

INTERACTIVE FLOOR INSTALLATION DOCUMENTATION



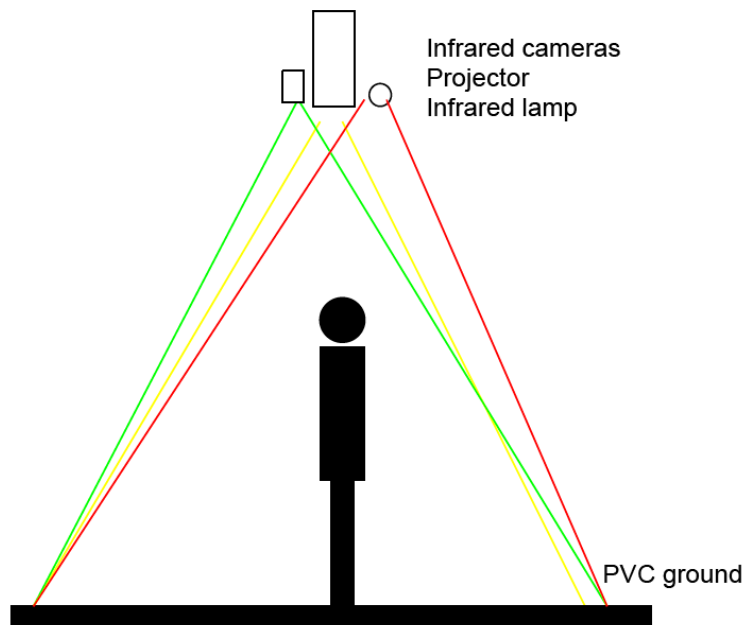
This document provides the installation and usage of software and hardware products. There are introductions of how to install interactive projection.

A. Installation Methods

There are a variety of ways to install interactive projector. It shall be chosen by specific venue environment and hardware devices. The following chart demonstrates a number of installation manners.

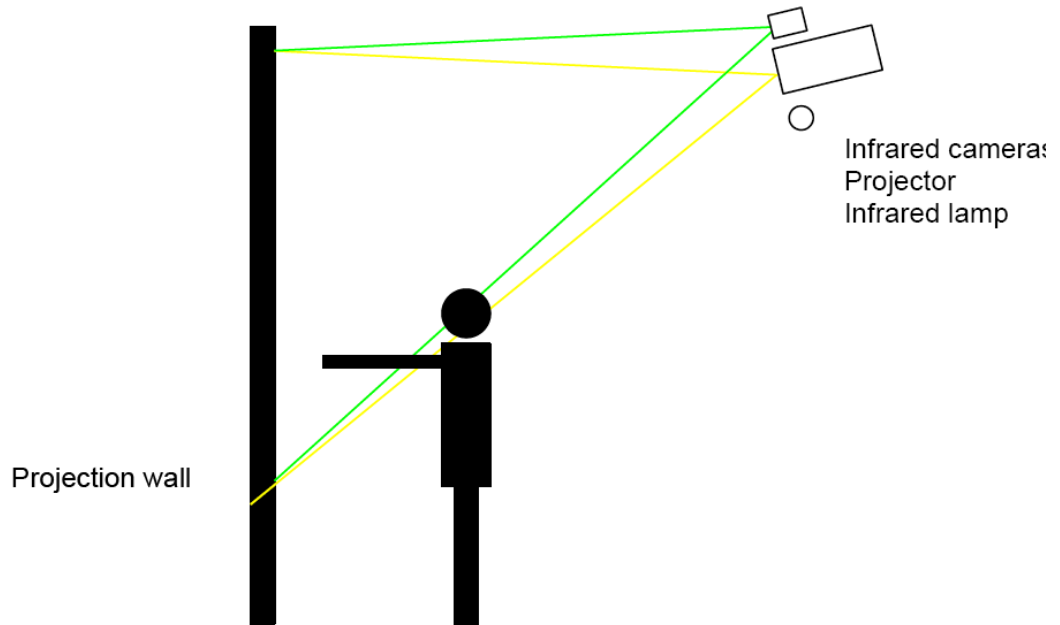
- Ground installation manner

Ground-based installation method is suitable for large-size ground-based interaction. For the distance to ceiling, if there are requests they are generally more than 3 meters. If the projected area is not enough we need to retrofit short focal lens on projector. You can also choose a number of short focal projectors. Such as BenQ MP771, NEC 600 + and so on.

