Volume

1

YANG'S SCIENTIFIC RESEARCH INSTITUTE, LLC.

BarSeer Vision Barcode Reader

User Guide

BARSEER VISION BARCODE READER

User Guide

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Introduction

BarSeer is the first vision barcode reader using ***Physical Linguistic Vision Technology****.*

The unique vision processing and understanding platform invented by the chief scientist of Yang's Scientific Research Institute, called Physical Linguistics Vision Technology, constitutes the backbone of BarSeer software package for vision barcode reader. BarSeer targets the market of mobile devices with vision sensor such as cellular phone and PDA for barcode reading, as well as small business, individuals with computers and webcams.

This document addresses the operations of the demo program of BarSeer package. BarSeer was first released in February 2005 and had been maintained and revised since then by Yang's Scientific Research Institute, LLC.(Yang's Scientific).

There are two kinds of commercial packages associated with BarSeer demo. The first one is for the ender users and will be licensed to the ender users via a license fee per machine method. The second one is a developer's package to help computer programmers develop their own applications.

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Chapter

1

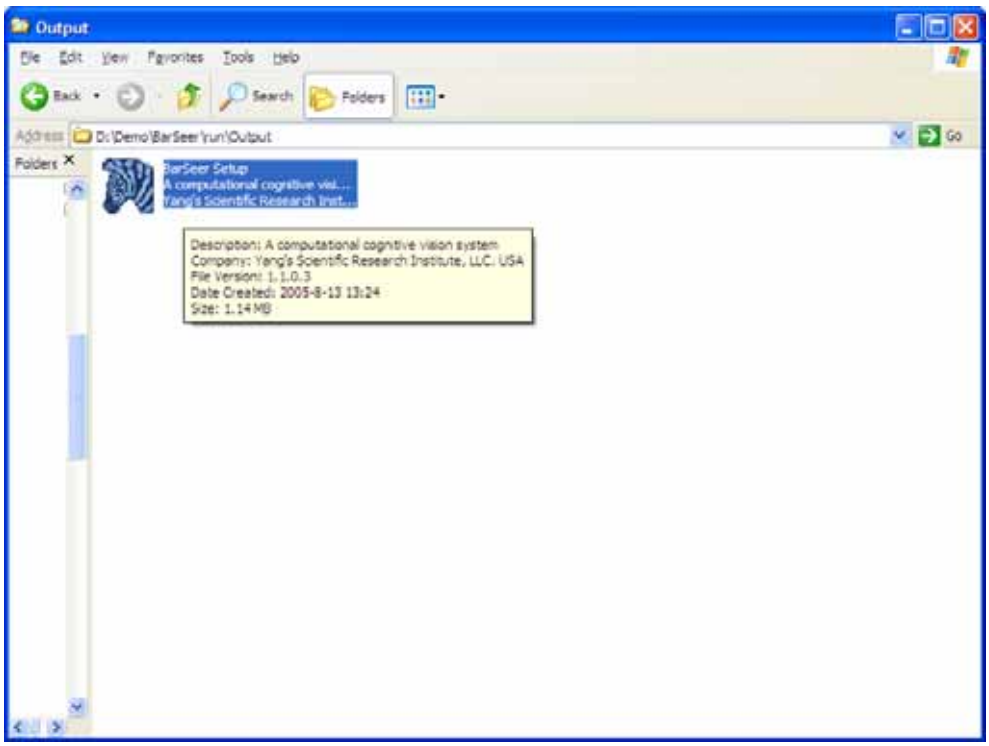
Getting Started

This chapter shows how to install BarSeer into your computer.

To install BarSeer into your computer, please follow the following steps. If you downloaded BarSeer Setup from YangSky's Website, you should go to the download directory. If you install the developer's package from a CD, you should find the installer at the root directory of the installer CD.

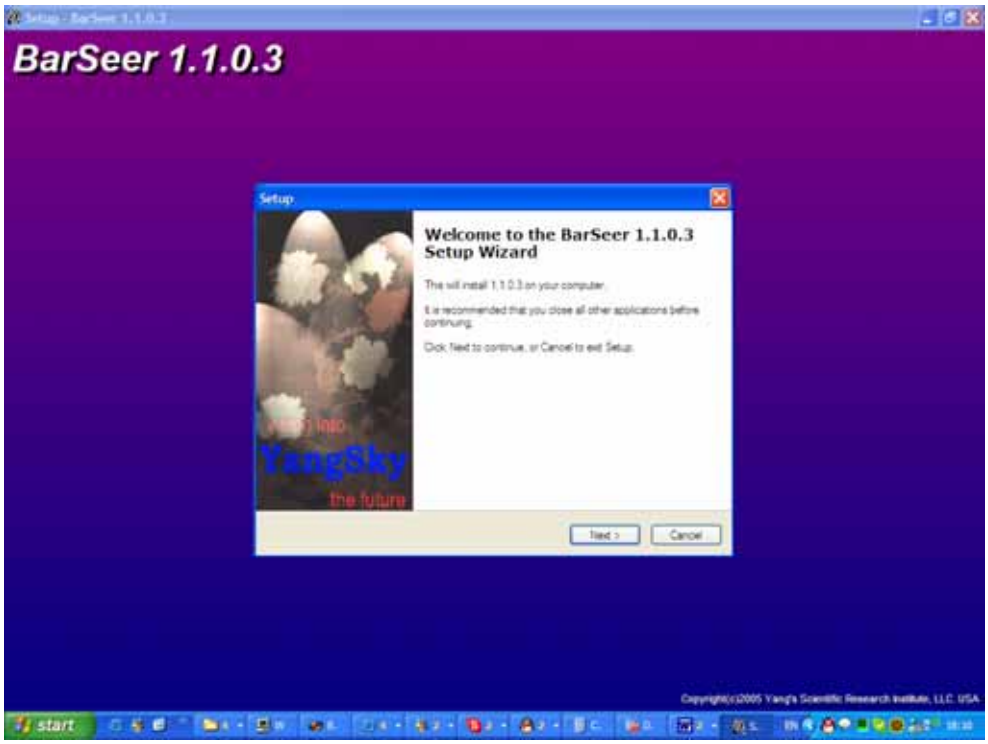
Step 1: Begin to install

Double click the BarSeer Setup icon.



