Smart Touch KitⅡ

INTPJ-STK2-UST/INTPJ-STK2

User's Guide

Information for Your Safety and Comfort

Read these instructions carefully. Keep this document for future reference. Follow all warnings and instructions marked on the product.

Caution for plugs when disconnecting devices

Observe the following guidelines when connecting and disconnecting power to the external power supply unit:
• Install the power supply unit before connecting the power cord to the AC power outlet.
• Unplug the power cord before removing the power supply unit from the emitter module.
• If the system has multiple sources of power, disconnect power from the system by unplugging all power cords from the power supplies.

Caution for Accessibility

Be sure that the power outlet you plug the power cord into is easily accessible and located as close to the equipment user as possible. When you need to disconnect power from the equipment, be sure to unplug the power cord from the electrical outlet.

Warnings

• Do not install the camera module and the emitter under direct sunlight or reflected sunlight. Please use the standard USB cable that came with our product, and do not replace it with any other cable.
• Do not expose your eyes directly to the light outlet of the emitter within 40cm.
• Do not look into the bulb of the projector directly.
• Do not drop the product above 1m height.
The deviation of flatness for the projection whiteboard is +/-2mm.
• Do not use this product near water. Please use our product in an environment with qualified temperature and humidity according to the product requirements.
• Be careful when fixing the camera module on the projector at a high position; if the product drops, it could be seriously damaged.

Contents

Introduction

Product Profile

Smart Touch KitⅡ is the first product in the world that supports finger touch and is easy to carry around. It makes any projection screens or LCD screens touchable with fingers.

Features

• Support finger touch: Use fingers instead of pens to write or control.

• Support Multi-touch: Up to ten people can write and erase simultaneously.

• Portable and easy to install: Just put the emitter above the projection screen by magnets or screws, and mount the camera on the projector or the ceiling. No need for professional technicians.

• Our product can turn any flat surface (like boards, walls, LCDs) into finger touch screens.

• Able to operate on any non-transparent objects. In the active area, any non-transparent object can be used as a pen.

Package Overview

Make sure your box contains everything listed below. If any of the pieces is missing, please notify your dealer.

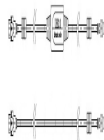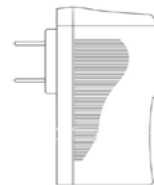|			
Camera	Emitter	Mount (Optional)	Mount (Optional)
Security card (Optional)	User's guide (CD-ROM)	Security card (Optional)	Magnets
Screws	USB cables (6m and 12m)	Pointer	Adapter

**Note: The package contents may differ by regions**

Specifications

Smart touch kit II	
Calibration	Automatic / Manual
Multi-touch	Ten point touch
Latency	< 30ms
Filter	Software auto-control that enhances stability
Min Active Size	40 inches
Max Active Size	120 inches (rooms without sunlight); 100 inches(rooms with sunlight, different throw ratios for different models)
Technology	Laser Image Calibration Technology
Positional Accuracy	±1 Pixel
Aspect Ratio	4:3, 16:9, 16:10
Projection ratio	Ultrashort throw: 0.21, shortest installation distance: 0.45m; Ultrashort throw: 0.28, shortest installation distance: 0.45m; (Depends on 80" projection screen aspect ratio: 4:3)
Laser Beam	2
Wavelength of Laser	940nm
Output power for adapter	3.3V / 2A
Output power for camera	5V / 0.5A
Signal Refresh Rate	120fps
Weight for package	2kg
OS Requirement	Win7, Win8, Win8.1, Win10
Software	Calibration software and GLBoard (Application Software)
The compatible Acer projector	INTPJ-STK2-UST: 0.21 for Acer UL and U5 series INTPJ-STK2: 0.28 for Acer S1 series and other models

Hardware Installation

Install the camera module:

1st installation method (Bracket 1):
Install the camera on the top of projector by using the mounting component; fix the camera firmly to prevent it from moving wobbly. Adjust the angle of the camera to ensure that it can be detected by the emitter (as shown in the pic below).
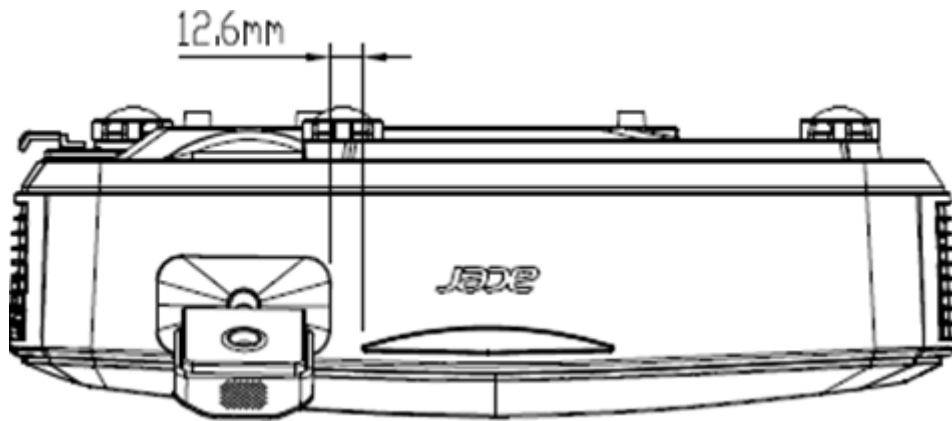
2nd installation method (Bracket 2)：
Fix the camera to projector by using the matched black supporting bracket (shown as the following image):
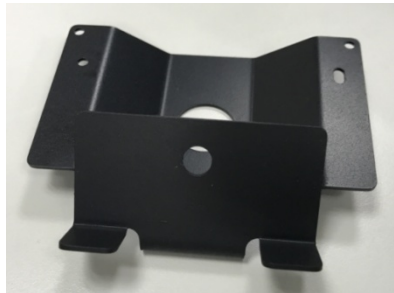
First, fix the camera to the black supporting bracket with the matched screw via a screwdriver and make sure the camera should be at the right position (shown as the following images):

At last, fix the supporting bracket to the projector with matched small screws (shown as the following images):
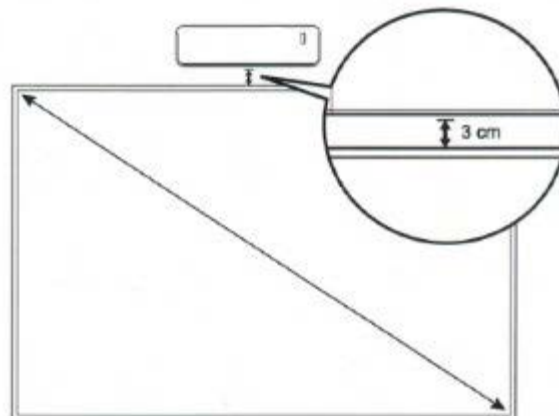

Note:
Bracket 1 and bracket 2 are optional. Please refer to actual packaging accessories.

