# YEI 3-Space Interactive Cube-Space Demos Quick Start

## Purpose

The YEI 3-Space Interactive Cube-Space Demos are designed to demonstrate the fast real-time response and accuracy of the YEI 3-Space Sensor™ family in a user friendly and entertaining way. There are two games included, a 3-dimensional maze and a color matching game. The maze game demonstrates the fine accuracy of the sensor as the player freely rotates a cube-shaped maze on all axes and navigate a ball to the the maze's goal. The color matching game demonstrates the fast response time of the 3-Space Sensor as the player matches an on-screen cube's color with a series of approaching colored rings.

## Prerequisites

For the Cube-Space demos to run correctly make sure the following dependencies are installed and up to date. The Cube-Space demos installer will prompt and attempt to install the first two dependencies.

- DirectX End-User Runtime http://www.microsoft.com/download/en/details.aspx?id=35
- Visual C++ 2008 Redist http://www.microsoft.com/download/en/details.aspx?id=29
- YEI 3-Space Sensor Software Suite  Can be found at  http://www.3SpaceSensor.com
- Ensure the latest 3-Space Sensor Units and 3-Space Sensor Dongle firmware has been installed (1*/13/2012 or newer release*).
- It is recommended that graphics drivers are up to date to ensure the best performance and stability.

3-Space Sensor Wireless units should be paired with their respective dongles through the 3-Space Sensor Software Suite before starting this application.

3-Space Sensor Bluetooth units  must also be paired with a Bluetooth adapter before starting the application. To verify a successful pairing test the connected sensor in the 3-Space Sensor Software Suite.

## Note

To identify 3-Space Sensors this application will send packets to all COM ports.

## Quick Keybind Table

### *Global keys*

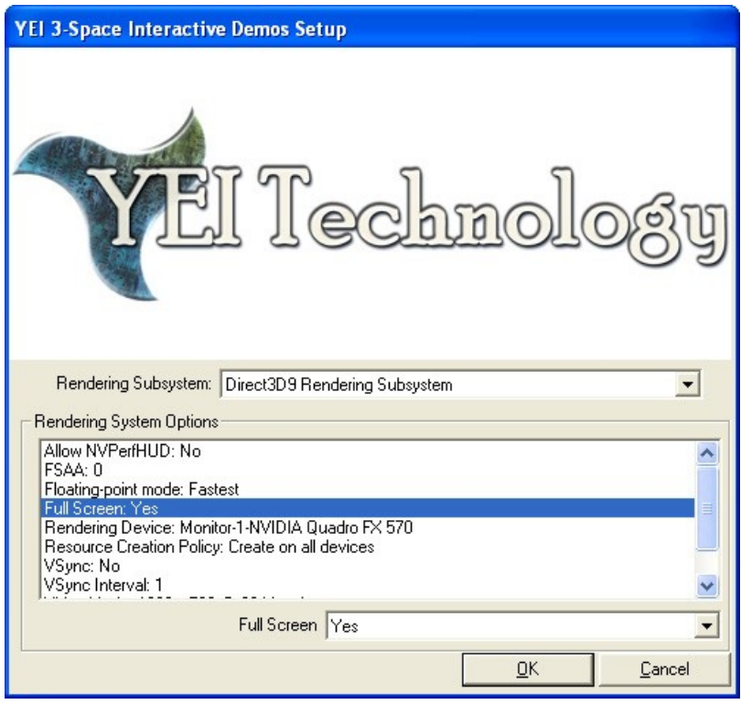
| | |
|---|---|
| **[Spacebar]** | Tares Sensor |
| **[Pause]** \| **[Break]** | Sensor Selection Menu |
| **[M]** | Mute/Unmute sound |
| **[+]** **[-]** on top row and keypad | Adjust Volume of application |
| **[1]**, **[2]**, **[4]**, **[5]**, **[6]**, **[7]**, **[8]**, **[9]**, **[0]** top row | Adjust Volume 1 is 10% Volume and 0 is full (100%) Volume |
| **[F5]** | Choose A Game Menu shortcut |
| **[F6]** | Color Matcher shortcut |
| **[F7]** | Maze shortcut |
| **[Print Screen]** | Screenshot |
| **[Esc]** | In game will back to Choose a game menu. In Choose a Game Menu will quit application |

### *Sensor Select keys*

| | |
|---|---|
| **[↑]** and **[↓]** Arrow keys | Choose sensor |
| **[Enter]** | Select sensor |

## Basic Startup Instructions

Once installed select the "3-Space Interactive Cube Space Demos" from the 3 Space Sensor folder of the start menu. Once selected, this window will appear as below:



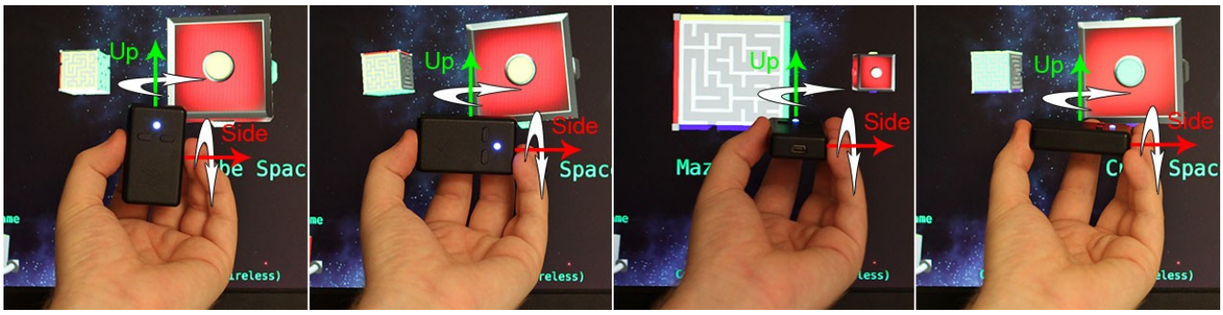

This window is the graphics configuration interface. It is used to set graphics rendering options for the application. Below is a table of the various options that are available along with a description of their function. Options in bold are options that will most commonly be set.

| | |
|---|---|
| Rendering Subsystem | Direct3d9 is the default and currently only option. |
| Allow NVPerfHUD | Default is No. This setting should not be changed. |
| **FSAA(Full Screen Anti-Alias)** | Default is 0(Disabled). Setting this higher will decrease "jaggy" edges and improve image quality. Enabling FSAA might result in poor performance on slower machines. |
| Floating-point mode | Default is Fastest. Changing this setting is not recommended |
| **Full Screen** | Default is No. This allows you to play the demos using full screen, also gives a minor increase to performance. |
| Rendering Device | Default is system specific, usually the primary monitor. Selects the monitor that the application runs on initially. |
| Resource Creation policy | Default is Create on all devices. This setting is for multi monitor setups. It allows for loading assets on all devices. Should not need to be changed |
| **Vsync(Vertical Sync)** | Default is No. Setting Vsync to Yes will match the application frame-rate to the screen refresh rate, thus reduce screen tearing. |
| Vsync Interval | Default is 1. Takes effect only if Vsync is set to Yes. Reduces the frame rate to every 2nd or 3rd frame. Does not work on all hardware. |
| **Video Mode** | Default is 1024 x 768 @ 32-bit colour. Allows you to change the resolution and color depth of the window. |
| sRGB Gamma Conversion | Default is No. Changes colors to match the systems color profile. |

Once all graphics settings have been configured, clicking the “ok” button will start the application. After a short load-screen the main menu will be displayed.


Before starting a game the sensor being used must be tared facing towards screen to ensure proper calibration. Pressing **[Spacebar]** will at any time will tare the sensor.


To choose a game rotate the sensor along its “up” axis clockwise or counter-clockwise. To start a game rotate the sensor about 180 degrees along its “side” axis either towards or away from the screen. Example animations in the lower left-hand corner may be used to better illustrate how to operate the menu.

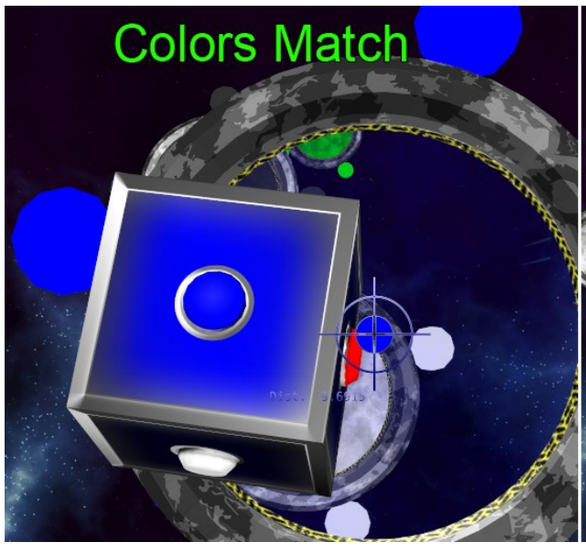



**Orientation “up” and “side” axises are relative facing the screen**

Currently there are two games in the Interactive Demos Application, a 3d Cube Maze game and a Color Matcher game.

