



3D High Speed Camera Installation Manual



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Written in Plain English.

Congratulations on your purchase of your Sports Coach System. Our Simulators are the most versatile and most user-friendly systems available today. For regular updates, visit www.sports-coach.com.

3D High Speed Camera System

Intel Core 2 Quad 2.33 Ghz 1333 Mhz FSB, 4Mb Cache, 4 GB DDR2 Ram, 500GB Hard Drive, Nvidia GTS250 1GB DDR3 Graphics card with 1 DVI adapter (for single screen) OR ATI 6870 Flex 1GB DDR5 GPU with 2 mini DP to VGA active adapters and 1 DVI adapter (for surround systems). Intel G43, P43 or later chipset, 2 on board USB 2.0 Enhanced Intel Host Controllers, 2 USB 2.0 PCI cards, DVD Player Windows 7 32 bit edition.

Ultimate Academy 3D High Speed Camera and DV Camera System

Intel i7 870 2.93 Ghz socket 1156, 8Mb Cache, 8 GB DDR2 RAM, 500GB Hard Drive, ATI 6870 Flex 1GB DDR5 GPU with 2 mini DP to VGA active adapters and 1 DVI adapter, or Zotac Nvidia GTX590 3GB GPU for HD systems with 3 DVI adapters, Gigabyte GA P55 USB3 motherboard, 3 on board USB2 Enhanced Intel Host Controllers, 3 USB 2.0 PCI cards, 800W PSU, DVD Player, Windows 7 64 bit edition. 1 or 2 High Speed DV Cameras. 1 or 2 additional Active Extension USB cables for DV cameras. 1 or 2 Tripods to hold the cameras.

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1. Initial Simulator Setup

Please setup the simulator cage, computer, projector and cabling, as per the Simulator Booth Manual. Please read and install the simulator software on the computer, as per the Software's own Manual. Make sure that the PC supplied has the very latest motherboard drivers installed. Generally the Motherboard Driver CD are out of date, so it is very important to go online and download the very latest drivers, otherwise the simulator may not work correctly.

2. Camera Carpeting Specifications

It is important that the carpet being used is a Non Reflective Dark Carpet. With a Bright Reflective Carpet the simulator may not register shots and regularly give bad readings. To determine if the Carpet installed is affecting results, we have shown below the performance of Dull Non Reflective versus Reflective.

Non Reflective Dark Carpet Shot Performance.

| | distance | carry | roll | ball speed | to pin | side spin | back spin | horz. angle | vert. angle | hits |
|----|----------|-------|--------|------------|--------|-----------|-----------|-------------|-------------|------|
| SW | 86y | 82y | 11' 0" | 79.6 mph | 11y | -237rpm | 1646rpm | 1 6.4° | 42.2° | 1 |
| | 76y | 74y | 6' 0" | 74.3 mph | 19y | 27rpm | 1545rpm | 1 0.5° | 41.6° | 2 |
| | 70y | 72y | -5' 8" | 72.9 mph | 26y | -80rpm | 1469rpm | 1 2.4° | 47.9° | 3 |
| | 77y | 77y | -1' 8" | 76.7 mph | 19y | -87rpm | 1537rpm | 1 1.9° | 49.1° | 4 |
| | 87y | 81y | 18' 0" | 78.7 mph | 12y | -393rpm | 1668rpm | 1 8.6° | 36.4° | 5 |
| | 86y | 88y | -6' 8" | 83.7 mph | 10y | -212rpm | 1734rpm | 1 3.4° | 42.1° | 6 |
| | 80y | 79y | 3' 6" | 77.7 mph | 16y | -163rpm | 1599rpm | 1 3.9° | 43.2° | 6 |

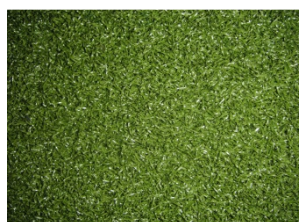
Reflective Carpet Shot Performance

| | distance | carry | roll | ball speed | to pin | side spin | back spin | horz. angle | vert. angle | hits |
|----|----------|-------|--------|------------|--------|-----------|-----------|-------------|-------------|------|
| SW | 54y | 52y | 5' 8" | 59.3 mph | 42y | -235rpm | 1230rpm | 1 8.5° | 41.0° | 1 |
| | 69y | 69y | 2' 4" | 70.7 mph | 26y | -120rpm | 1443rpm | 1 0.9° | 45.4° | 2 |
| | 53y | 52y | 4' 8" | 59.1 mph | 44y | -120rpm | 1201rpm | 1 10.8° | 44.2° | 3 |
| | 68y | 69y | -1' 1" | 70.7 mph | 28y | -248rpm | 1425rpm | 1 5.1° | 47.4° | 4 |
| | 67y | 66y | 1' 9" | 68.9 mph | 29y | -116rpm | 1394rpm | 1 3.7° | 46.9° | 5 |
| | 60y | 57y | 6' 10" | 62.7 mph | 36y | -310rpm | 1325rpm | 1 3.4° | 38.1° | 6 |
| | 62y | 61y | 3' 4" | 65.2 mph | 34y | -191rpm | 1336rpm | 1 5.4° | 43.8° | 6 |