Install the emitter module:

Install the module approximately 3cm above the projection surface and make it aligned with the center of the image.

The module is equipped with magnets, allowing it to be attached to whiteboards directly. If the module needs to be installed on a location where magnets cannot be used, it can be fixed in place using 3M adhesive tapes or screws.
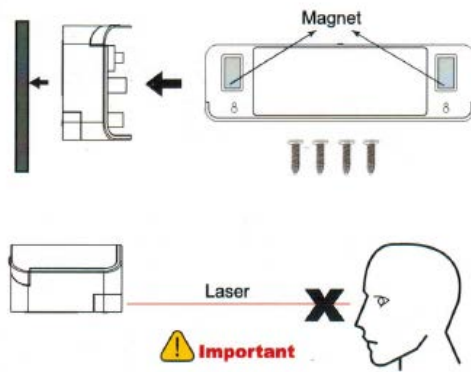
Device connection:

Connect the camera module to your computer (USB port) using the 12m USB cable. Connect the emitter module to power using the 6m USB cable and the 3.3V / 2A power adapter. The wireless infrared connection is used to connect the camera module and the emitter module.
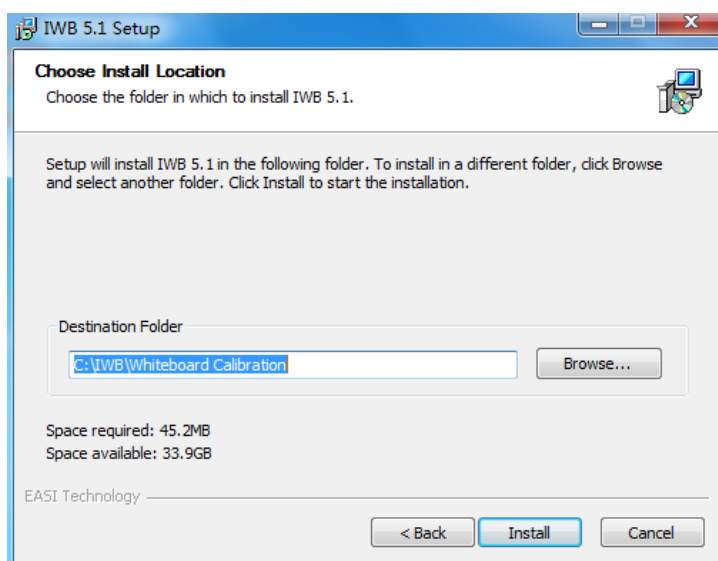
Software Installation:

1. Our software supports Win7, Win8, and Win10 OSes. Put the software CD into the computer and start the software by double clicking. Choose the language from the prompted message, and select the throw ratio type according to the product model.
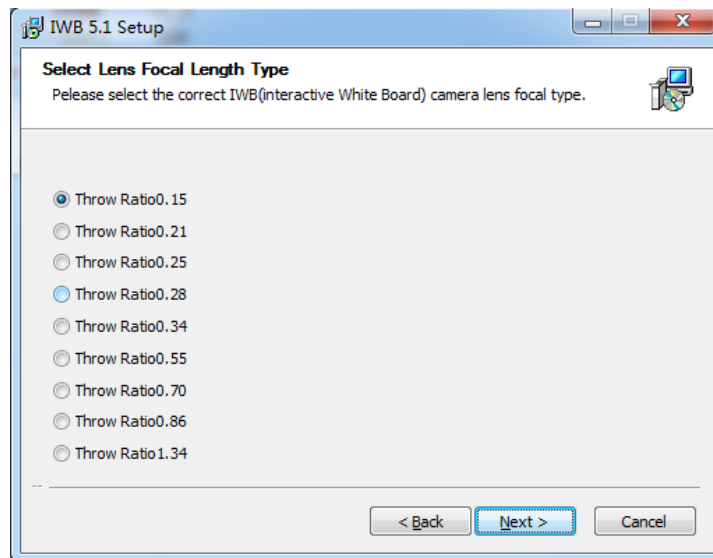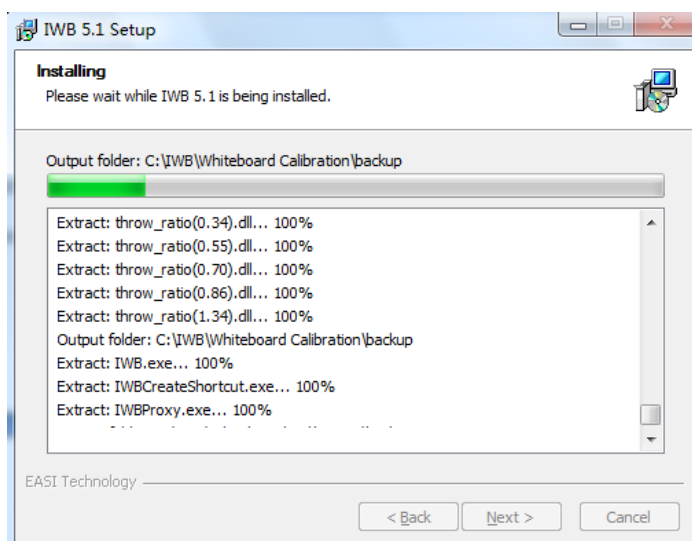

Note: Select Throw Ratio0.21 for INTPJ-STK2-UST and Throw Ratio0.28 for INTPJ-STK2

2. Choose the installation path to continue.

3. Be patient and wait for the installation to finish in several minutes.

4. When the installation is complete, an IWB icon will be added to the desktop.

Uninstall the Software

1. Open "Control Panel"
2. Click "Program and Function"
3. Right-click the software and click "Uninstall"
4. Reboot the computer once the software has properly completed uninstallation.

System Adjustment

Adjust the camera module:

Open the IWB calibration software, click "Installation and Debugging" and choose "Tuning Webcam Image Mode", the captured image by the camera module will be shown in the software interface. As shown in the pic below:

The captured projection image by the camera module should be completely included in the red guide frame interface. The image should be in proper direction and has more than 70% proportion in the whole software interface.

Adjust the emitter module:

Open the emitter module's top cover; there are two gears (Gear A, Gear B) and the red light power button. Press the red light power button, a horizontal beam of red light will indicate whether the laser beam is parallel.