## Matcher

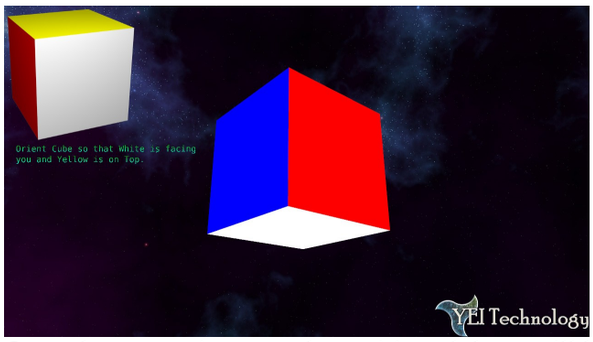
Matcher is a  color matching game. Each side of the cube is a different color, the cube will change color depending on what face of the sensor is facing the player.  As the player rotates the connected 3-Space Sensor, the onscreen cube will match the sensor's movements. The objective is to match the cube's color to the oncoming gates. For every incorrectly matched gate one life is lost. The game is over once three lives are lost.

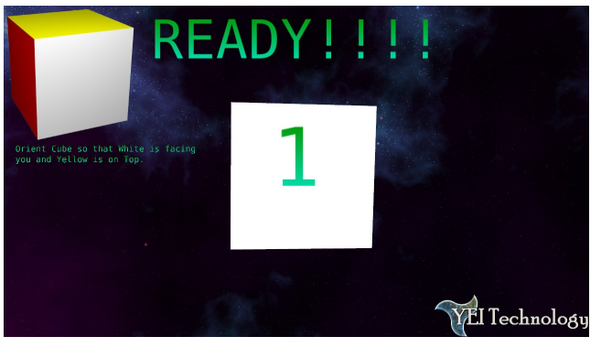




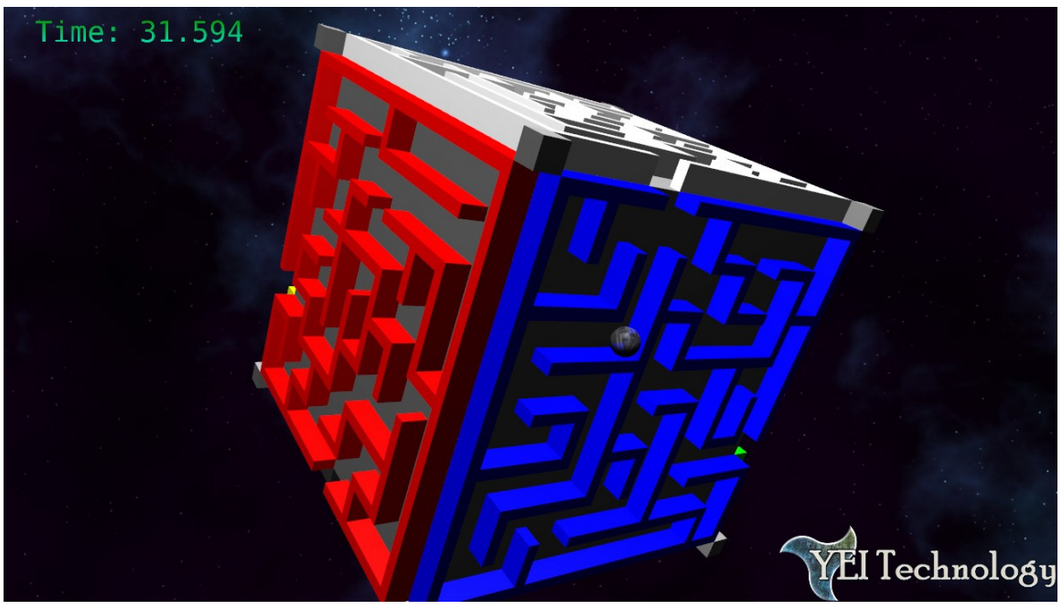
## Maze

Maze is an interactive simulation of a marble in a maze not unlike a 3D version of labyrinth puzzle toy. In this game, users rotate their 3-Space Sensor to manipulate the on-screen cube-shaped maze. When starting the demo the sensor must be oriented  with the buttons facing up and the LED towards the screen like the taring pose.




Once the sensor is correctly positioned there will be a countdown to the start. The sensor must remain pointed towards the screen until the countdown has finished. Once the countdown reaches zero, the Maze game will begin. The objective of Maze is to move the on-screen ball through all six sides of the maze cube and get the ball to the goal at the opposite face from the start. All maze attempts are timed. Players who complete the maze fast enough may enter their name on the High Score chart.



## High Score Menu

If players score a good time on Maze or get enough rings in the Matcher the High Score menu will appear.

