

MiraCam Mega Software

User's Manual

For

MIRA OC-100 Camera

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I. MIRA OC-100 Camera Installation

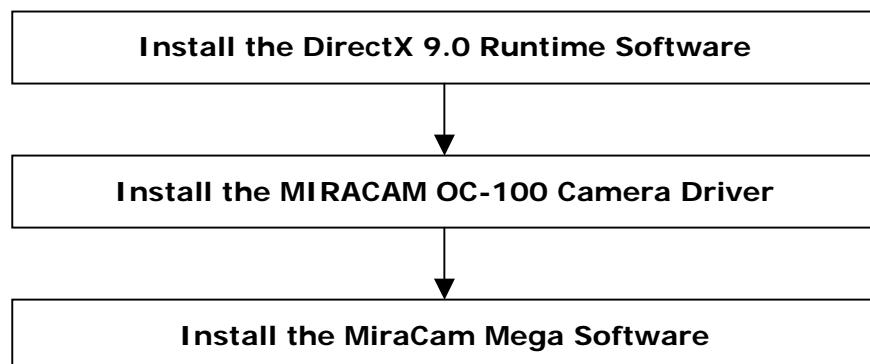
Contents of the CD-ROM:

Check to see if the following items are in the CD-ROM:

DirectX 9.0 Folder	DirectX 9.0 Runtime Software
MIRA OC-100 DRIVER Folder	MIRA OC-100 Camera Driver Setup Files
MiraCam Mega Folder	MiraCam Mega ver 1.0 Software
Armi 6.5 MiraCam Folder	Armi 6.5 MiraCam Software by PERCEPTCOM
MiraCam Mega User's Manual (Acrobat Reader file)	

Steps of MiraCam Installation

The following part of this manual describes how to install the hardware and software. Perform the following steps to get the results that you want if possible:



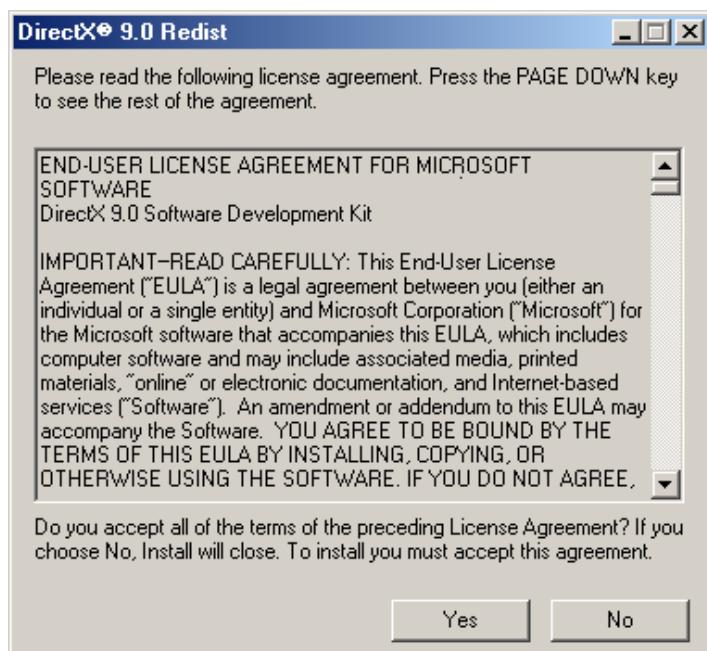
Installation of the DirectX 9.0 Runtime Software

SEORIM MIRA OC-100 Camera and **MIRACAM** software requires installing the **Microsoft DirectX runtime software**. You can download this software in the **MSDN download site** (<http://msdn.microsoft.com>). If you do not have the latest runtime version, you better update the software.

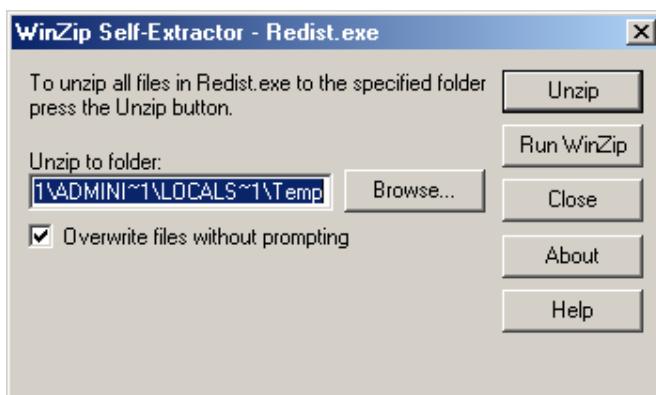
For your conveniences, CD-ROM includes the **DirectX runtime software**.



1. Double click your left mouse button on the icon in the **DirectX 9.0 folder** of the CD-ROM to start the installation.