Gears For Laser Alignment

Gear A

Gear B
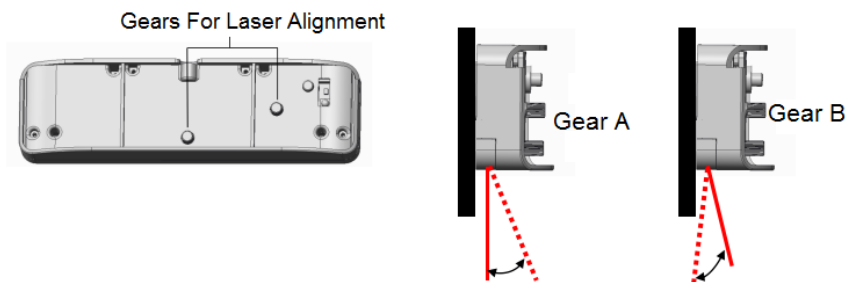
Gear A: used to adjust the vertical direction of the beam of red light (which is in the same direction of the laser beam). Turn Gear A clockwise, the beam of red light will move away from projection board. Turn Gear A counter-clockwise, it will approach the projection board.

Gear B: used to adjust the horizontal direction of the beam of red light (which is in the same direction of the laser beam). Turn Gear B clockwise, the right part of the red light beam will move away from the projection board and that of the left part will approach the projection board. Turn Gear B counter-clockwise, it will approach the projection board.

Adjustment steps:

1. Put the two magnets at the middle bottom side of the projection image, and the distance between them is 50cm. As shown in the pic below:

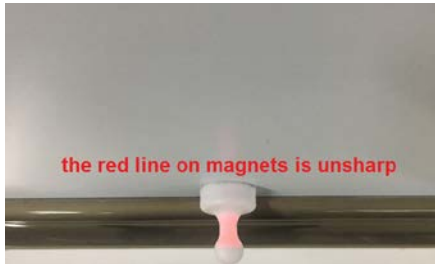the distance between two magnets is 50cm
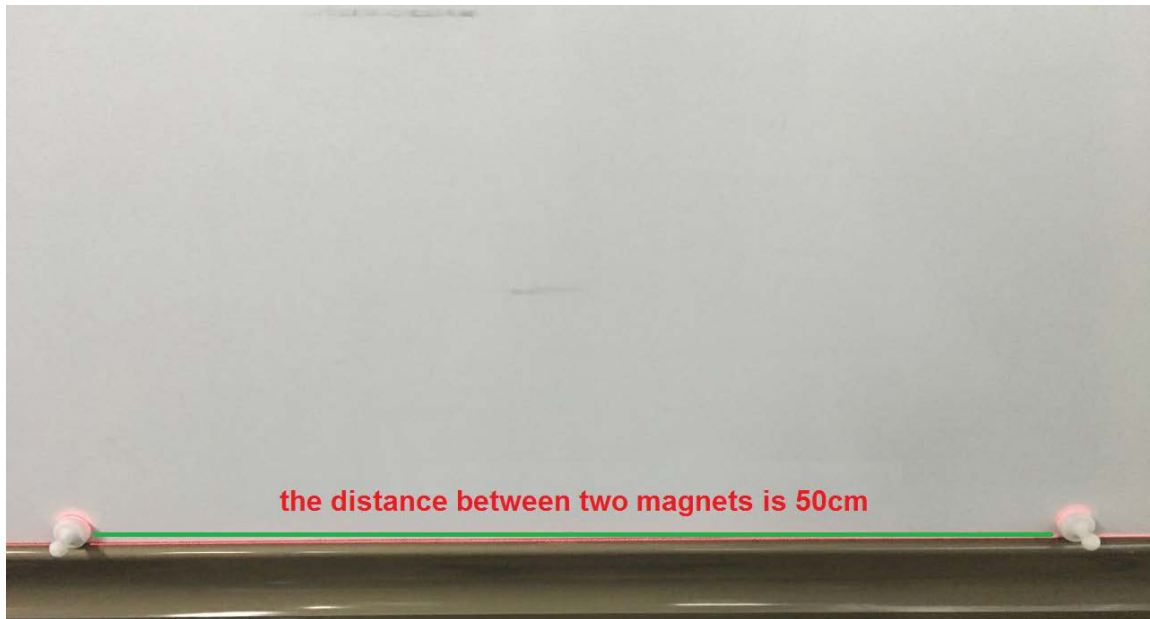
2. Turn on the red light power button, make the horizontal beam of red light reflect onto the magnets and you can see the clear red line between them by adjusting Gear A and Gear B. As shown in the pic below:
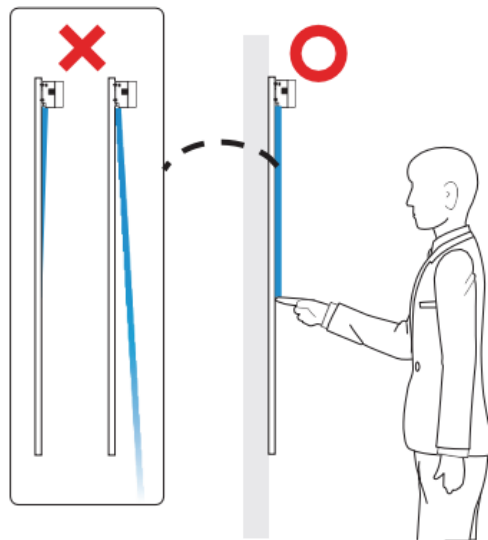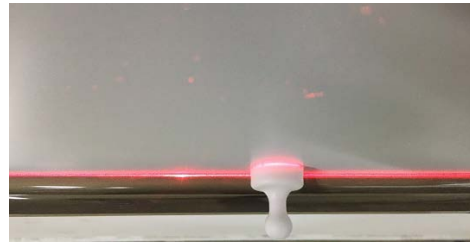
the red line on magnets is clear

Qualified

the red line on magnets is unsharp
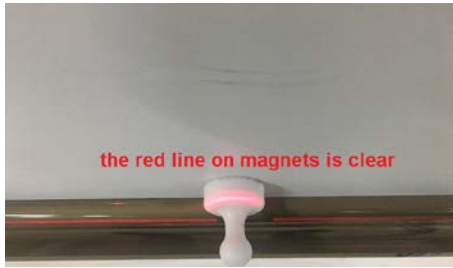
Unqualified

3. Adjust Gear A to make the red light beam nearly meet the point where the magnets stand (the interval distance is better within 1mm). When you use your finger to touch the whiteboard, you can see the visible reflected red point. As shown in the pic below:

4. After that, turn the red light button off once calibration is completed and close the top cover.
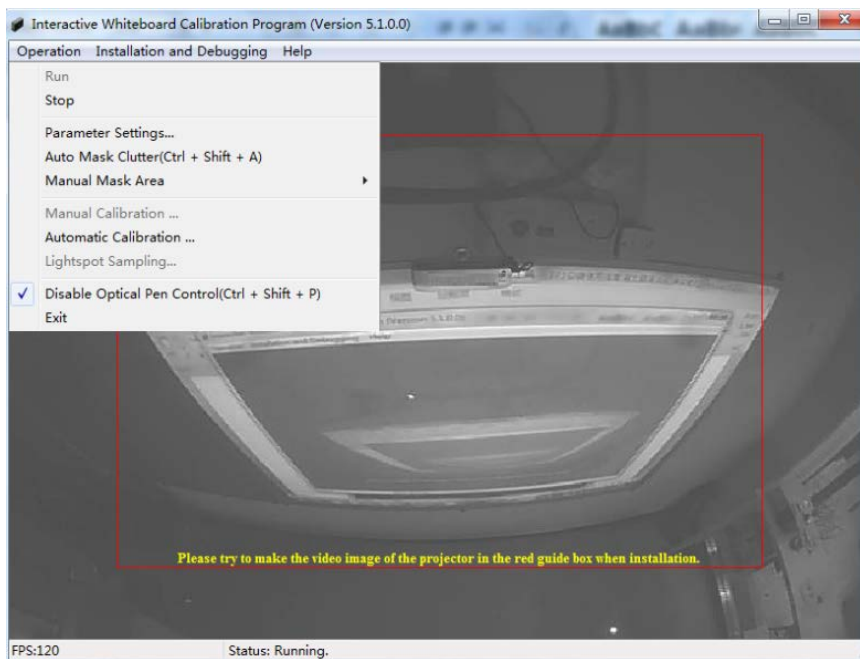
Calibration Software

Menu Display

Double click the IWB icon to open calibration software

Operation

Run: Run the calibration program to start the camera image.

Stop: Close the camera image, then no more touch functions.

Parameter Setting: Software parameters setting.

Auto Mask Clutter: Auto shields the interference point from the outside environment. After the auto mask clutter, the auto calibration can be continued.

Manual Mask Area: After the auto mask clutter, if there is still some interfering light spot, manually shield the interference light spot by adding mask area.

Manual Calibration: After auto mask clutter, do manual calibration. It will realize the touch function after successful calibration.

Auto Calibration: The software realizes auto calibration; it doesn't need to be clicked manually. The calibration will finish within 5 seconds, and it realizes the touch function after successful calibration.

Lightspot Sampling: The lightspot sampling can only be conducted after manual calibration or auto calibration, which makes our product adapting to current usage environment and user experience will be better.

Disable Optical Pen Control: After choosing it, the touch function will pause.

Exit: After the software exits, the touch function will stop.

Parameter Setting:

Image Sensor Settings
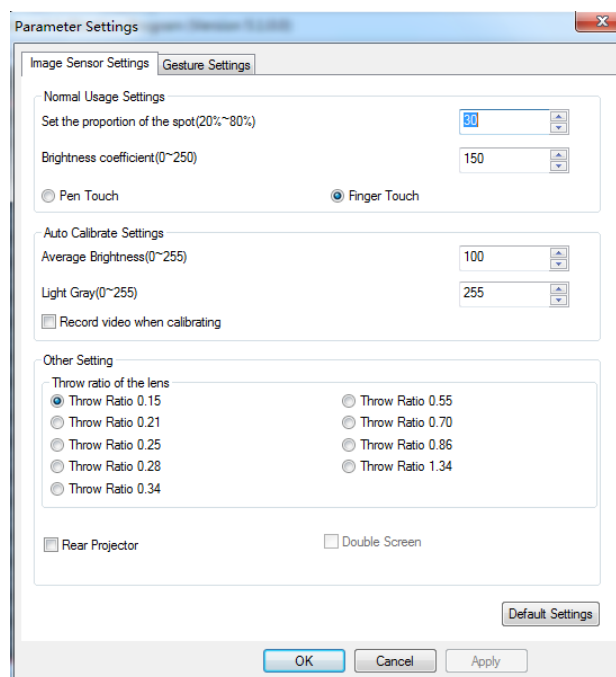
Normal Use Setting

Set the Proportion of the spot (20%-80%): refers to the sensitivity of mouse reaction to lightspot sizes, the larger the value is, the worse the sensitivity becomes.

The Brightness coefficient (0-255): refers to the sensitivity of camera to light in normal mode. The larger the value is, the better the sensitivity becomes, but when the sensitivity increases, the anti-light interference decreases.

Touch Mode: The pen touch and the finger touch. The software will select it automatically.

Auto Calibration Setting

Average Brightness (2-255): refers to the camera receiving the overall picture brightness of "black and white checkerboard" presented in software during the process of automatic calibration. The larger the value is, the brighter the brightness is.

Light Gray (0-255): refers to the "black and white checkerboard" overall picture contrast presented during automatic calibration process by the calibration software. The larger the value is, the greater the contrast between the black area and the white area in the "black and white Checkerboard."

Video record: Record the auto calibration process after being selected, and the recorded video will be saved in the installation menu of calibration software.

Other setting: refers to the focal length type of product, and it should be selected according to product model.

Other mode

Rear Projector: if your projector is a rear projector, please choose it.

DoubleScreen: two units of Smart Touch Kit work with two projectors to become a big touch screen. Finish installation and connection, then the program will be in double screen mode automatically.

Gesture settings:
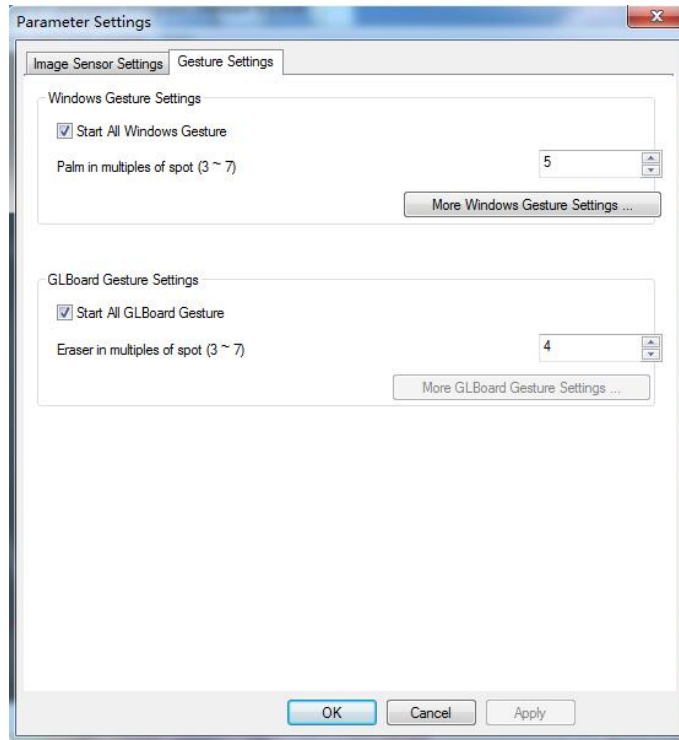
Start All Windows Gesture: refers to the switcher of Windows Gesture.