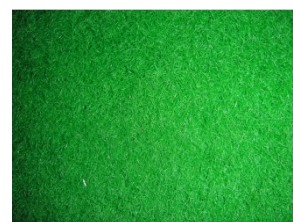
As High Speed Cameras are unable to distinguish between the reflective golf ball, the reflective club face and the reflective carpet, it is very important that the carpet is a Non Reflective, Dark, Dull material, as shown below. If shots are not being registered, the carpet is likely to be too light or bright.



Non Reflective Carpet



Reflective Carpet



Bright Carpet

3. Light Bulbs

There are two choices of lighting setups; Low Voltage Lighting and Mains Lighting. We recommend low voltage as the ideal option for the high speed cameras. It is extremely important that the recommended bulbs are used. If the wrong bulbs are used the simulator will certainly not function correctly.

Low Voltage Lighting

There are two types of 12 volt halogen bulbs used in the Simulator. The Osram Decostar 51 IRC 50 Watt 10 degree Model 48870SP bulb, which produces 15,000 lumens - for the 1st light before the teeing area and the 2nd light above the teeing area.

The Osram Decostar 51 IRC 50 Watt 24 degree Model Number 48870FL bulb, which produces 5,300 lumens – for the 3rd, 4th, 5th and 6th lights towards the screen. To locate the nearest distributor for your country, visit www.osram.com



Mains Voltage Lighting

There are two types of mains voltage halogen bulbs used in the Simulator. The Sylvania HI-Spot 120 75 Watt Spot 10 Degree Model 0021142 bulb for the 1st light before the tee , the 2nd light above the teeing area, the 3rd and the 4th above the putting location. The Sylvania HI-Spot 120 100 Watt Flood 30 Degree Model 0021147 bulb is for the 5th light nearest to the screen. To locate the nearest distributor of the bulb in your country, visit www.sylvania-lighting.com



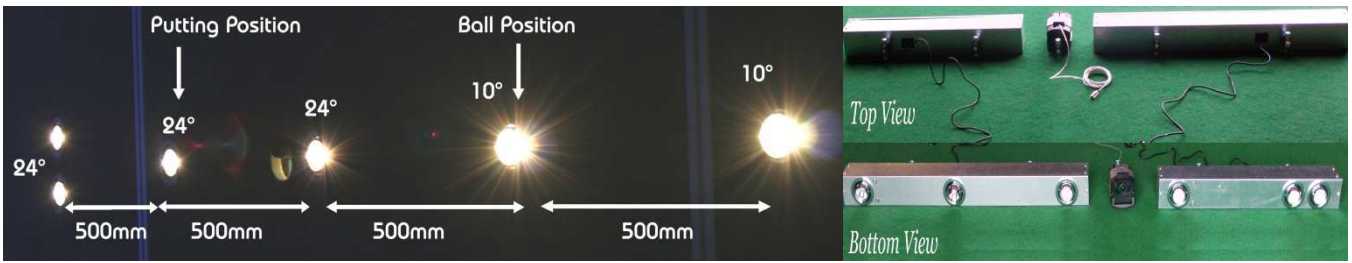
4. Setting Up Camera Lighting

Low voltage lighting produces less heat, uses less electricity, is safer from a fire regulations perspective and usable with more types of carpets. The recommended bulbs are available worldwide and produce the same results whatever the voltage – 230V or 110V as the voltage is reduced down to 12v. Mains lighting is sometimes preferred where voltages fluctuate or where trunking or low voltage bulbs are difficult to source. Low Voltage Lighting consists of six light housings, with six 50 Watt 12 volt Bulbs, two 150 Watt Transformers and Cable. These can be installed several ways such mounted in a light housing, two separate housings or into the ceiling.

The Light Housing we do not supply due to its physical size, but this can be purchased from an electrical wholesaler. The galvanised electrical trunking shown is 2m (79”) long x 100mm (4”) wide x 100mm (4”) deep, the housing is modified and painted. The image below shows a single light unit housing six lights and a camera. It is also possible to split the lights into two separate sets. Both configurations are shown in the images below.