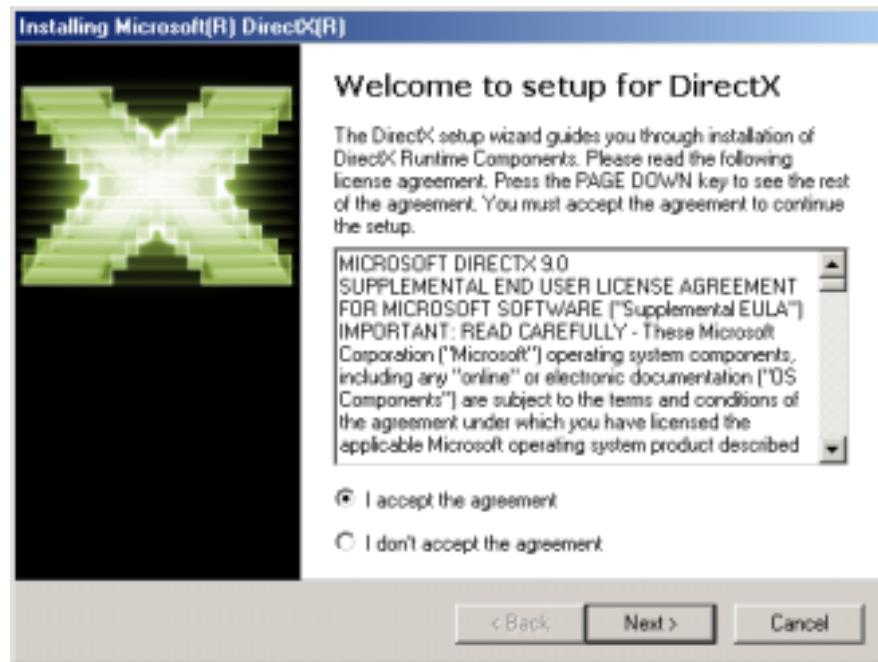
2. Accept the license agreement of **DirectX 9.0 Redist** to proceed to the next unzipping step.



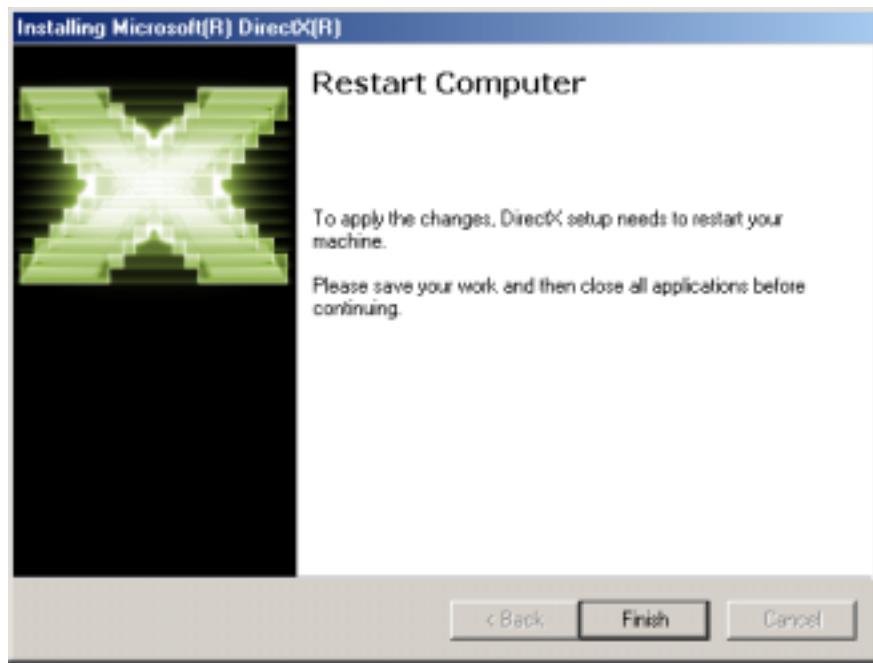
3. Change the default folder to unzip to other one that you can find easily, because after unzipping the **Redist.exe** file, you need to find the **dxsetup.exe** file in the unzipped folder.



4. Find and execute the **dxsetup.exe** file to install the **DirectX Runtime software** in the folder that you specified in the above unzipping procedure.



5. The installation wizard of **DirectX Runtime Software** will guides you through the installation procedure.



6. At the end of the procedure, DirectX installation required you to restart the computer. Press **Finish** button.

Installation of MIRA OC-100 Camera Driver

The next step is the installation of **MIRA OC-100** Camera Driver. The driver files are included in the CD-ROM. Follow the order to setup **MIRA OC-100** Camera Driver.

1. **Unplug all your USB devices (except USB keyboard and USB mouse) before you start.**

2 Insert **MIRA OC-100** Camera Software CD-ROM into the CD-ROM driver.

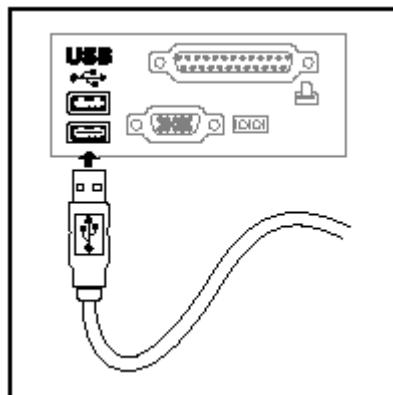


3. Double click your left mouse button on the file "**MIRA OC-100.exe**" in the **MIRA OC-100 Driver** folder of the CD-ROM. You will see the MIRACAM OC-100 Driver setup splash window.