Step 2:

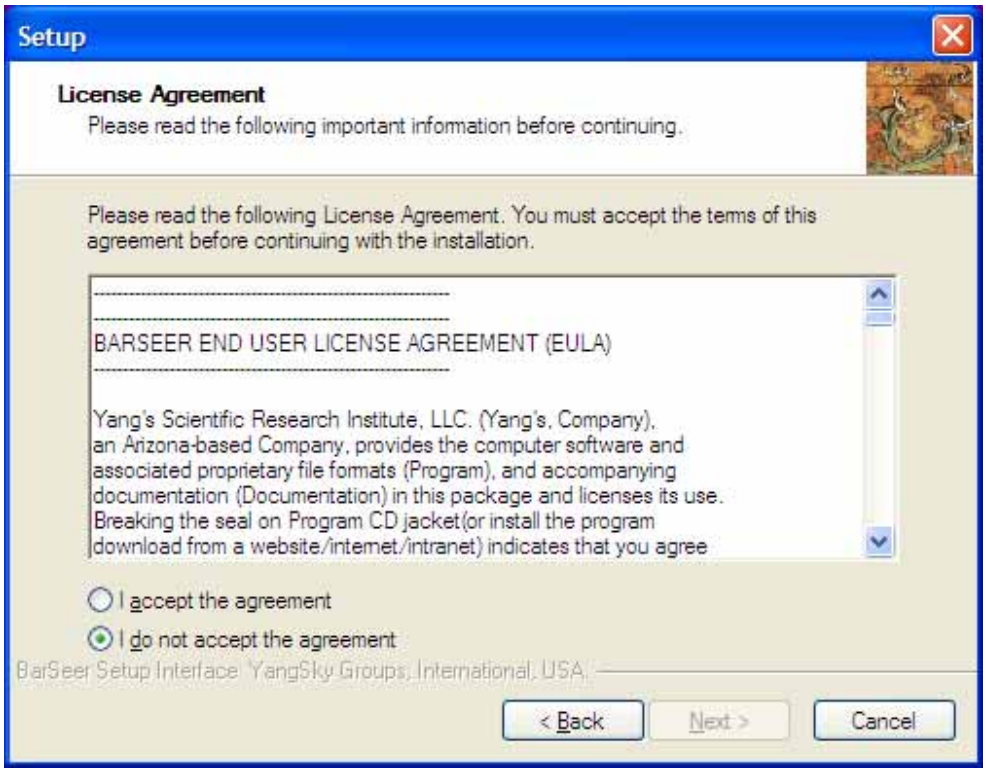
You will see the following interface of the installer.



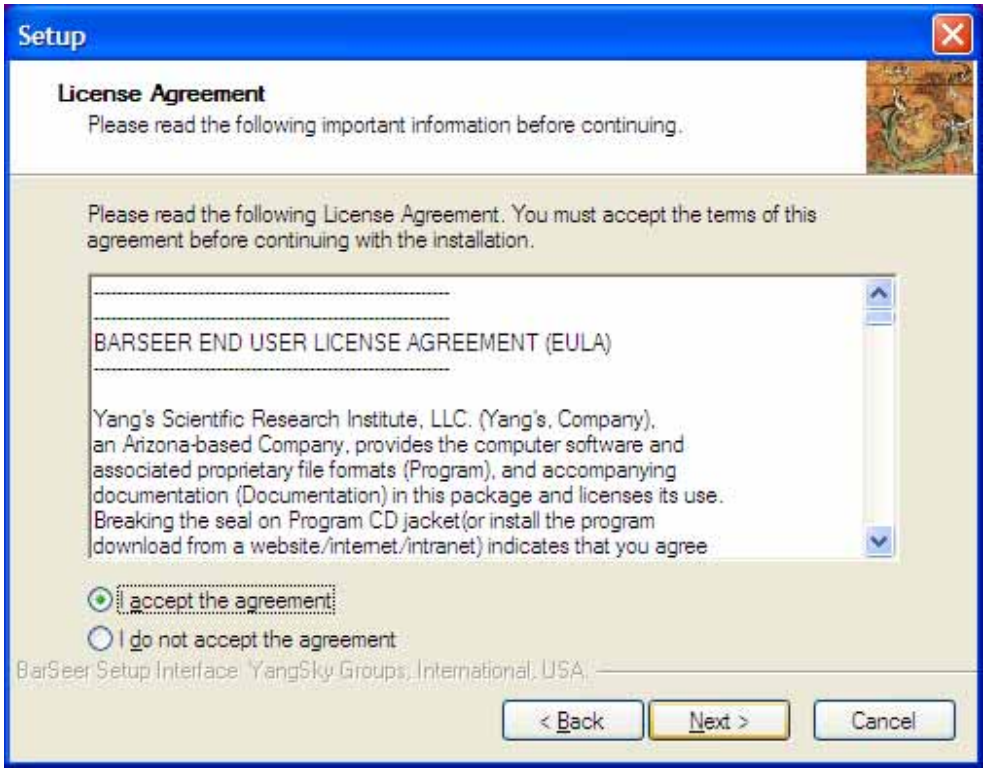
Click Next….

Step 3:

On this page, select the first radio button and then…

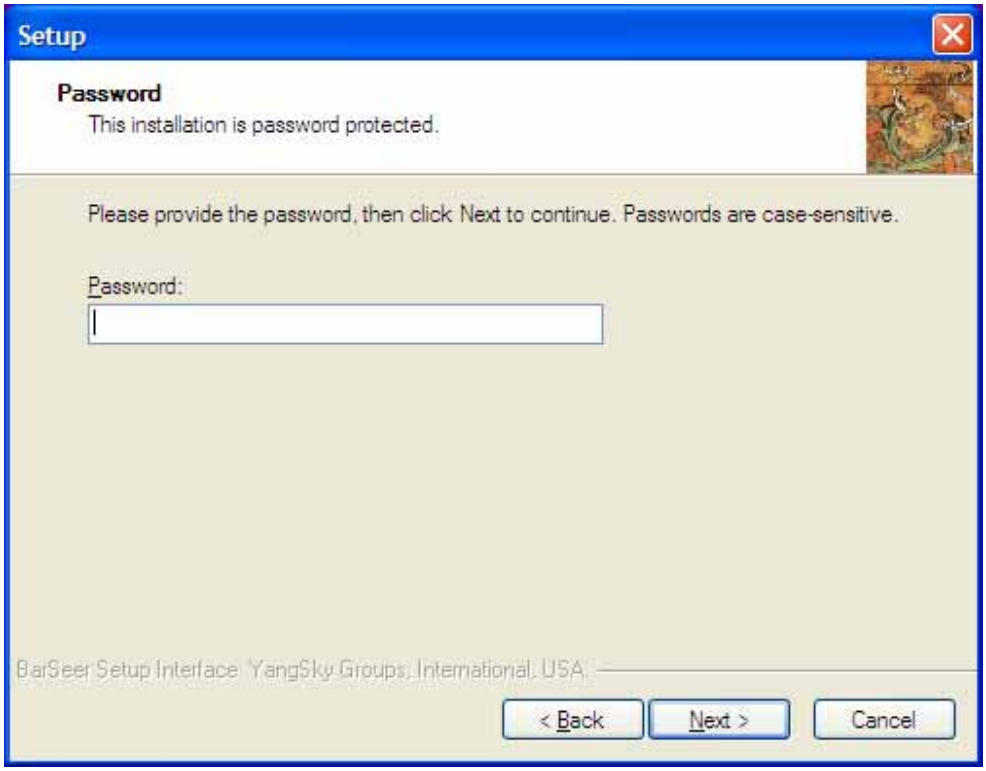


Click Next….