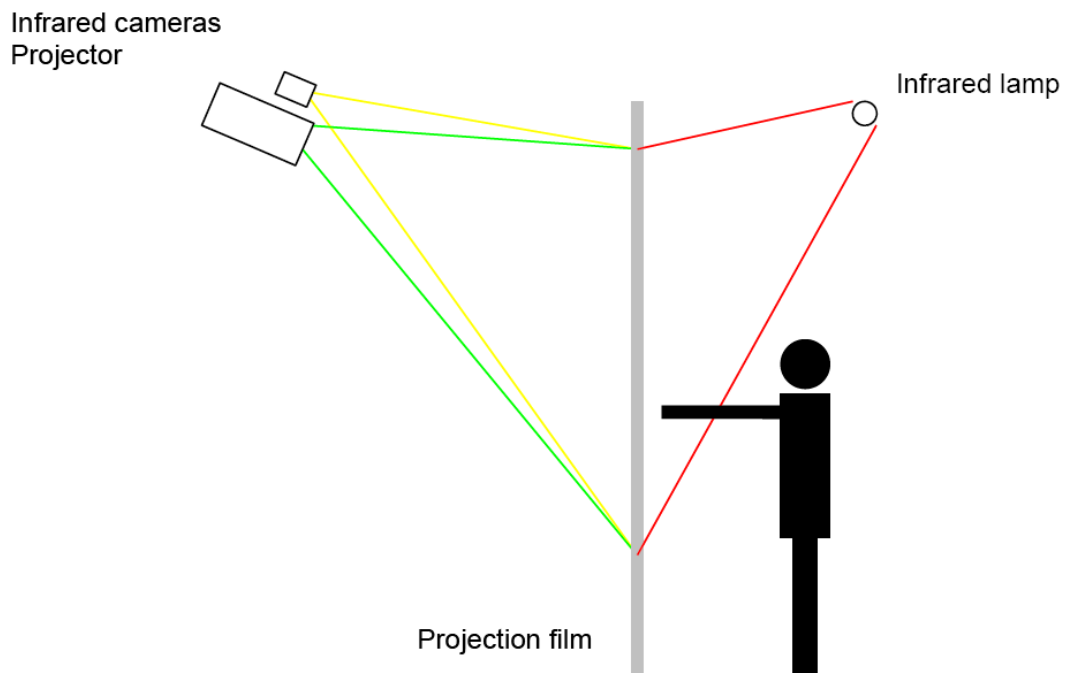


- Installation method of wall positive projection

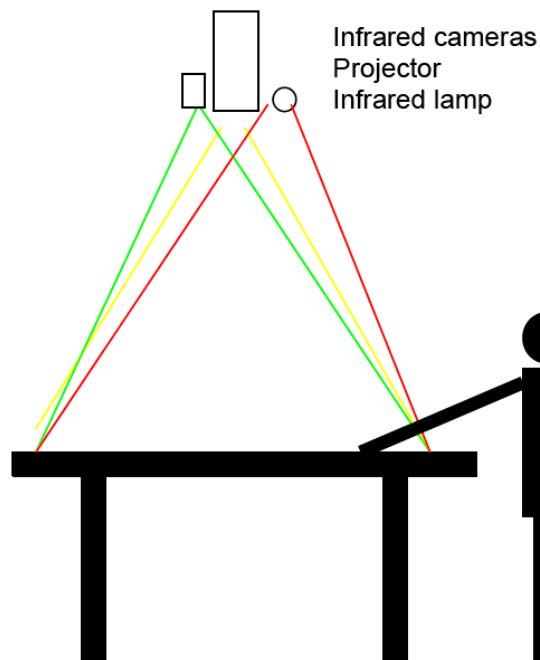
The installation method of wall can save space and it is suitable for positive operation



- Installation method of wall rear projection



- Table installation manner



- Reference pictures of installation examples





B. Description of hardware requirements

1. Mainframe computer (client purchase)

We generally recommend dual-core processor in mainframe computer, it deals with faster image analysis and provides support.