Palm in multiples of spot (3~7): refers to the sensitivity of palm gesture. The lower the value is, the better the sensitivity is.

Start All GLBoard Gesture: refers to the switcher of GLBoard gesture.

Eraser in multiples of spot (3~7): refers to the sensitivity of palm eraser gesture. The lower the value is, the better the sensitivity is.

More Windows Gestures:
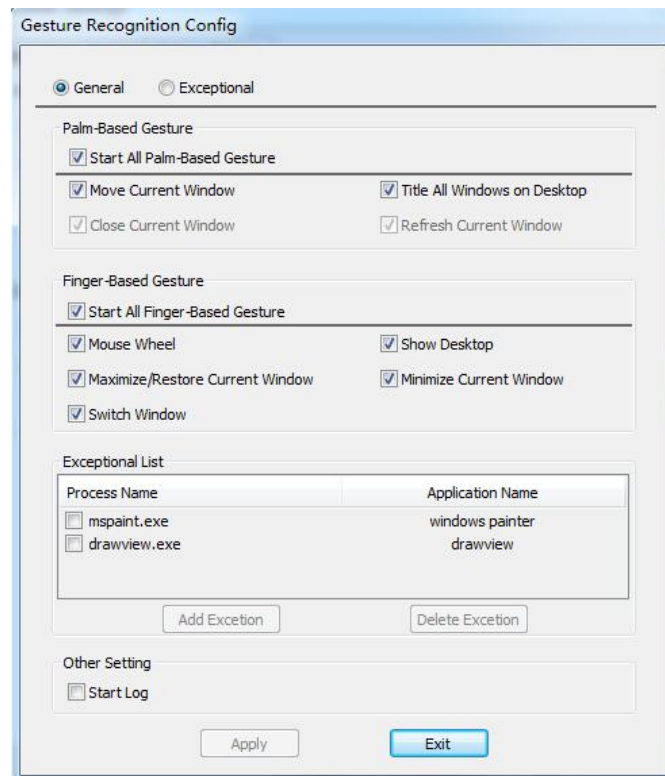
General Process: In General Process, you can see all the gesture recognitions based on palm and finger. The user can start and close any gesture recognition based on their requirements.

Exceptional Process: In Exceptional Process, you can add exceptions. Click "Add exception" to select the process to be added to Exceptional List. Select the process added in Exceptional List, and then Gesture recognition can be applied to the program you want to use. The user can start and close any gesture recognition based on their requirements. This function is setting gesture recognition for third party software.

Manual Calibration

1. Before starting manual calibration, please click "Auto Mask Clutter". The masked area will be displayed on the software interface.
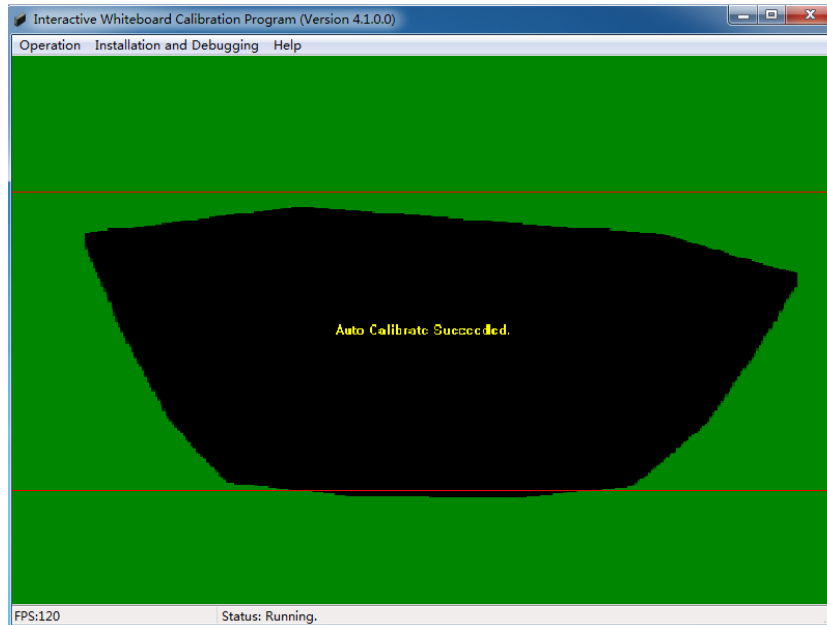
2. Touch the four corners of the projection screen with your finger or the IR Pen. There will be four light spots, each with a size of over 3x3 pixels.
3. Click "Manual Calibration (25 dots/36 dots)" on the operation menu. The projected image on the screen will switch to the Manual Calibration screen and

⊕ icon will be displayed at the top left of the screen.

4. Press the (25/36) dots on the screen using your finger or the IR Pen.

5. Once calibration completes successfully, the calibration software will minimize onto the system tray ![system tray icon showing 19:22 2016/12/3]. If the Manual Calibration has failed, please refer to Troubleshooting Guide.

Auto calibration

1. Click "Auto-Calibration" on the operation menu. The image being projected will switch to the automatic calibration screen.
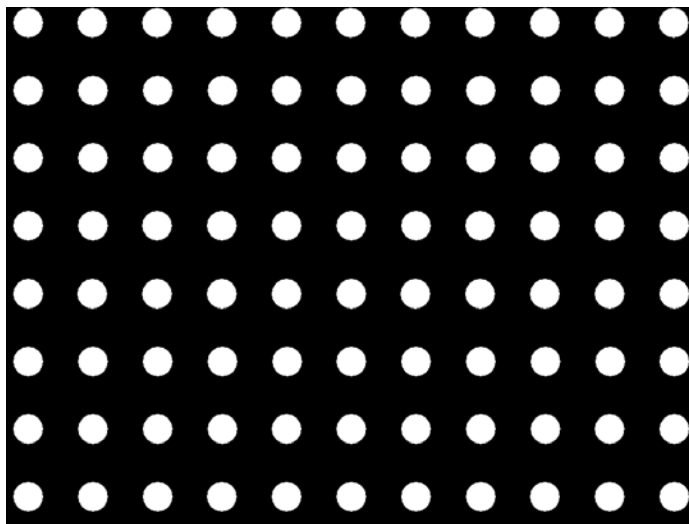