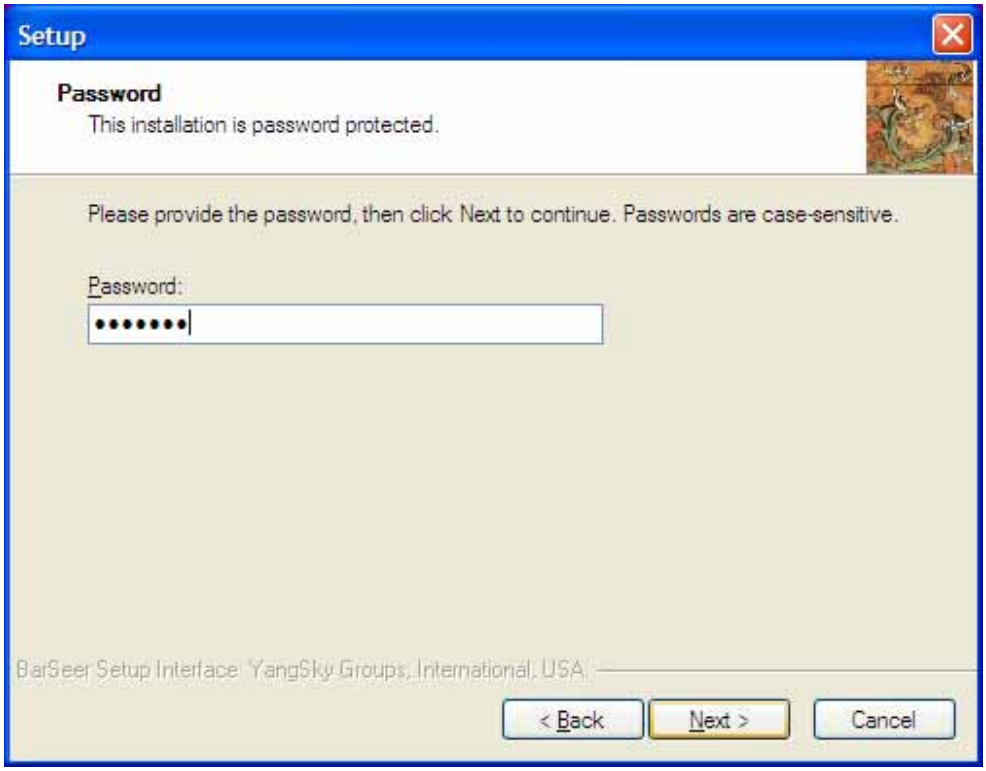


Step 4:

Enter your installing password that you should find it by sending an email to sales@yangsky.com …

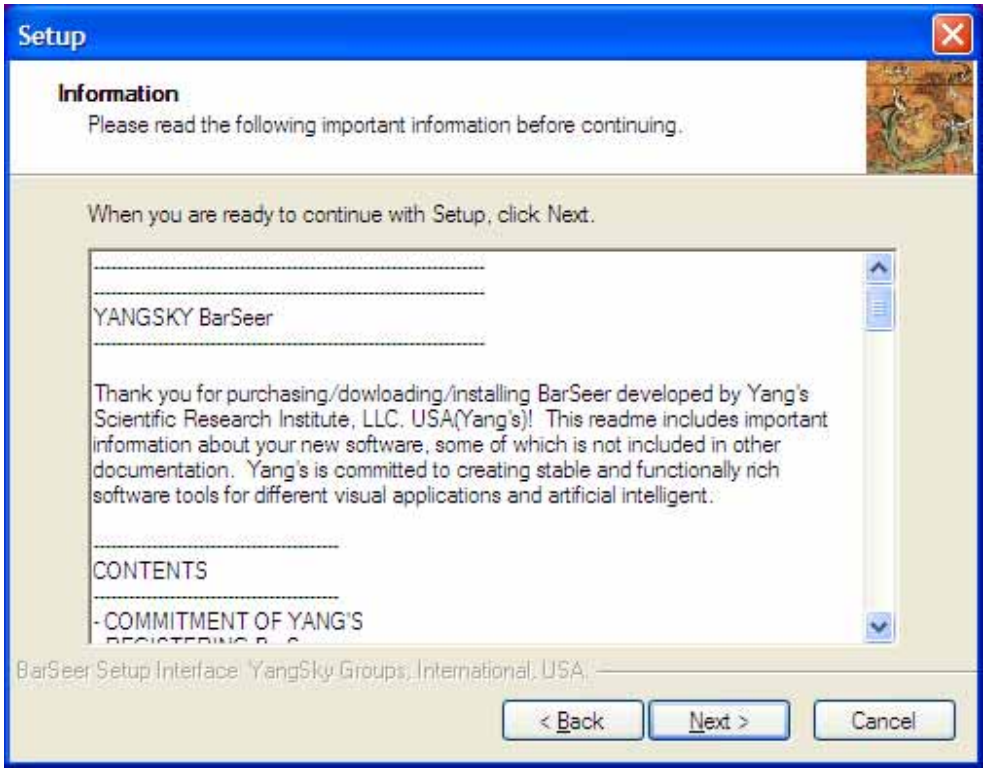


Click Next….

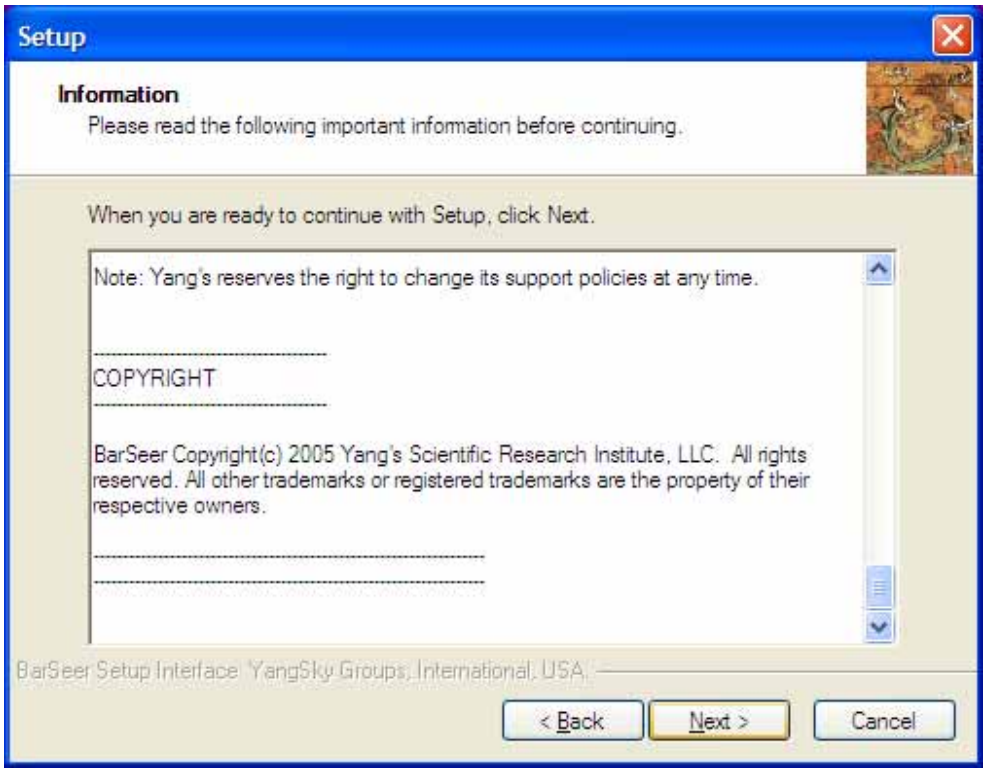


Step 5:

Read through the important information…

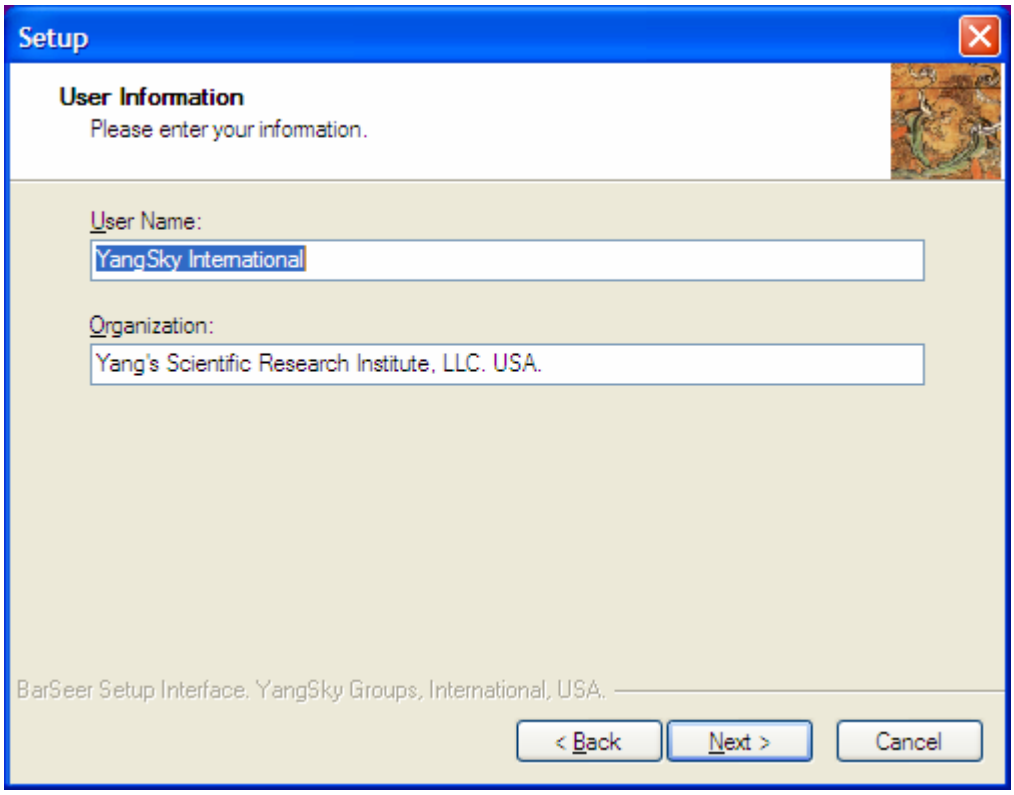


then click Next…



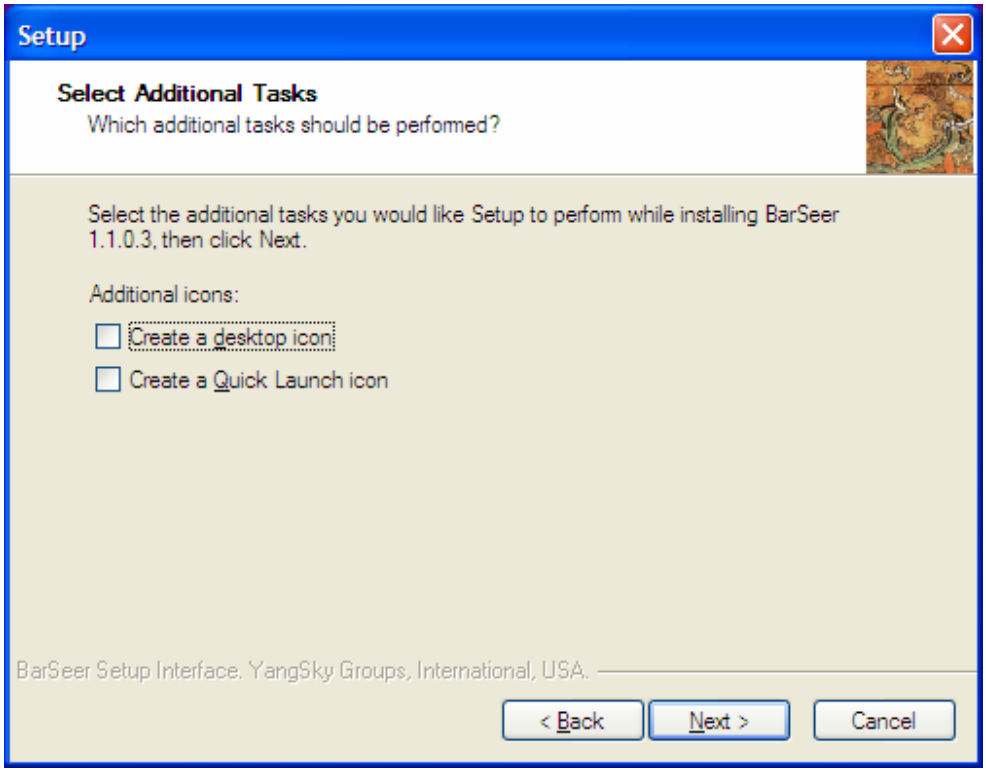
Step 6:

Enter the information and then click Next

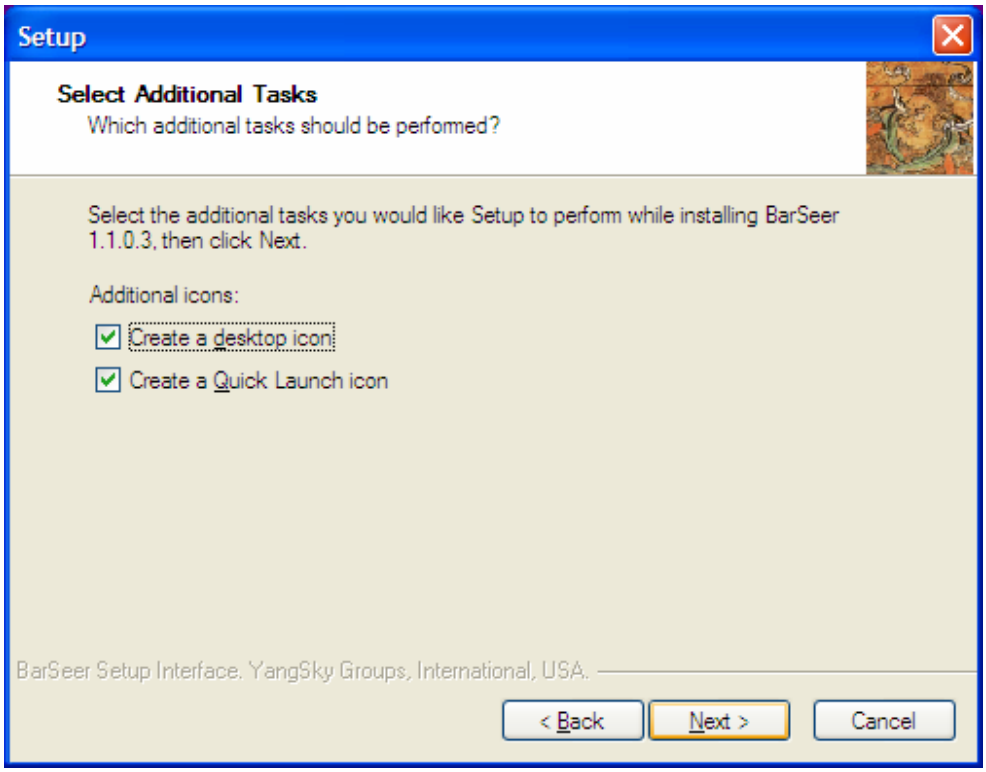


Step 7:

Check both choices to make quick launch links to the BarSeer such that you can easily to locate it from time to time

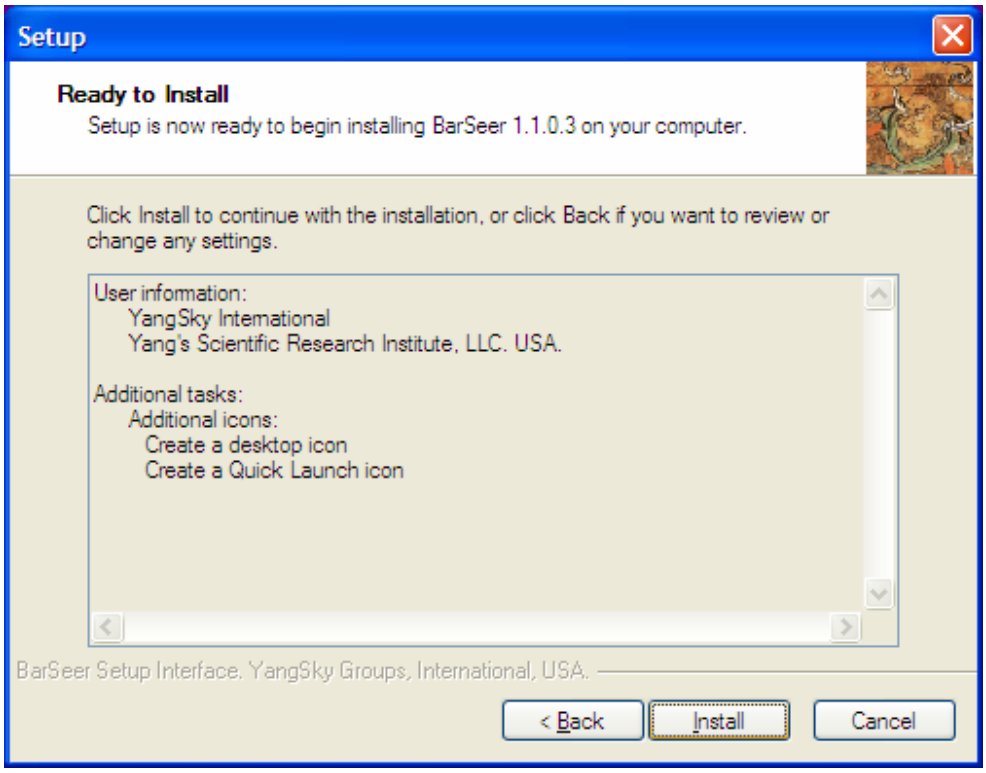

Setup
Select Additional Tasks
Which additional tasks should be perfomed?
Select the additional tasks you would like Setup to perform while installing BarSeer 1.1.0.3, then click Next.
Additional icons:
Create a desktop icon
Create a Quick Launch icon
BarSeer Setup Interface, YangSky Groups, International, USA.
< Back
Next >
Cancel

Click Next…


Setup
Select Additional Tasks
Which additional tasks should be perfomed?
Select the additional tasks you would like Setup to perform while installing BarSeer 1.1.0.3, then click Next.
Additional icons:
Create a desktop icon
Create a Quick Launch icon
BarSeer Setup Interface, YangSky Groups, International, USA.
< Back
Next >
Cancel

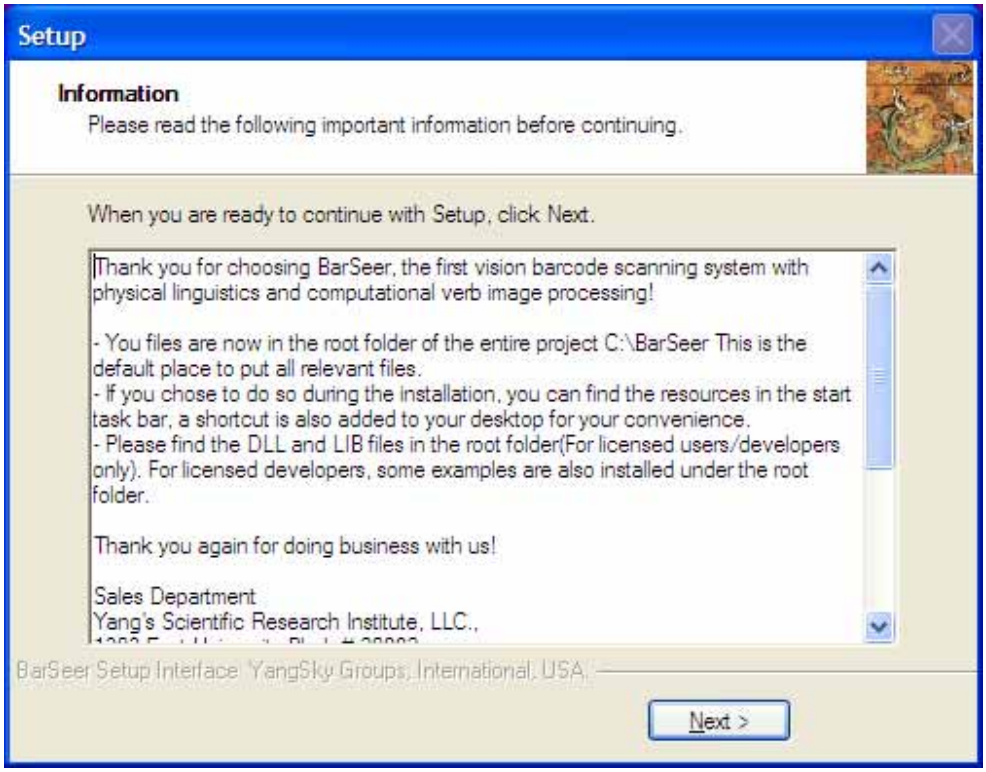
Step 8:

Click install to install these tasks, you can change options by clicking Back.