4. Let the InstallShield Wizard guide you through the setup procedure to install **MIRA OC-100** Camera Driver.

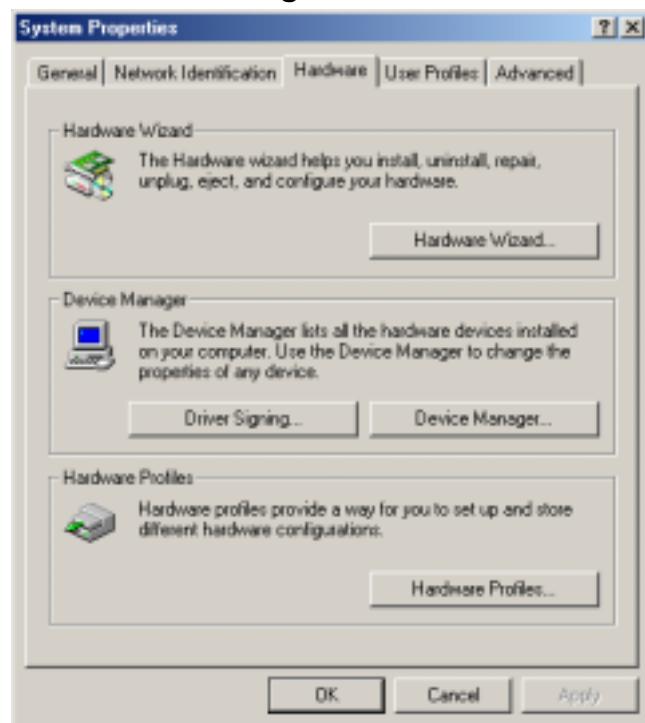
5. When the camera software is installed, plug in the **USB device** of **MIRA OC-100** Camera.



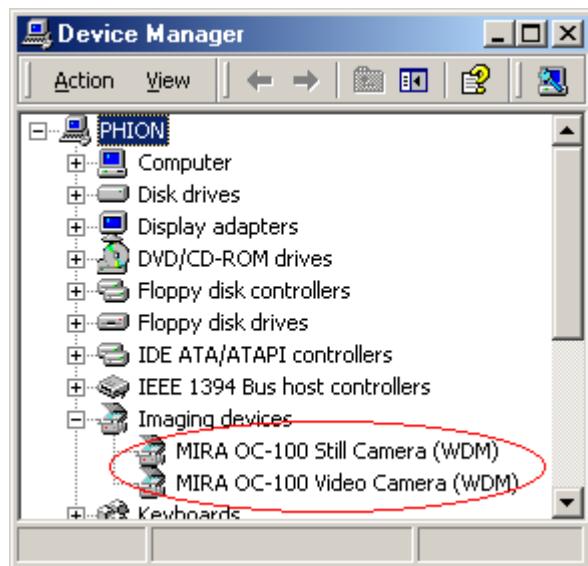
6. When the **New Hardware Wizard** launch, WINDOWS OS will automatically detect your camera.
7. Finally, to verify if setup procedure is right, click the right mouse button on the **My Computer** in the **Desktop Window**.



8. Select the **Properties** Menu to bring up the **Hardware Property** Window. Click the **Device Manager...** button.



9. You will see the **MIRA OC-100 Still Camera (WDM)** and **MIRA OC-100 Video Camera (WDM)** items in the **Imaging devices** section.



Now, you have prepared to install **MiraCam Mega** Software.

III. MiraCam Mega Software Features

MIRA OC-100 Camera and **MiraCam Mega** software can be used to capture a high-resolution (1280 * 1024) still image. While viewing the subject that you want to capture in the preview mode (640 * 480), and click that Scan-Shot button.

You can modify the images that you've captured with the functions included. Besides, this software provides the linking function with external applications such as graphic-related and OCR-related applications.

MiraCam Mega software helps you accomplish the total media-related jobs working with other programs.

Features include:

Previewing streaming video

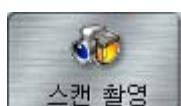


In the preview mode (640 * 480), you can adjust the focus of lens to have the best quality of scanned still image. Besides, camera control panel allows you to adjust the video quality without opening the camera property window.



MiraCam Mega software has the video flipping and mirroring function to provide the efficiency while focusing the subject.

Taking easy "Scan-Shots"



The images are scanned in the high resolution and good quality (1280 * 1024).

Recording live video and audio



Recorded video is saved as an uncompressed 352 * 288 video file. This file can be used in the video-editing job. When recording is finished, the recorded video file will be played automatically in the **Microsoft Media Player** installed.

Instant image transformation and working with other graphic tools and video conferencing software

Captured images can be instantly edited to hold good image quality. The modified images can be easily cropped to be edited in other graphic tools

and be transmitted through the Internet using video conferencing software like **Microsoft Netmeeting**. Besides, the high resolution of the **MIRA OC-100** Camera provides **OCR (Optical Character Recognition)**-applicable images.