We recommend high-end graphics cards in Nvidia series in order to make full use of DirectX 3D acceleration function.

If we need to save cost we do not need liquid crystal displayer then we can directly transfer output on projector. But in general we recommend liquid crystal display used in debugging and installation, because we need to see the content of camera.

The following is a recommended configuration:

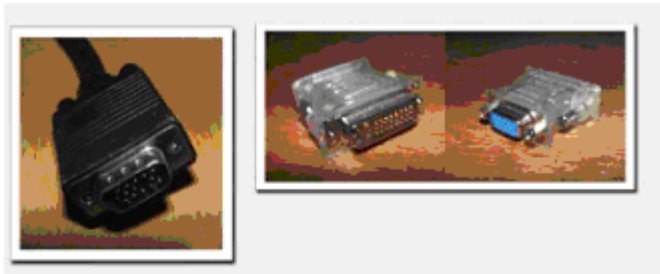
CPU Intel Core 2 Duo E8200 or higher
Memory 2G
Hard drive 160G
Nvidia 7900GS graphics card or higher
Keyboard and mouse suit

2. Projector (customer purchase)

We generally recommend 3000 lumens projector. Of course according to interior situation, we can choose a low dark lumen projector. If the surrounding light is too strong we then need for higher lumen projector.

3. The connection line between projector and displayer (customer purchase)

Here there are generally VGA line, but through different interface card there may be VGA or DVI. Then an adapter is required, generally it needs RMB10. Generally VGA signal line supports 20 meters distance for installation. If that is too long then a repeater is required.



VGA to DVI adapter

When we do projector installation a hanger is required, this required professional's installation.

4. The camera and lens (provided)

infrared camera can provide power supply for host machine. Power supply: 12V power supply to provide power to camera.

Lens: 3.0-8.0mm two variable-focus and support 30-80 degree angles. It can be used in general circumstances.

In web site there is formula for focal length. You can refer to that. Take 4mm c focal length as an example, within two meters' distance we could observe 2.4×1.8 m. Users can adjust themselves to the camera and make observe place slightly larger than the scope of projector.



5. Acquisition Card (provided)

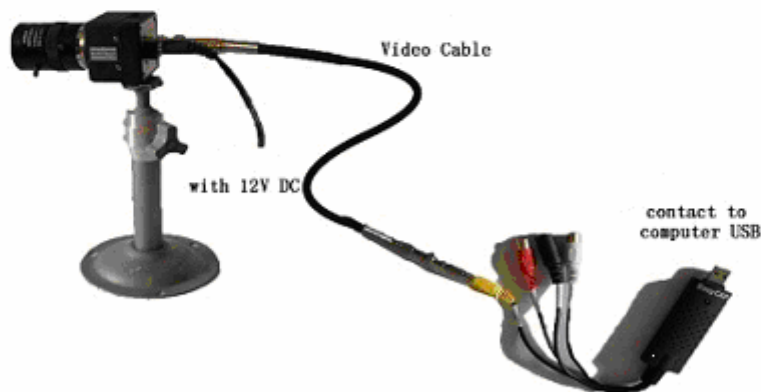
Acquisition card is for EasyCap USB connection. It is used to connect camera. After it is plugged, we can install it in accordance with instructions. After installation we can see if device manager is installed successfully or not.



6. Camcorder connection and fixture (provided)

Video links are BNC connectors at both side. The length of video cable (with shield) is limited within 150 meters.

Fixed cameras can make use of a dedicated stent and can be fixed with a screwdriver.