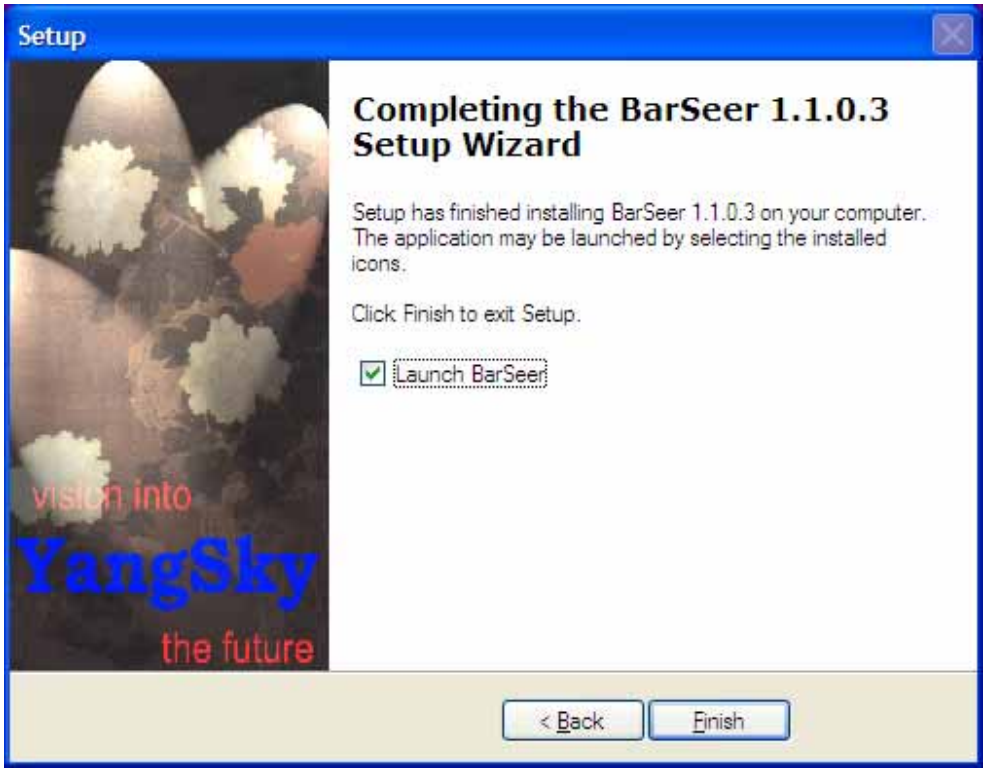
Step 9:

Click Next…

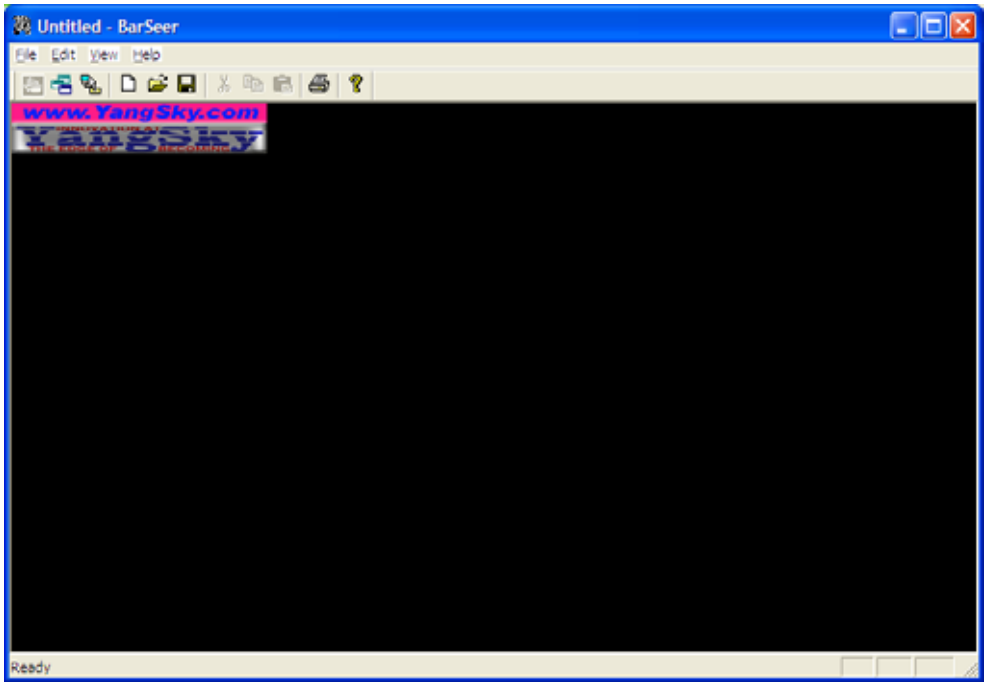


Step 10:

Click Finish to finish the installation and launch BarSeer.



This is the main interface for the BarSeer, the black background is due to the lack of video signal.



2

Read Barcodes from Webcams

This chapter shows how to read barcodes from webcams by using BarSeer.

To read barcodes from webcam by using BarSeer, you need to have at least one webcam connecting to the USB ports of your computer. BarSeer will work to its optimal potential when the settings of the computer, the lighting condition, the choice of webcams are optimal.

Choosing Webcams

We recommend to use webcams with good optical systems. To reduce cost, many webcams use cheap plastic lens, their optical resolutions are low. A rule of thumb is to choose a webcam with a big glass lens. The webcam to the left is better than that to the right because the left one has a much bigger glass lens than the plastic lens installed in the right hand side webcam. Since many webcam has the self-focusing ability built in, you might need to choose a webcam that can sharply focus on barcodes. The self-focusing process will take some time if you consider using BarSeer to read barcodes in motion. However, BarSeer can still use the webcam to the right for less optimal performance.

Webcam with better lens Webcam with small lens

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Choosing Computers

BarSeer uses the advanced image processing technology called physical linguistic vision technologies. Although BarSeer has been optimized to take less computing resources, the image-processing nature of vision barcode reading makes a trade-off between the performance of barcode reading and the speed of the computer that is directly related to the price of the computer. Since BarSeer uses a USB webcam, the bandwidth of your USB port can affect the dynamics of capturing barcode. For example, a slow computer with a narrow USB bandwidth can not capture clear barcode image when the barcode is moved fast.

Working Conditions of Webcams

BarSeer needs to work under a range of conditions. The thumb of rule for the proper working conditions of BarSeer are:

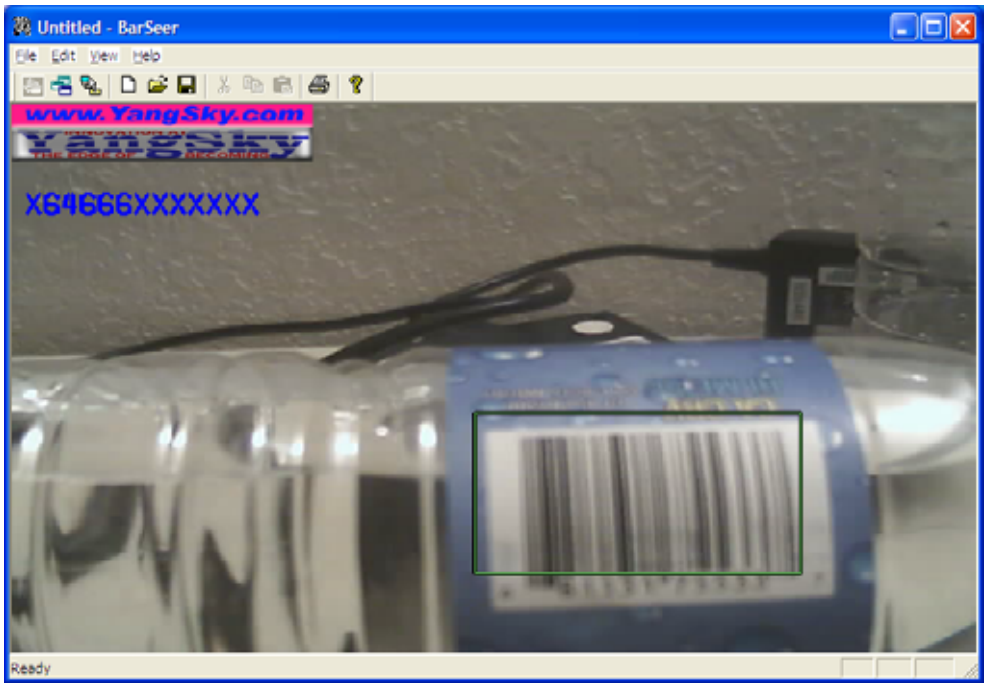
- Avoiding shaking to guarantee fast readings.
- Focusing on barcode region sharply.
- Don't use reflective lighting conditions.