Stitching images



To maximize the high-resolution feature of **MIRA OC-100** camera, **MiraCam Mega** software provides the stitching function. Easy to use automatic stitching mode help you stitch together into a seamless composite image.

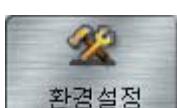
Recognizing image as text (Optical Character Recognition: OCR)



MiraCam Mega software can link to other application, such as graphic-related and OCR –related applications.

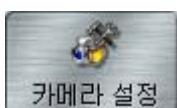
Moreover MiraCam package includes the OCR software **ARMI 6.5** by **PERCEPTCOM** to provide the convenience to the users.

Setting



As specifying the path where the scanned images are stored, or the external application, you can feel the convenience of the **MiraCam Mega** software.

Adjusting the camera properties

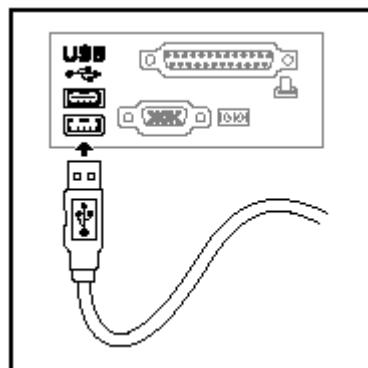


MIRA OC-100 camera has been designed to provide several unique functions.

III. MiraCam Mega Software Installation

MIRA OC-100 Camera works with any application, but we have included the fully functional **MiraCam Mega** software on the CD-ROM as an example of powerful video software package. You will find setup software "**MiraCam-mega.exe**" on the CD-ROM. Please follow these directions for **MiraCam Mega** software installation.

1. First, plug your **MIRA OC-100** Camera in one of your USB port. **MIRA OC-100** Camera is compatible with the USB revision 1.1.

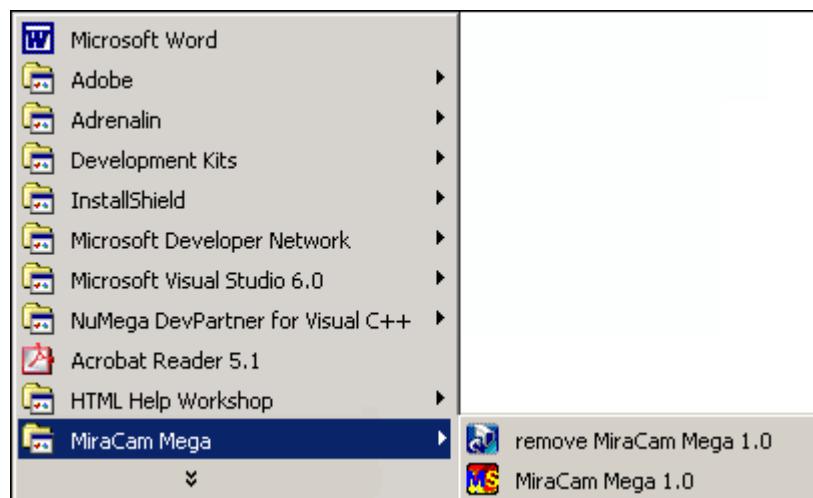


2. Execute the installation of **MiraCam Mega** software by double-clicking your left mouse button on "**MiraCam-mega.exe**" file on the CD-ROM.
3. Now that you start the procedure of the installation, follow the direction that the InstallShield Installation Wizard explains.



IV. Running MiraCam Mega Software

□ Start MiraCam Mega Software in Preview Mode



After starting **MiraCam Mega** software, you will see the live camera image. Move the camera about, adjust the lighting and turn the lens to focus. You will immediately see the effect of this on your screen. Adjust the camera settings by clicking one of the buttons on the **Camera Control Panel**. For more information, see **Using Camera Control Property Window**.



Camera Control Panel

□ Main Window



Taking “Scan-Shot”

In the preview mode, adjust the camera to have the clean view. The resolution in this mode is 640 * 480 (VGA). **MiraCam Mega** software is designed to capture the fine image, so that the adjustments to the camera you've made is applied when you take “scan-shot”.

To have the high resolution's image, the camera needs several seconds to automatically change the camera mode.

After scanning the subject, **MiraCam Mega** software change into the **Image Mode** and the scanned image is displayed in the **Preview Frame**.

Scanned Images using your **MIRA OC-100** Camera is stored in the specified folder, as shown in the **Scan-Shot List**.

To take “Scan-Shot”:



1. After adjusting the camera to have the fine image in the Preview Mode, click **Scan-Shot** button.

For a while, the camera automatically changes the mode and applies the settings you've made to the camera.

You will see the flickering while the camera changing the settings.



2. **MiraCam Mega** software comes to the **Image Mode**, and the scanned image is displayed in the **Preview Frame**.

The scanned images is named like the following examples:

Ex) Scan000 ~ Scannnn



3. By default, **MiraCam Mega** software stores the images in the Temp folder, same as **MiraCam Mega** software was installed.