7. Infrared lamp (provided)

In some circumstances, the light is too dark. When we need to provide enhanced infrared rays, the infrared lights are required at this time. Under normal circumstances, in interior there is halogen (yellow), or when it is close to windows, you do not need infrared light. Specific conditions shall be adjusted according to different circumstances at the scene.



C. Software Introduction

Software provides operation and monitor settings. Software provides dynamic effects loading and operation monitoring which is suitable for running under windows XP. Each software will be provided with a dongle and registration key to assure security.



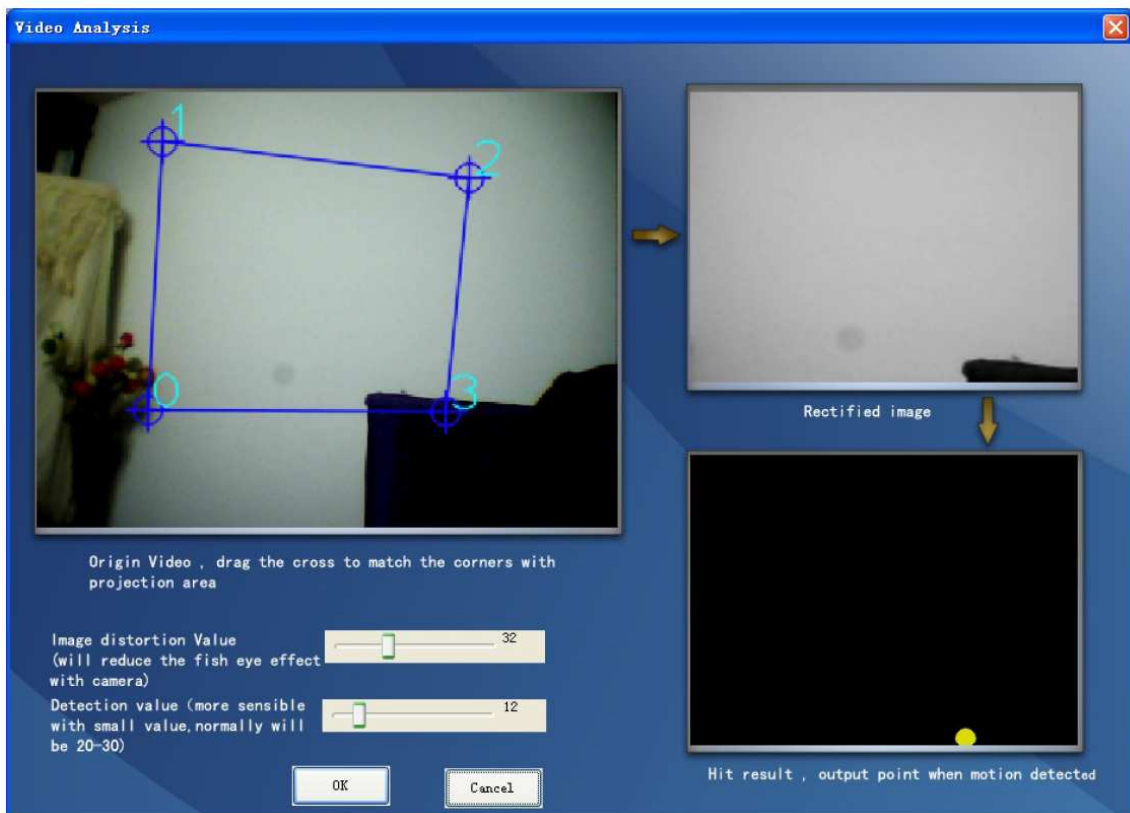
Console can set start interactive projection, and provision of relevant parameters.

Camera Settings



Camera settings can choose camera which is detected by windows. In general acquisition card can only provide one.