The following are good working conditions. Note that the barcodes are focused clear.

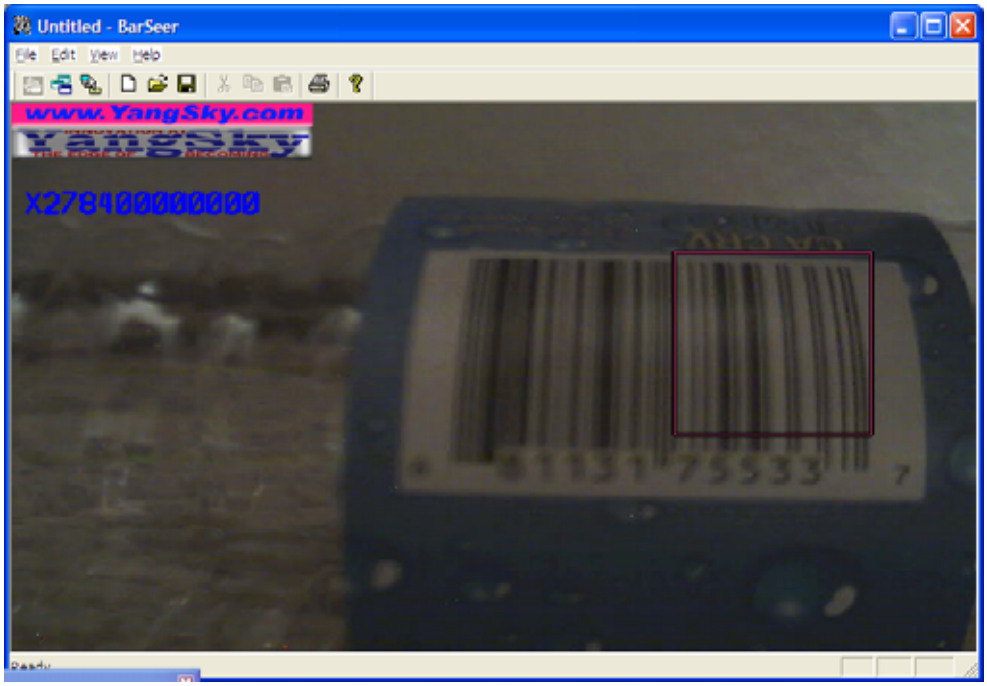
This screen shot also show the robustness of BarSeer to the geometric distortions of the barcode. Note that this barcode is distorted by a “wrapping” effect.

The following are bad conditions.

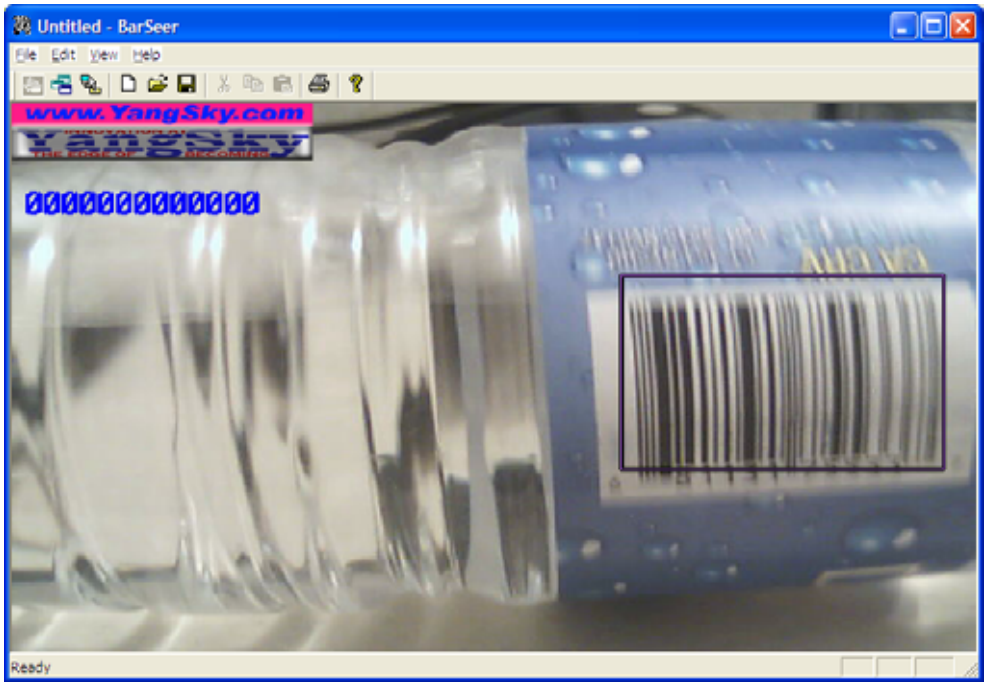
1. The barcode is out of focus and the barcode itself is too blur



2. The lighting condition is too dim.



3. The barcode is shaking.



4. Too much distortion in the barcode.

Untitled - BarSeer
File Edit View Help
www.YangSky.com
0867668988886
ITEM #1
83961 00017
Ready

3

Troubleshooting

This chapter shows how to resolve some common issues that might come across when using BarSeer software to read barcodes.

To explore the full ability of the BarSeer, the working conditions of the entire system including your PC, the webcam and BarSeer should be considered comprehensively. The quality of captured image frame will have critical influence to the final readings. The following are some tips for operating BarSeer.

- Hold you webcam using some a stable support. A steady webcam is much easier to focus on the barcode.
- Never put your barcode vertically under the webcam.
- Soft and indirect lighting sources help webcam read clear barcode images.

In case that you have some problems, the followings should be useful tips.