You can change the folder to which you want to store the scanned images in **Setting Window**.



Change the **Scan-Shot Folder**.

Editing Images

Captured images in **Scan-Shot List** on the **Main Window** can be instantly edited to hold good image quality, and the images can be easily cropped to be edited in other graphic tools, and be transmitted through the Internet using video conferencing software like **Microsoft Netmeeting**.

Especially, the OCR program included, **Armi 6.5** by **PERCEPTCOM**, provides the text-recognizing function, which is used with scanners, to the users and **MiraCam Mega** software provides the modifying function to allow the users to have the fine image, which is used in the **Armi 6.5** by **PERCEPTCOM**.

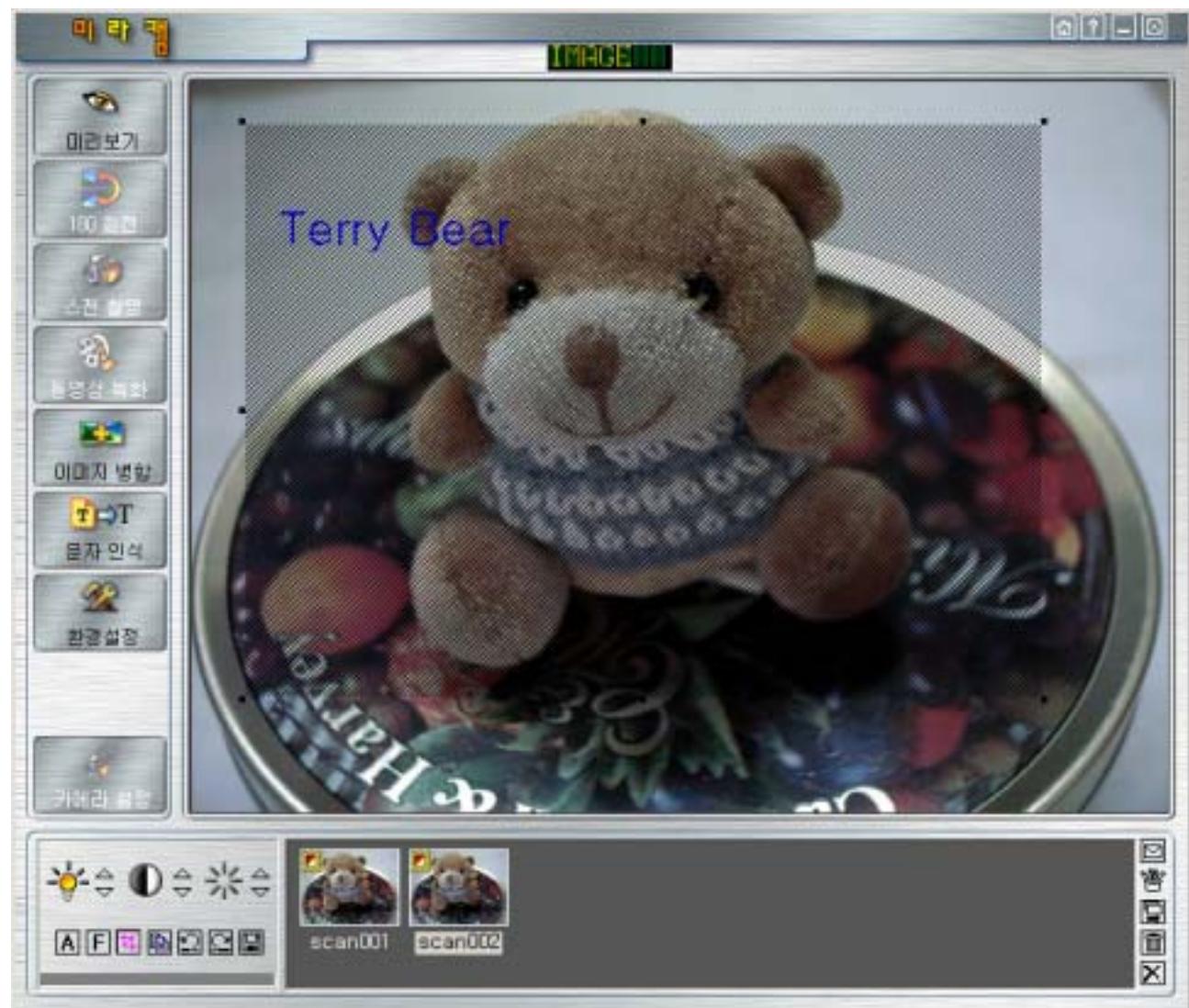


Image Mode:

1. Double-click the Image in **Scan-Shot List**. By default, all the captured images are saved in the "Temp" folder, same as the **MiraCam Mega** software was installed.

The Scan-Shot images and stitched images are displayed in the **Preview Frame** automatically.