Motion Analysis Settings

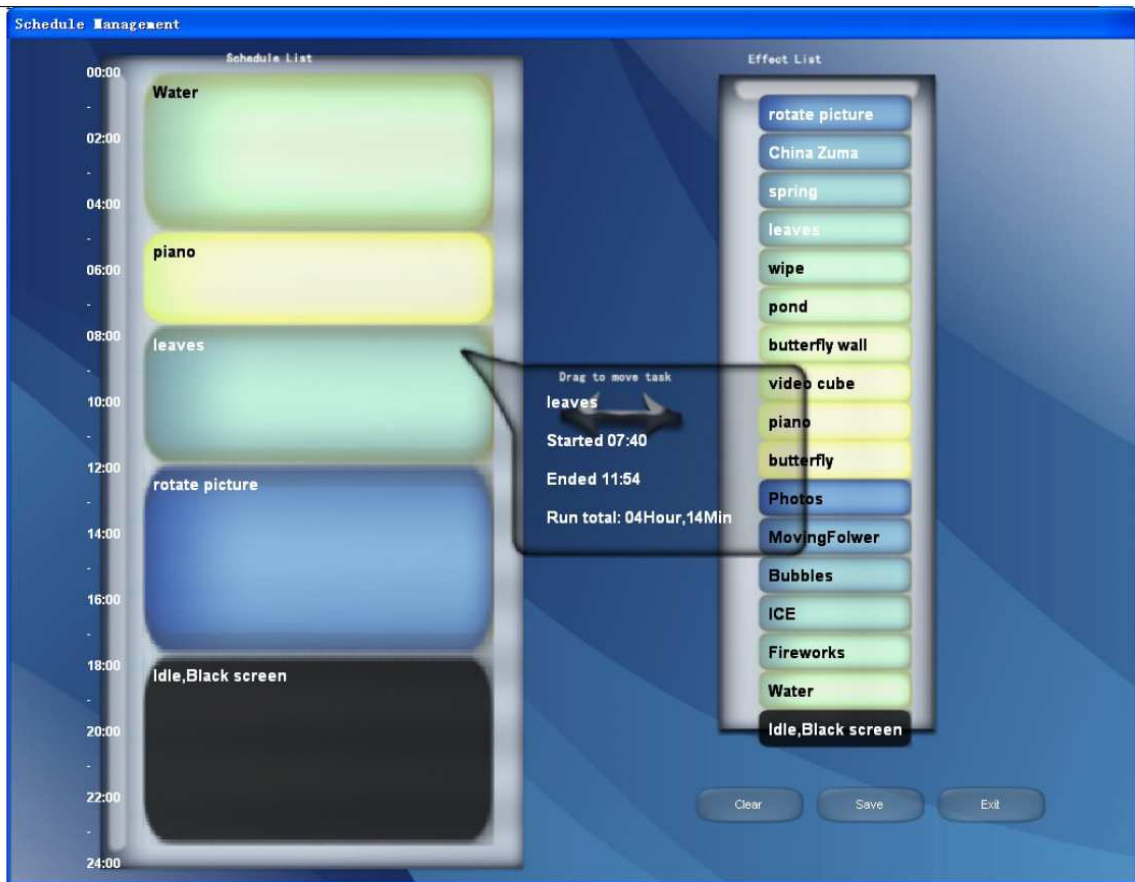


Monitor screen can be divided into three windows:

- In original video (top left), you can drag the camera to adjust the scope of observation. (Users can drag four sources, so that the blue frame will increase by 2 percent in projection area. It is better to allow blue line tangent with projector side arc deformation)
- The gray-scale video (top right) is contents from changed perspective, users need to keep the size of screen coincides with projector's contents, so that projection will have more accurate identification accuracy .
- Here we can set the sensitivity of 1-80, of which 1 is very sensitive, 80 means a response after big reaction. This value is normally between 20-30.
- Deformation curvature correction, the value of 0 indicates that if we do not carry out camera curvature correction, the greater the correction curvature will be. It is generally between 20-40.
- The below right is detection output which shows these positions have touching incidents.

Auto Play Setting





Play setting function allows users to set up in accordance with pre-arrangement. According to time setting we can have automatic switching.

Users can drag list to achieve mission scheduling.

Auto play feature requires the users to choose according to "scheduled play" option to start interactive of projection.