2. After five seconds, calibration will be complete and the screen will return to displaying the image originally being projected. Open the calibration software again; if below image is displayed on the screen, the calibration has completed successfully.
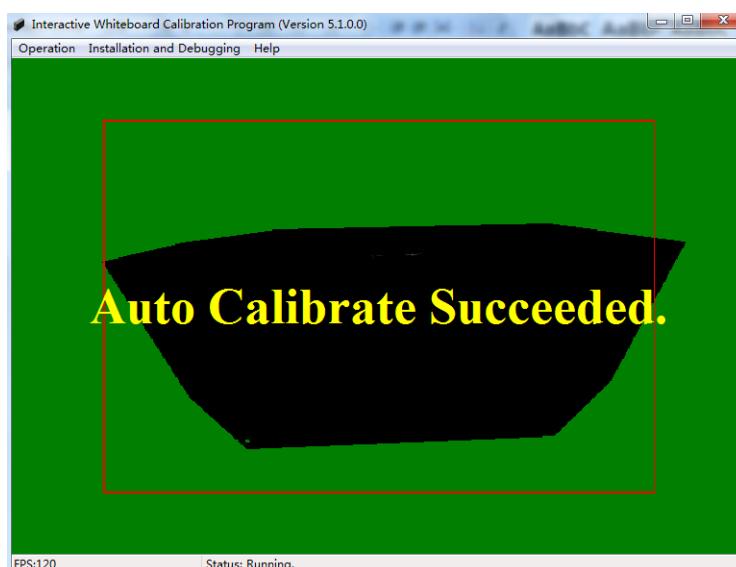
Note: If the Auto-Calibration has failed, please refer to the Troubleshooting Guide.
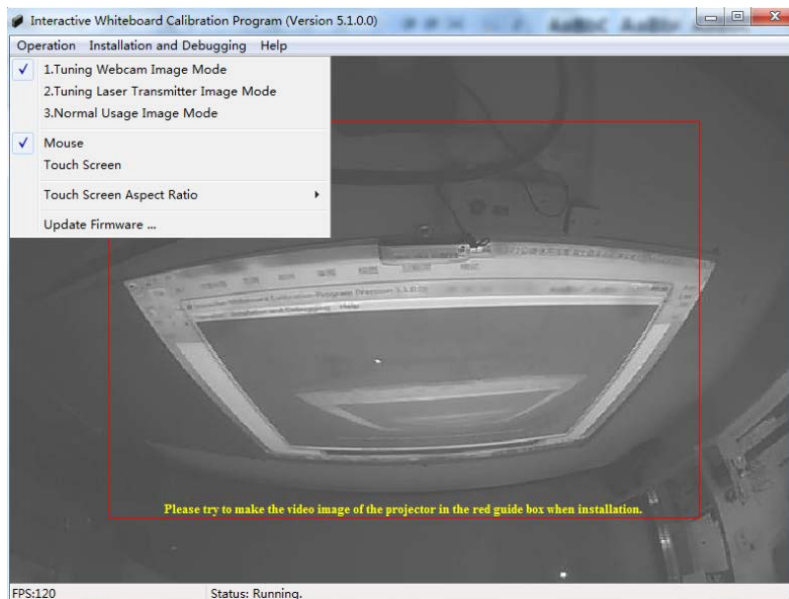
Lightspot sampling

After the auto calibration or manual calibration, click lightspot sampling, and the projection image will change to lightspot sampling interface. Use finger or IR pen to touch the red square, and continue the next one when the red square changes to green.
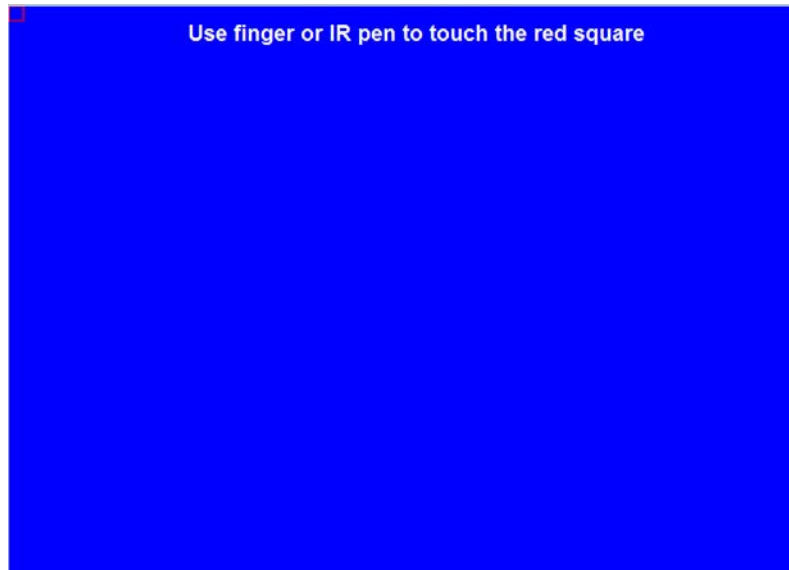

Installation and Debugging

Click "Installation and Debugging" menu

Tuning Webcam Image Mode: The projection image captured by camera will be shown in the software interface. Adjust the projection image inside the red frame according to the camera debugging requirement.

Tuning Laser Transmitter Image Mode: In this mode, emitter emits a set of invisible laser film 4mm above the whiteboard, and the beam should be parallel with the whiteboard. The light spot size should not be less than 9 pixels when you use finger to touch 4 corners.
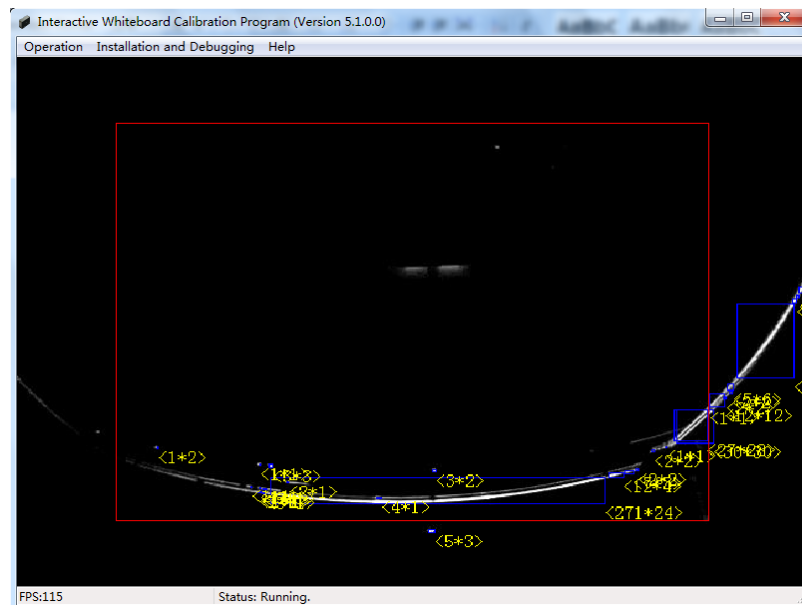
Normal Usage Image Mode: After the calibration, all operations can be done by the finger instead of the mouse.