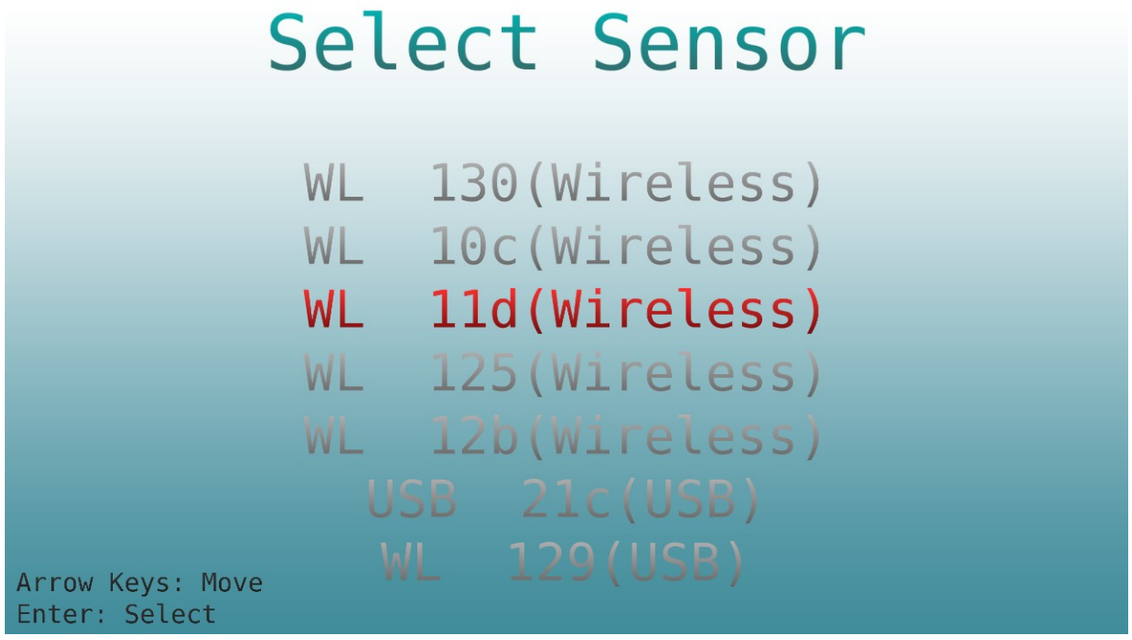

Similar to the Choose a Game menu, to move between columns rotate the sensor along its “up” axis clockwise or counter-clockwise. To select characters in a given column, rotate the sensor along its “side” axis either towards or away from the screen. Example animations in the lower left-hand corner may be used to better illustrate how to operate the menu.

Once finished selecting the initials, turn the sensors counter-clockwise along its up axis beyond the third initial. Once the fourth column appears, rotate the 3-Space Sensor up along the side axis to select the “End” value. Once “End” is selected, the high score entry will finish and the High Score chart will be displayed. After a short time, the application will return to the  Choose a Game menu.

## Configuring Sensors

By default the Demo should detect a connected sensor and allow movement of the cubes on screen. If multiple 3-Space Sensors are connected to the computer, the incorrect sensor may be connected. If this is the case, other sensors can be selected and connected from the Sensor Select menu. To open the Sensor Select menu press **[Pause].**

Once pressed, after a few seconds the Select Sensor menu will appear. Sensors are listed by their type and serial number. The serial number of a 3-Space Sensor can be found on the back of the sensor. Use the **[↑]** and **[↓]** Arrow keys to move through the list of sensors. Pressing the **[Enter]** key will select the highlighted sensor, connect it, and resume the demo. Once a new sensor has been connected, it will have to be tared using the same procedure demonstrated at the beginning of the guide.



## Troubleshooting

| | |
|---|---|
| Application crashes at start-up | • Ensure that the newest DirectX is installed<br>• Ensure that the Visual C++ 2008 Redistributable is installed<br>• Verify that the latest graphics drivers are installed |
| No sensors show up on start up | • Verify that the sensor is connected<br>• Unplug and re-plug sensor<br>• Test sensors in 3-Space Sensor Software Suite to verify sensor can be discovered and connected. |
| Maze runs in slow motion | • The Maze is known to run poorly on older computers |
| Application runs choppy | • Reduce resolution that application runs in<br>• Try running the application full-screen<br>• Close out of other programs running in background |
| Application takes a long time on initial startup and sensor detection | • Bluetooth adapters can take a while to communicate and can increase the query time substantially. |
| Cube keeps resetting to center while wireless | • Move closer to the dongle<br>• Change the wireless channel on the sensor and dongle |
| “Old firmware detected, please upgrade” is shown on the screen. | • The current selected sensor is using an older firmware than recommended for this demo, it is h recommended to go to 3SpaceSensor.com and get the latest firmware for your 3-Space Sensor units |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