Note: When we make use of this feature please ensure that the time of operating system is correct.

Player Settings Manually

Manual play function requires users to choose according to "Manual Play" option to start interactive projection.

We can make use of shortcut keys to achieve projection procedures switch by space key.

C key or ESC key can close the interactive projection.

D. Installation Steps

1. Purchase the necessary hardware.
2. The installation of computer, install operating system XP, insert video capture card, install capture card driver (there is capture card driver under software tools directory, you need not use CD-ROM). The output resolution of projector is 1024 * 768. (Such as: Figure 1 and figure 2).

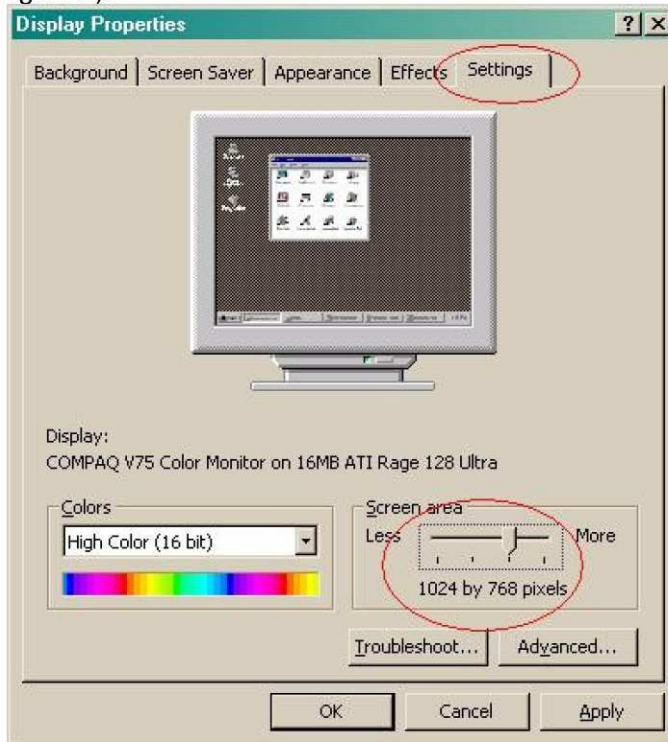


Figure 1. Set resolution rate in graphics card

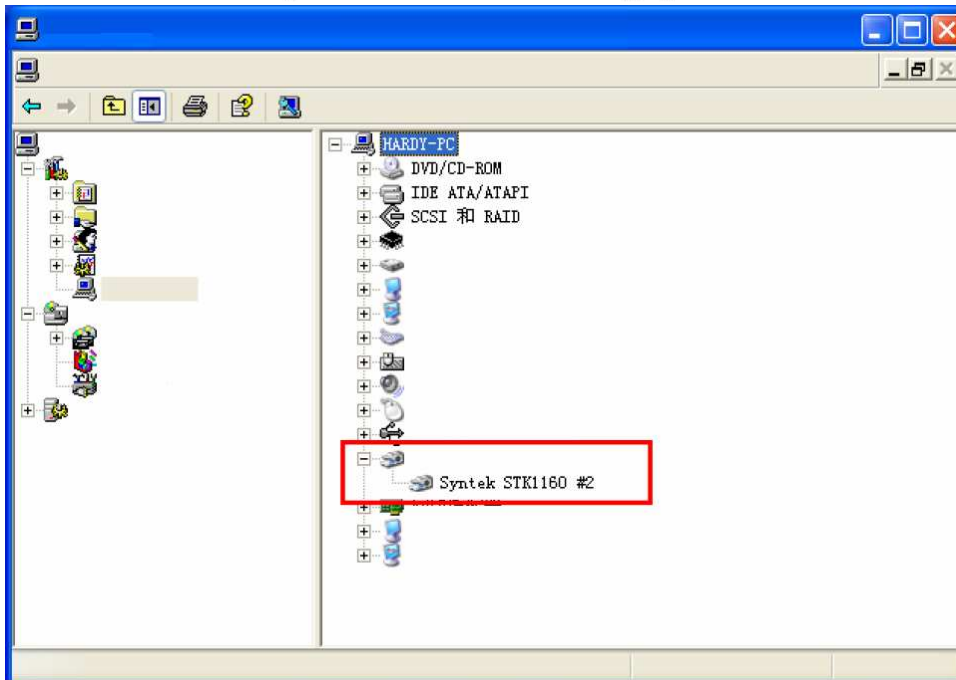


Figure 2 Lists for correct installation of acquisition card

3. Installation of projector
4. Connect the projector connector to computer graphics output.
5. Install cameras, connect video cameras to the first input BNC head (yellow) to USB capture card line.
6. Boot computer, go to package tools and implement vcredist_x86.exe installation of vc2005 runtime. And copy package directly to any directory on your hard disk. Package for the green software. There is no need to install.
7. Open projector and give power to camera, run VVVisionServer.exe and start interactive projection. First we will enter motion analysis settings and view the camera to see if the content is correct. Try to adjust camera scope to observe the scope of projector. Make settings of drag scope and re-adjust sensitivity. Observe if the effect of plans is satisfactory.
8. According to the surrounding environment to decide whether to make use of infrared light lamp.
9. Return to main interface, activate a projection procedure, make the experiment, if the effect of hits is not ideal then we return to motion analysis and then make adjustment.
10. Successful installation.
11. Finally remember to close windows screen saver and power management to prevent interference by other software during demonstration.



- Debugging skills 1: You can find amcap.exe in attached files, it is a very convenient for viewing camera contents. It also cites those acquisition card supported by machines. If you make use of it you can easily adjust camera lens.



- Debugging skills 2, when the camera is black, we must make sure the following steps, first, whether the camera has power supply. Second, whether the video cable is normal. Third, if the lens aperture is turned to the smallest. Fourth, whether the surrounding light is too dark, is it necessary to get supports of the infrared lights?