2. Now that you see the image in the **Preview Frame**, you can modify the image using the **Image Control Panel**.



Image Control Panel includes the following:

	Brightness up / down		Contrast up / down
	Sharpness up / down		
	Text		Font
	Crop		Copy
	Undo		Redo
	Save As		

Crop and copy Image:



1. Select the **Crop** Button.

Select the area that you want to crop or copy to clipboard and move or expand the selected area

2. Double-click the left mouse button on the selected hatched area.

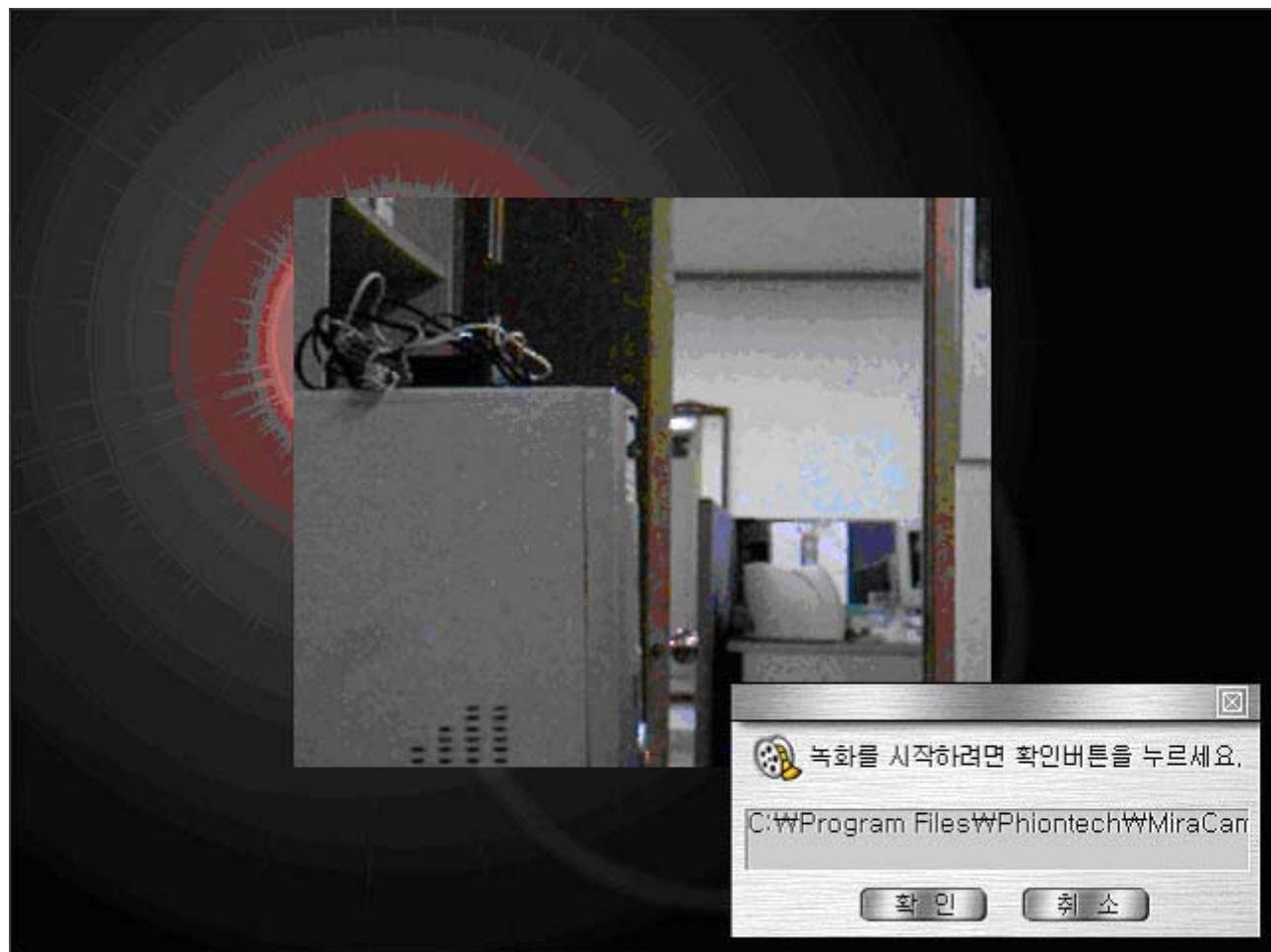


3. After the cropped image is displayed, you can copy the image to the clipboard or save the image as a image file.

Recording Video

MiraCam Mega software provides the easy to use recording and playing.

Recorded video is saved as an uncompressed 352 * 288 video file. This file can be used in the video-editing job. When recording is finished, the recorded video file will be played automatically in the **Microsoft Media Player** installed.



Recording Video

1. Recording video is possible when **MiraCam Mega** program is in the



Video Mode. First, move around the camera and turn the lens to focus the subject to get a fine view.



2. Press the **Recording** button, and **Recording confirmation window** will appear.



3. Recording begins; the **Recording** button will be changed to the **Recording-Stop** button. After Recording stopped, the recorded video file will be played in **Windows Media Player**.

