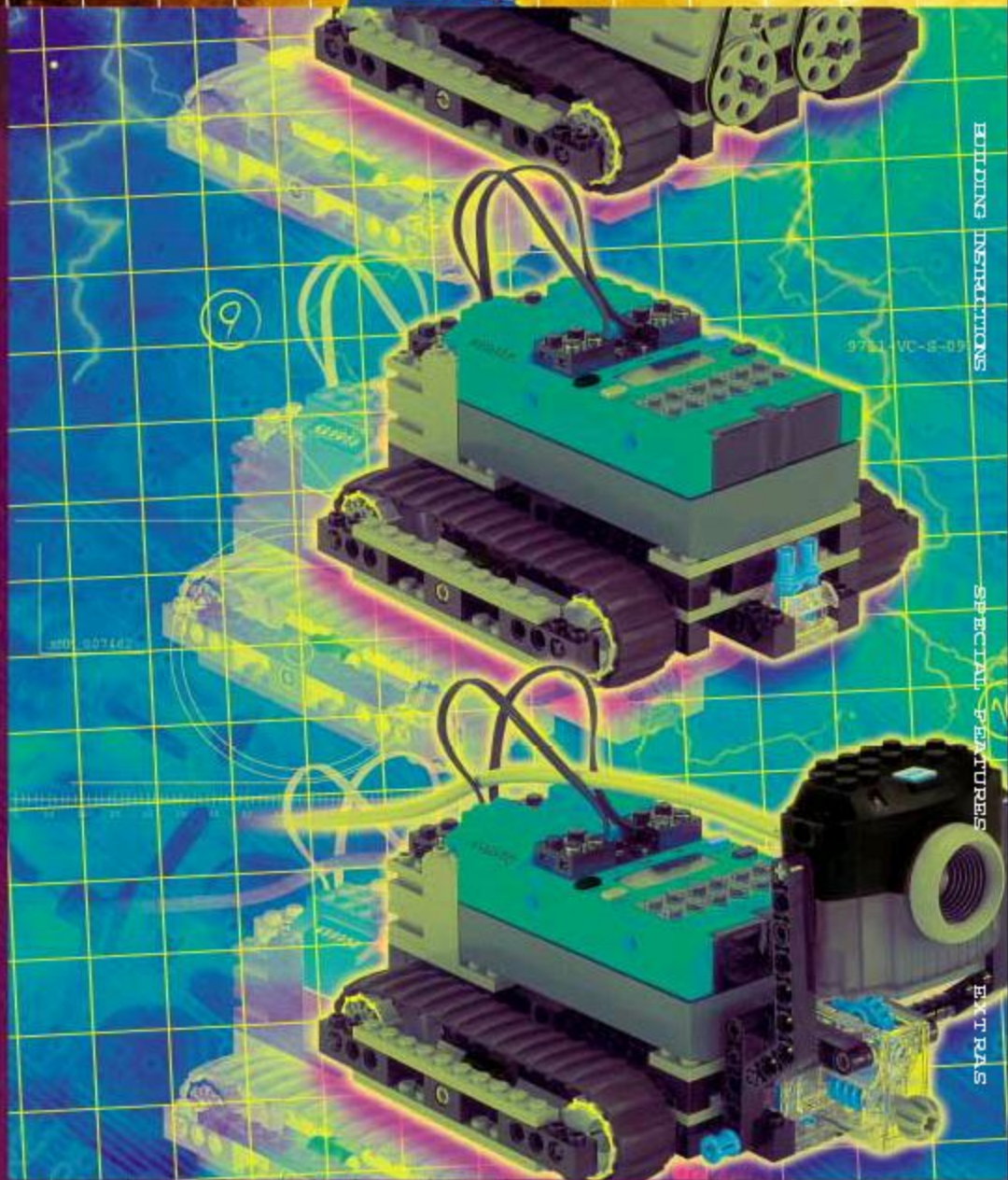




design tips

Antennas

Decorate your camera by adding antennas or other LEGO elements.





TIPS

Here are a few things to keep in mind that will help you get the most from your LEGO Cam.

- **Installation**

Make sure you install the software before plugging in the camera.



- **Lighting**

LEGO Cam works well with all types of room lighting. But to ensure the best possible image quality when using your camera, it is important to have proper lighting conditions. You can adjust the settings in the Camera Software.

- **Other Tips**

For other tips or help you might need, refer to the Help menu within Vision Command. An arrow points from this text to the 'Help' button in the software interface below.





LEGO MINDSTORMS™

www.legomindstorms.com