Mouse: click mouse, then you can only do single touch in Windows.

Touch Pad: click touch pad, then you can do multi-touch in Windows.

Touch Pad Aspect Ratio: The default mode is auto selected. When the deviation of touch pad accuracy is more than 3cm, you can try following 3 aspect ratios (16:9, 16:10, 4:3) to rectify it.

Update Firmware: Don't use it in normal use conditions. When you see an abnormal image in camera mode, such as black screen, white screen, etc, please contact our technical support for guidance.

Gesture recognition introduction

Gesture recognition in Windows

Slide up with 5 fingers for maximizing or backing to the windows

Slide down with 5 fingers for minimizing the windows

Two fingers rotate the picture

Two fingers away from or closer for zoom in and zoom out the picture or the website

Slide up the bottom of screen with palm for displaying all the windows

Slide from left or right with 5 fingers for shifting the windows

Stay 1s with palm in one window for moving it

Slide down with 10 fingers for minimizing all the windows

Gesture recognition in educational software GLBoard

Erase with palm

2 fingers away for moving the page

Double slap with palm for backing to the desktop

Stay 1s with palm for spotlight

In any non-writing operation, double click with single finger for shifting to write

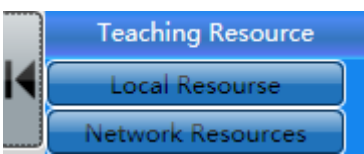# GL-board educational software introduction

Toolbar Introduction

When you use GLBoard for the first time, double click GLBoard.

To start the program, the interface includes three areas, shown as the following:

Work area: picture or text editing
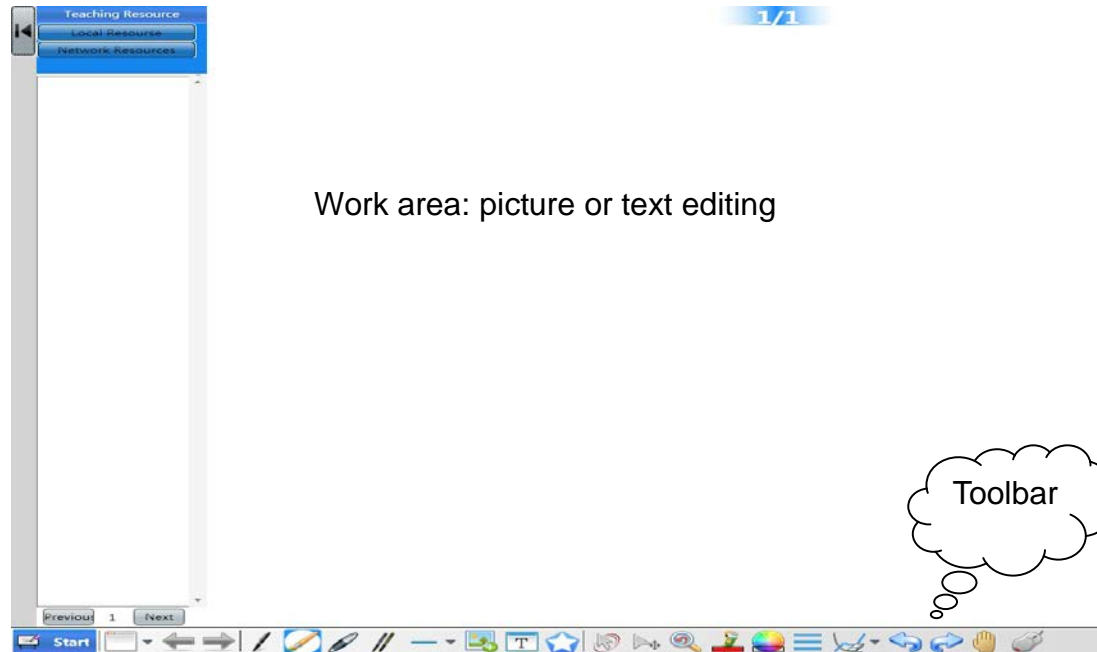
Toolbar

Function of each button on the toolbar

Icon	Name	Function
Start	Start menu	Open the menu list.
Teaching Resource / Local Resource / Network Resources	Resource	Local resource: Click to find many pictures. Network resource: Click to search any picture you like on the web.
	New page	There are four options: New white page New black page New image page New desktop page

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	Back	Go back to the previous page.
	Forward	Forward to the next page.
	Pen	Write like a ball pen.
	Brush	Write like a Chinese brush pen.
	Smart pen	Convert drawings to geometric shapes.
	Multi-writing mode	Support ten persons writing simultaneously.
	Insert shape	Several shapes can be chosen, such as triangle, square, and circle.
	Import picture	Insert pictures from your computer.
	Import text	Insert text frame, then edit the words.
	Fill	Fill geometric shapes with different colors.
	Select stroke	Select the handwriting on the page, and "drag and zoom".
	Select picture	Move geometric shapes, text and pictures.
	Zoom in and out	Zoom in or zoom out the picture.
	Pen color	Adjust color of the pen.
	Fill color	Choose the color to fill.
	Pen width	Set stroke width and line type.
	Eraser	Three options: Erase By Stroke Erase By Point Erase By Picture
	Undo	Cancel the last operation.

	Redo	Redo the operation, just cancel by undoing.
	Move	Move the edit screen.
	Windows	Go back to the desktop.

When you click to go back to the desktop, GLBoard will appear as a floating toolbar.

Icon	Name	Function
	Windows	Back to the desktop.
	Pen	Write like a ball pen.
	New page	Open a new white page.
	New page	Open a new black page.
	Back	Go back to the previous page.
	Forward	Forward to next page.
	Eraser	Erase by stroking.

	Back	Go back to the main page of GLBoard.
	Note page	Make the window screen as the background.
	Preview Note page	Go back to the previous note page.
	Close	Close GLBoard.
	Width	Set stroke width.