- Debugging skills 3, when we adjust the lens, we shall first adjust focal length of the peripheral part. That is to adjust the scope of camera observation, while adjust the corresponding fiscal length. So that we can mediate clear images and finally adjust the suitable scope of aperture.
- Debugging skills 4, generally we must ensure the camera can see 1.5 times of the areas of the projected area. We can only adjust camera projection region, this is because the existence of radial lens deformation and tangential deformation, nearer to places on the edge, the more deformation it will have. So for the software it will be more difficult to correct it. So to maintain 1.5 times of observation angle will increase the identification accuracy.
- Debugging silks 5, interactive projection is to make use of infrared rays to make segmentation. Therefore to create a favorable light environment is very important for the segmentation. Human skins and clothes infrared reflectance ratio are different, so the type of curtain in IR projector screen is the best. Under certain conditions, it will change infrared light into divergent and uniform light and obtain good results. When we make use of infrared light the misunderstanding is that the bigger power is the better the effects will be and direct exposure to people will be better. But we need to know that infrared light source is only an auxiliary light, if the light is too strong, there will be a white camera, it would have poor identification and even can not be identified.

E. Notes And Frequent Questions

- Interactive projection is optical sensing equipment. It is necessary to carry out inspection on surrounding environment. The surrounding environment should not be too bright, direct sunlight, or interfere with a lot of spotlights will cause insensitive sensor.
- In the environment if there is constantly flashing halogen or incandescent lamp there will be optical sensor failure. (Note: The other cold light source such as: fluorescent lamps, LED lamps, energy-saving lamps are not affected.)
- When camera and projector are fixed, after the debugger we should not change the location, otherwise there will be inaccurate positioning, we need to debug it again.
- Demonstration effects of video boxes relate to the application of video effects, we need to install the corresponding decoder. The decoder is under video files or video box will fail.
- If we run executable file there will be "*since application configuration is incorrect, the application will fail to start. Reinstalling application may correct this problem,*" because of the lack of windows XP runtime vc2005, please execute vcredist_x86. under tools package directory and make the implementation be solved.