Webcams Are Busy

After you start the BarSeer, if you see the following "Video Source" dialogue interface, it is most likely that your webcams are used by some other applications such as Internet chat software or video conference software, etc. ***To solve this problem, you need to either choose an available webcam from the list, or release the webcam from other software.***

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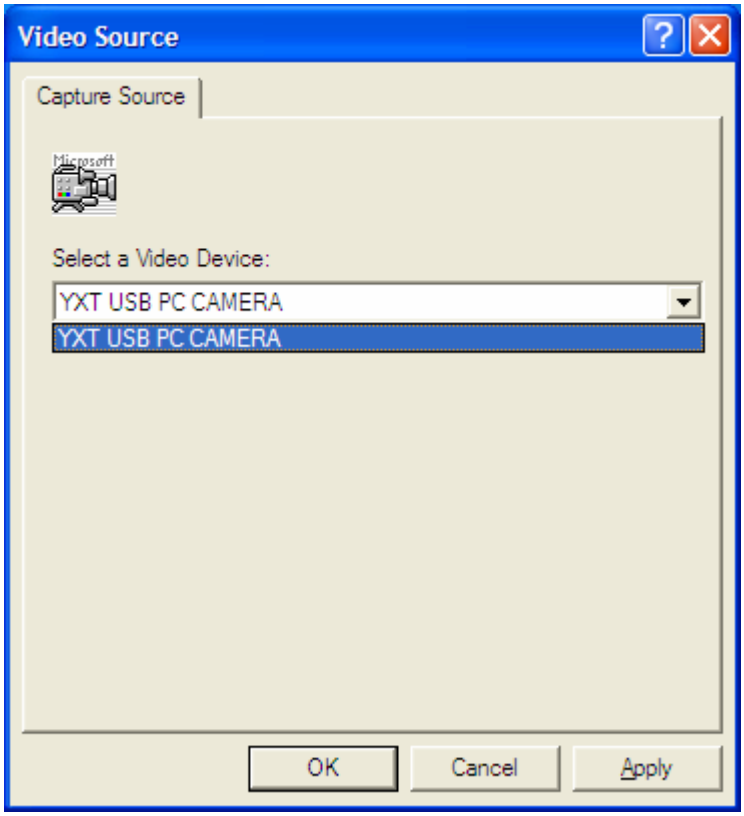

No Webcam Can Be Used

The following dialogue interface tells that BarSeer failed to initialize a webcam. To solve this problem, be sure to

- Check whether any webcam connected to USB ports of your computer.
- Check whether webcams are used by other software.
- Check whether webcams function well or not.

4

FQAs

This chapter includes the FQAs concerning all issues of BarSeer.

To run BarSeer you don't need to be an expert of either image processing or webcam, it is as simple as using your webcam for teleconference. However, since a computer with a webcam is not as that simple as we first thought in many occasions, some tips are listed in this chapter you ease your experience with BarSeer.

Where Can I Get the Demo of BarSeer?

You can download BarSeer from

http://www.yangsky.us/demos/barseer/barseer.htm

Or from the links in

http://www.yangsky.us/demos/demos.htm

As shown below, a quick link called Barcode Reader is available at http://www.yangsky.us/ at the left navigation bar.

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How to Know the Price of BarSeer?

BarSeer software family has the following two kinds of products:

- ***End users package***. It is for end users such as a supermarket, an individual collector, or a library, etc. It is licensed to the ender user just like many other software do, namely; a license fee will be charged for each installation.

- ***Developers package***. It is for program developers such as a software company or a equipment manufacture. It provide program modules for the developers to program their own products.

Please send your request of price to sales@yangsky.com

What is the Difference Between the Demo and the Commercial Versions of BarSeer?

The demo version of BarSeer is only to demonstrate the accuracy of reading the barcodes by using a webcam, therefore it doesn't have any data ports available to the end user. The commercial version of BarSeer provides rich data ports to interface with different applications for the end-users. For example, user can access to detailed log files of the barcode readings.

Where Can I Get the Supports for BarSeer?

See Chapter 5.

I Want to Develop a Software for Handhold Device to Read Barcode, What Should I Do?

You need the developers' package for BarSeer. The developers' BarSeer package can help you to prototype your next vision barcode reader quickly and can also provide a specified solution for your current project. The developer's BarSeer package was written in C-language.

What Kinds of Barcodes can BarSeer Read?

UPC-A, EAN-13, JAN-13, International Standard Book Numbering (ISBN), International Standard Serial Number for Periodicals (ISSN), and International Standard Music Number (ISMN). These kinds of barcode covers almost every items sold in your supermarkets, bookstores and music stores.

Currently BarSeer only supports USB webcams, are you going to support firewire video cameras or TCP/IP cameras?

BarSeer will be developed for both personal and industrial markets. For personal market, BarSeer will mainly support USB webcams. For the industrial markets firewire video cameras and TCP/IP cameras will be supported though currently only USB cameras are supported.

How can we get the probability of a result?

BarSeer uses an accurate bar code measuring algorithm to measure the width of bars and spaces in a barcode. For some barcode with only error check sum digits such as EAN13 and UPC-A codes, the probability that BarSeer can get wrong is defined by error-checking method. Barcode can not control this kind of error because it is intrinsic to the coding method. Otherwise, BarSeer will not provide results contradicting to the encoding rules. This is much different to other visual barcode scanners where statistic methods are used and therefore the user need a probability of rightness to their results.

Why frame around the found barcode changes color?

The color of the frame around the barcode is changed randomly when the video camera inputs a new video image frame. This function serves as an indicator to the user that the camera is still "alive".

When I use the demo version of the BarSeer, sometimes I can hear something like a buzz. What does this kind of buzz mean?

When BarSeer successfully decodes a barcode from an image, it will issue a buzz to remind the user. Since the demo version of BarSeer will plot a decoded barcode on the screen until a new barcode is successfully decode, the barcode shown on the screen might differ from what BarSeer is currently looking at. Only after a buzz being heard, the user gets a new barcode reading in.

Are results and "some kind of a switch" when reading was successful available via COM, OPC , etc.?

For demo version the BarSeer data port is not open to users. For commercial versions, BarSeer can save results into a .cvs and a .txt file with time stamps and detailed log management information. These data files should be very easy to import to different databases. Although special services might be available to users who need special data format or need to transfer data to other applications, it will be users' responsibilities to make use of these data.

Sometimes the code read differs from the code in the human readable line, what's wrong?

The are a few reasons contribute to this issue. First, it might because the current barcode that BarSeer looks at is not decoded. Be sure you hear a buzz. Otherwise, only the latest reading will show. Second, any barcode scanner will have a certain failure rate, you might try to read it one more time to correct possible error. Third, the working condition is not right, for example, the lightening condition is too dim.

5

Support and Ordering Information

This chapter includes the supporting and ordering information for BarSeer.

To order BarSeer or to gain support for BarSeer is simply a few clicks away.

How to Order

Send your check or money order to

Sales Department, Yang's Scientific Research Institute, 1303 East University Blvd. #20882, Arizona 85719-0521, USA.

Please make your check or money order payable to ***Yang's Scientific Research Institute***.

For prices of BarSeer and related products, please send an email to sales@yangsky.com.

Support Information

For ender users, please refer to FQA sections of this User Guide for the most common problems. If you can not find the solution from FQA sections, please send an email to sales@yangsky.com or send a ticket via http://www.yangsky.us/support/.

Demos

The demos of BarSeer can be found at the following link:

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http://www.yangsky.us/demos/barseer/barseer.htm

Or click

http://www.yangsky.us/demos/demos.htm

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