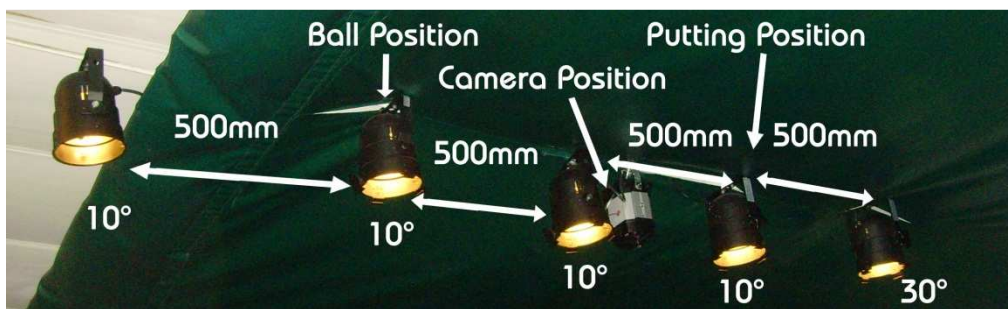
The 12 Volt Lights can also be installed directly into a sturdy ceiling by a qualified electrician so that the 6 light housings are cut into the ceiling, as well as the camera. Transformers and cabling are fitted above the ceiling.





Measurements shown are approximate, go into the Golf Simulator program and select Play/Defaults/Measurement Setup/Setup and select DC for exact measurements. It is worth adding a shade tubing to the low voltage fittings as well. Normally 100mm (4") Tube that is 50mm deep (2"), this is simply bonded to the ceiling or the housing. The shade will prevent any excess light going around the booth and appearing on the projected image which can affect picture quality.

Mains Lighting 230 or 100 Volts, consists of 5 Light Housings which are spaced out approximately 0.5m apart. Go into the Golf Simulator program and select Play/Defaults/Measurement Setup/Setup and select AC for exact measurements. The 2nd light is directly above the golf ball and the next 3 lights in a line towards the projected screen. Normally between the 3rd and 4th light, is where the top High Speed Camera is installed. The first four lights have the 10 Degree Spot Bulb and the nearest light to the screen has the 30 Degree Flood Bulb installed.



5. Setting Up Top High Speed Camera

The top camera is positioned between the overhead lights on the ceiling. To identify the camera position, start by identifying how far from the screen you would like the lighting to end – 2m to 2.2m is recommended, or, identify where you want the hitting area to be. Next, open the GPS Simulator program and go to Play/Defaults/Measurement Setup. Enter the distance from the camera to the floor and choose setup. Select AC or DC depending on your lighting type. The program will then display the lighting and camera positions relative to the hitting position. A figure will be shown giving the distance from the camera to the last light nearest the screen. If using low voltage lights, two circles are shown next to each other to represent the last lights. In this case, the measurement is the distance from the hitting spot to the point in between these lights, as both will be aimed to the same position. The image shows the optimum height set up of 2.85m. It is not recommended to fit a camera higher than 3.00m. The lowest possible distance is 2.30m.



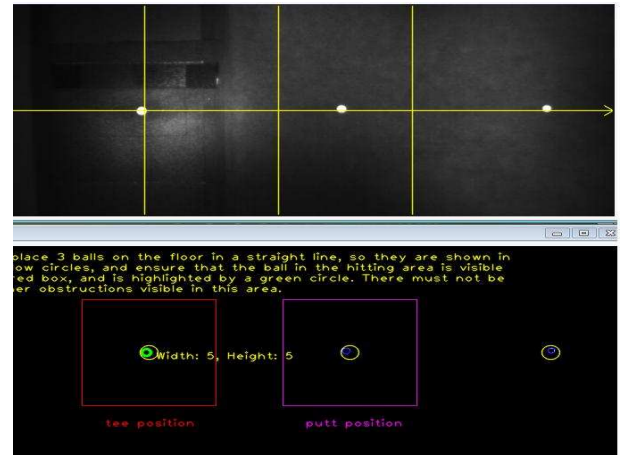
The diagram shows that the distance from the hitting position to the end of the lights is 1.64m. Add this distance to the chosen distance from the last light to the screen – e.g. 1.64m + 2.0m. This is the position of the top camera relative to the screen. Alternatively, calculate the camera position from the hitting spot – in this case 0.61m.

The USB 2.0 A to Mini B 5 Pin Cable is now fitted in the hole on the right side looping through the cable tidy at the rear of the housing. It is joined to a 5m active extension cable and fed back to the PC. It is now time to calibrate the Camera. After Calibration is complete, secure the Camera Housing in place so it does not move and affect the performance. It is worth running the Calibration again to double check it's correct.