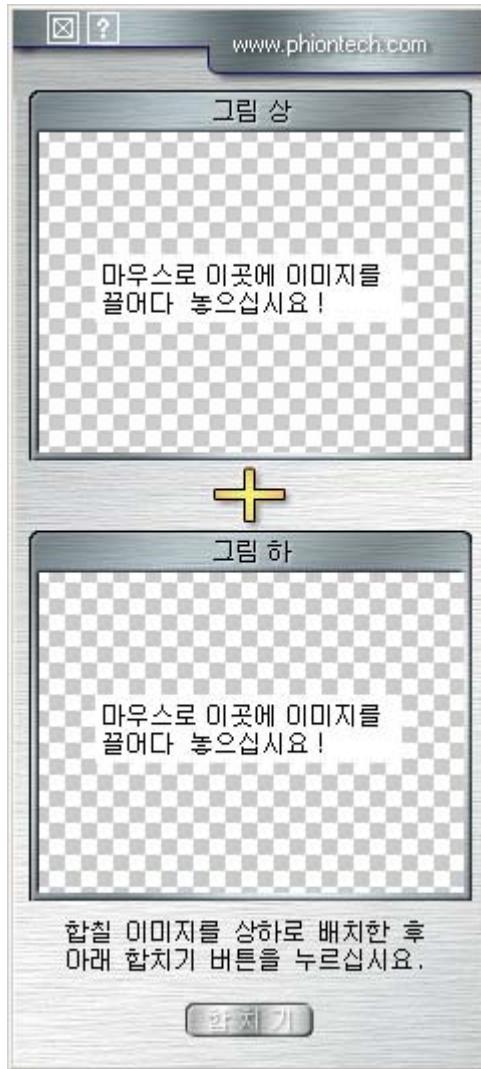
You can change the default video file name in the **Setting Window**.

Stitching images

MiraCam Mega Software supports the stitching function.

Generally, stitching programs are used to generate panorama views using a set of one-dimensional or two-dimensional overlapping photos for a digital camera.

With the camera partially supporting the stitching function, you can maximize the efficiency of the **MIRA OC-100** camera.



Stitch images:



1. Click the **Stitch button**. This will bring up the **Stitch Window**.

2. Drag the images you've just captured to the **Upper Image Frame** and **Lower Image Frame**.

You can drag images from other folders as well. **MiraCam Mega** software supports bmp, jpg, tif and so forth.



3. Click the **Merge button**. The stitched image will be displayed in the **Preview Frame**. You can modify it just like other captured images.

Note:

The success rate will depend on the selected images. If **MiraCam Mega** software couldn't find the similar points between two images, it will show you the following message:

Recognizing Image as Text (OCR)

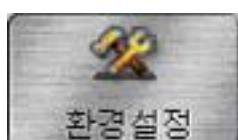
MiraCam Mega software provides you with the means to work with other graphic-related application. This function saves you the inconvenient procedures. In the **Setting Window**, just by specifying the other application, you can open it in no time.

Especially, **MIRA OC-100** camera supports the high-resolution format (1280 * 1024), The scan-shot images by MiraCam Mega software can be used with OCR-related software to recognize the image as text.

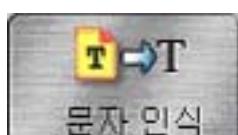
Moreover, **MiraCam** Package provides the OCR software, **Armi 6.5 MiraCam** by **PERCEPTCOM**, which can translate the image to the Korean, English, or Chinese characters.



Working with OCR software:



1. Click the **Setting button**. This will show you the **Setting Window**. To find the application that you want to execute, click the lower **find file** (folder icon) button in the **Setting Window**. The icon and the name of the selected application will be displayed in the **Linked OCR Application** field.



2. Click the **OCR Application** button on the **Main Window**. This will execute the program you've just selected. If you want to edit the captured image with the linked program, select the image you've captured in the **Scan-Shot List** and click the **OCR Application** button. This will show you the image in the selected linked program.

Note:

MIRA OC-100 camera supports the high-resolution's image format, the images captured by the **MiraCam Mega** software can be applicable to the **OCR (Optical Character Recognition)**-related applications.

V. Do you know?

Device Plug and Play (PnP) Auto Detection

The “**Device Plug and Play Auto Detection**” of the **MiraCam Mega Software** means that the application automatically detects the arrival and removal of your camera from your PC.

When the removal of your camera arises, the application stops sending the video stream and shuts down the **Preview Window**, and vice versa.

Plug and Play (PnP) is a combination of hardware and software support that enables applications and the system to recognize and adapt to changes in hardware configuration. As another benefit, users can add or remove devices while the system is in use, without performing manual configuration. – From the Microsoft’s Device Management Article.

Camera Control Property – Exposure

The **Exposure** Setting determines the amount of light that will fall onto the video sensor chip. In auto exposure mode the camera automatically adjusts the exposure gain and shutter speed. In manual mode you can control the gain and shutter speed settings manually. By default, the Exposure setting is automatic and will be best in most cases.

Stream Control Property – Frame Rate

The **Frame Rate** setting determines the number of pictures per second in the video stream.

The set of Frame Rate from which the user may choose depends on the currently selected video format and available bandwidth on the USB bus (the number of devices connected to your USB port and the amount of data they transport).