Start Menu List
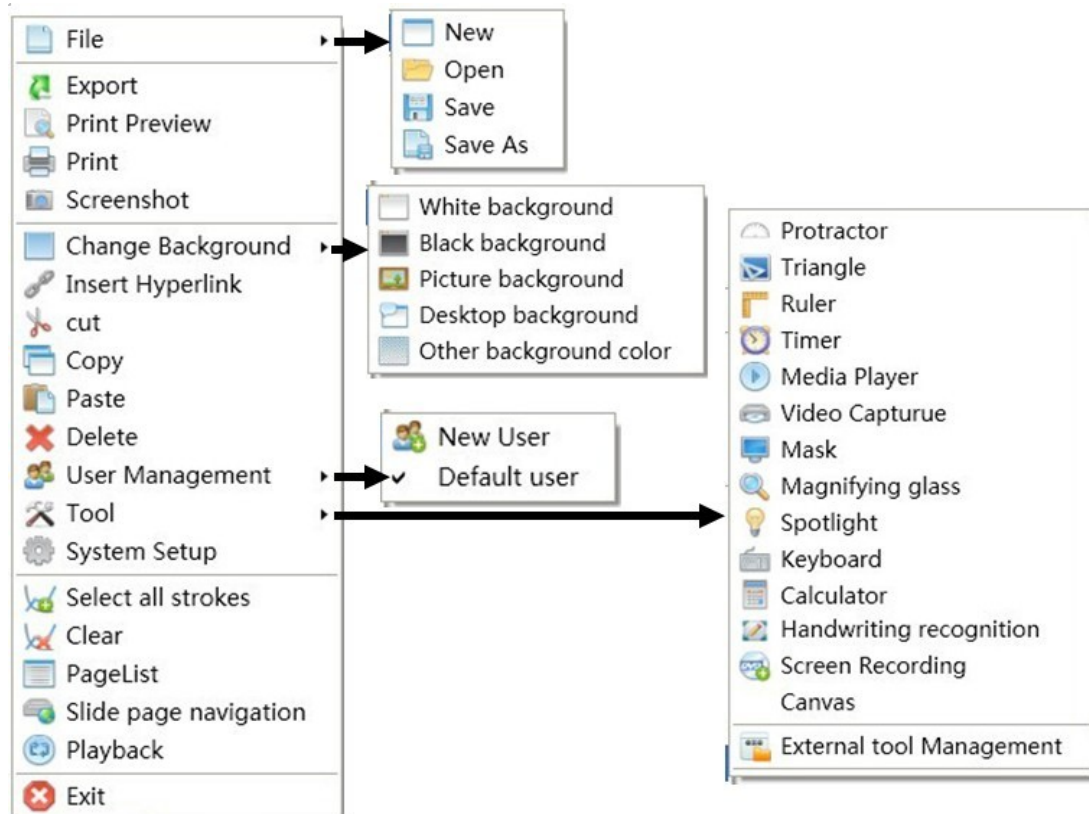
Menu	Submenu	Function Description
File	New	Create a blank file. If any file has not been saved before, a save message will be shown.
	Open	Open an existed PPT, PDF, PTS file.
	Save	Save the file under editing.
	Save As	Save as a new file.
Export		Export as an image file to Windows.

Print Preview		After print settings for the document are set, the user can preview the print result of the document.
Print		Any words, images, or visible data in GLBoard, could be output on media like paper through the printer.
Screenshot		Go back to Windows interface, select the area which you want to capture, and then click OK.
Change background	Whiter background	Background color is white.
	Black background	Background color is black.
	Picture background	Background is a picture.
	Desktop background	Choose the Desktop as background.
	Other background color	Choose the background color yourself.
Insert a hyperlink		Insert a hyperlink that could open a linked page directly.
Cut		Cut the selected word and image.
Copy		Copy a file from one place to another place; while the old one remained.
Paste		Paste the copied and cut content directly.
Delete		Delete the selected word or image from the system.
User management	New user	Used to add a new user.
	Default user	Default user on the system.
Tool	Protractor	Common teaching tool for math.
	Triangle	Common teaching tool for math.
	Ruler	Common teaching tool for math.
	Timer	Timing tool.
	Media Player	Media player.
	Video Capture	The window for playing video in GLBoard.

	Mask	Similar to a movie screen for the teacher to explain examples. Questions and answers are displayed separately.
	Magnifying glass	Magnify the important part to facilitate teaching.
	Spotlight	Spotlight can highlight a circular area, high brightness display, and other regions of translucent display.
	Keyboard	Same as the Windows on-screen keyboard.
	Calculator	Same as the Windows Calculator.
	Handwriting recognition	Handwriting input (see "gesture recognition" introduction).
	Screen Recording	Record the activities on the GLBoard as a video file.
System Setup		Startup setting and page setting, etc.
Select all strokes		Select all strokes in the screen area.
Clear		Clear all strokes in the screen area.
PageList		Show all pages of GLBoard in a list.
Slide page navigation		Show the slides in the PPT. First open a PPT file, and then use this function to show.
Playback		Replay.
Online resource	Pep.com.cn	Connect to pep.com.cn
Exit		Exit GLBoard

Troubleshooting Guide

Hand touch operation is not working properly

When opening the software, if you encounter the following error message "Not a valid USB Key for hand touch whiteboard", please do as follows:

- Open "Device Management" and click the "Image Device" option. Check for a hardware device named "USB2.0 PC Camera".
- If you can locate this device, please bring camera back to the factory for repairs.
- If you cannot locate this device, please check the connections for the camera and the computer.
- If there is no problem with the connection, please reconnect using another USB port.
- If there is no problem with the USB port, Please reconnect using another USB cable.
- If there is no problem with the connection, please reconnect using another camera.
- Please contact the factory if the problem persists.

When auto-calibration is successful, there is inaccuracy with mouse pointer and finger or IR pen

- Open "Tuning Webcam Image Mode" from the "Installation and Debugging" menu. Check whether the webcam image is displayed in correct proportion.
- Open "Tuning Laser Transmitter Image Mode" from the "Installation and Debugging" menu. Check the laser beam is within 4mm above the projection screen.
- Please contact the factory if the problem persists.

Auto-Calibration process failure

- Select "Adjusting Webcam Image Mode" from the "Installation and adjusting" menu. Check whether the webcam image is being displayed well or there are symptoms like dazzling screen, white screen, black screen and flickering screen.
- Shift "Adjusting Webcam Image Mode" to "Tuning Laser Transmitter Image Mode" twice. Check whether the brightness of webcam image is changed. If there is always a dark screen. Please use another camera.
- Check the failure calibration pictures. Analyze the overall image brightness of "black and white checkerboard." If the overall brightness is high, please adjust the value of auto-calibration "average image brightness" down to 40, the value of "Light Gray" up to 250. If the overall brightness is low, please adjust the value of auto-calibration "Average Brightness" up to 140, the value of "Light Gray" up to 250.
- Please contact the factory or do manual calibration if the problem persists.

Inaccurate performance on top corners or non-smooth writing

- Open the calibration software IWB icon, write in the non-smooth area. If there is no lightspot in the non-smooth area, please replace with another emitter.
- If there is a lightspot, but the lightspot is small, please adjust the value of brightness coefficient up to around 170.
- Do lightspot sampling
- Select "config" file from "installation directory" in calibration program. Please adjust the value of Minimum Width and Light Spot Minimum Height down to 1.