Driver software check

You can determine if the camera is installed correctly, and if it is being recognized by the operating system by checking the **Device Manager** menu in **System** Properties.

1. Access this menu by clicking with the right mouse button on the icon ‘**My Computer**’ in the top left-hand corner on your desktop, then click on **Properties**. Alternatively, click on **Start / Settings / Control Panel**, then double-click on **System** to access this menu.
2. Click on the **Device Manager** tab to see the list of installed devices. If the USB PC Camera has been installed correctly and it is plugged into a USB port, you should see the following devices in the list (double-click on the devices to see their specifications):

Imaging Device – MIRA OC-100 Video Camera (WDM)

If you unplug the camera from the USB port these devices will disappear from the list (and can therefore no longer be used by any application on your computer until you reconnect the USB camera).

VI. Frequently Asked Question (FAQs)

Q: No Video: My application doesn't show any video.

A: There are several reasons for not having video:

1. Check whether the USB PC Camera is connected to a USB port.
2. If more than one USB capture device is connected to the PC, check whether the correct USB capture device is selected.

Q: Why does my application crash when I unplug the camera from the USB port?

A: Should you unplug the camera while it is providing an audio or video stream to an application on your computer, the computer might crash. Always close applications before unplugging your **SEORIM MIRA OC-100** Camera to avoid problems.

Q: My camera stops responding (black or frozen picture or LED off) for no obvious reason.

A: Switch off the Hardware Accelerator of your video card (Right mouse button click on 'My Computer' / Properties / Performance tab / Graphics button – Win98, Right mouse button on 'Desktop' / Properties / Settings tab / Advanced button – Win2K, Set "Hardware Acceleration to None").

Note: Decreasing the hardware acceleration will affect your computer's performance and should only be used as a short-term solution. As a long-term solution, obtain the latest video card drivers from the display card manufacturer. Most manufacturers provide the most current drivers available on their Web site. See the video display card documentation for more information.

Q: I see picture quality distortion in VGA, SVGA, or SXGA mode.

A: When streaming video at a low frame rate in VGA, SVGA, or SXGA mode, you may experience distortion of the video picture. This is being caused by the USB hardware in your computer. In most cases, it will be the USB timer clock that is not stable enough for streaming video applications. Use a higher frame rate and restart your program to avoid picture distortions.

VII. Technical Specification

Optical

Sensor	1/2" CMOS
Pixels	1280(H) * 1024(V)
Min. Illumination	3 Lux @10FPS/f2 lens
Lens	6 mm, F3.0

Resolutions/Performance

Output resolution	Pixels (H * V)	Frame rate [frames/sec]
QSIF	160 * 120	Up to 30
QCIF	176 * 144	Up to 30
SIF	320 * 240	Up to 30
CIF	352 * 288	Up to 30
	400 * 300	Up to 30
VGA	640 * 480	Up to 10
	704 * 576	Up to 10
SVGA	800 * 600	Up to 10
SXGA	1280 * 1024	Up to 5

Image Format

ABYR (raw Bayer Pattern RGB)

AJPG (YUV 4:2:2, YUV 4:2:0)

RGB 24

I420

Scan Mode

Progressive

Camera Adjustment

- Frame Rate, Image Format, Brightness, Hue, Saturation, Sharpness, Exposure, Flicker Free Operation (50 Hz / 60 Hz)
- Digital zoom and region of interest (ROI) windowing

Temperature Operating Range

0 – 40 C

Interface

Universal Serial Bus (REV. 1.1)

Power Supply

The power is supplied via the USB-cable.

Compliant with general USB spec for power requirement.

5.0 VDC

Dimensions

Unfolded Camera Full Size	45.0 cm * 6.2 cm * 15.3 cm (L*W*H)
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System Requirements

Recommended Processor	Pentium III or later
Recommended RAM	128 Mbytes
OS	Microsoft Windows 98/Me, 2K or Xp
USB interface	Required
Required Software	Internet Explorer 5.0 or later
Recommended Software	Microsoft Outlook (Outlook Express), MSN Messenger

VIII. Regulations / Warnings & Maintenance

FCC compliance

: This device complies with Part 15 of the FCC Rules.

Operation is subject to the following two conditions:

- 1. This device may not cause harmful interference, and**
- 2. This device must accept any interference received, including interference that may cause undesired operation.**

NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment to an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Any unauthorized modification to this equipment could result in the revocation of the authorization to operate the equipment.

Warnings & Maintenance

If you observe the following guidelines, you will prevent defects and the camera will operate safely.

- Clean the outside of the camera with a soft cloth.
- Do NOT use cleaning fluids based on alcohol, methylated spirit, ammonia, etc.
- Avoid direct contact between the camera and water.
- If the lens has to be cleaned, use a special lens-cleaning tissue, available at any camera store.
- You can only use the camera indoors.
- Keep the camera free from oil, vapor, stream, moisture, and dust.
- Keep the camera away from a heater, lighting equipment, and direct sunlight.
- Never direct the lens of your camera toward the sun.