6. Calibrating the Top High Speed Camera

The USB 2.0 to Mini B Cable must already be attached. Then click start, all programs, GPS golf simulator and Top Camera Test and calibrate. The following screen will appear. You should position 3 golf balls on the floor inside the 3 yellow circles, this will ensure that the correct positions are obtained.

The first two balls placed on the floor, must have the centre of the 1st and 2nd light beams aiming at the centre of the balls. If the 3 balls do not all appear in the yellow circles, reposition the camera. The camera should be angled so that it is looking directly down at an angle of 90 degrees to the centre line, if it is at all tilted, this will affect the results. A plumb line should be hung from the camera lens to the floor and a golf ball placed underneath the plumb line. This will show the actual camera position. The centre yellow cross in the top camera calibration shows the central live image from the camera. If a golf ball that has been placed on the floor directly underneath the camera, it should be in the centre of this yellow cross. If it is not, then the camera is not square to the floor, or it is tilted. Reposition the camera and test again until the plumbed golf ball and the yellow cross are in line. Retest the 3 golf balls in the calibration. Once this is done correctly it will ensure very accurate measurements.

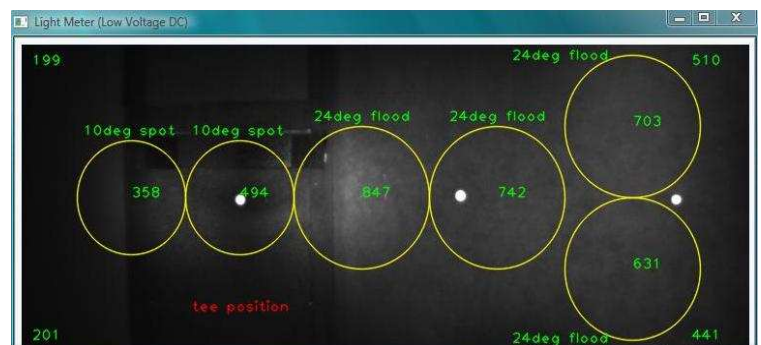


The position of the camera may need to be moved either towards the screen or away from the screen, so that the ball in the hitting area appears in the first yellow circle on the left. Once complete, the ball in the hitting area should be highlighted by a green circle in the window called "Ball Detection" with the words Width=5, Height=5. The setup can be tested by hitting a shot and if successful the result will be shown as a "Shot Detection" message in the text window. The message states "Please place a ball on the floor in the desired hitting area and ensure that the ball position is visible in the red box and is highlighted by the green circle". There must not be any other obstructions visible in this area. It is important that you use standard white golf balls. If you hit a shot from the hitting area, you will get launch angle and ball speed information. This shows the camera is working. The putting location should be decided either from the centre circle (normal) or the left circle (hitting area). Mark this position.

7. Lighting Lumens

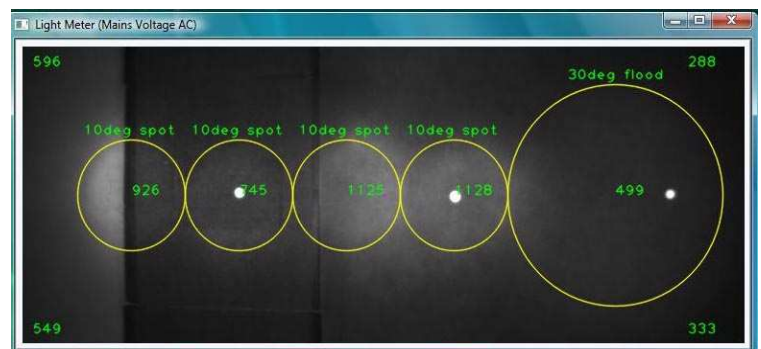
Low Voltage Light Meter

When the correct light bulbs are used, the lumen figures for the low voltage lighting setup should appear with similar figures to those shown here. It is important to have the golf balls in their alignment position. The bulb type is displayed above each position. Each bulb's beam should be positioned in the centre of each circle, to create an even spread of light.



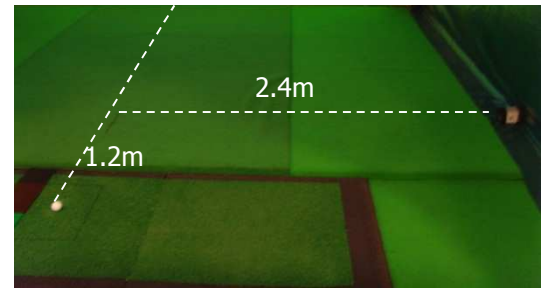
Mains Voltage Light Meter

When the correct light bulbs are used, the lumen figures for the mains lighting setup should appear with similar figures to those shown here. It is important to have the golf balls in their alignment position. The bulb type is displayed above each position. Each bulb's beam should be positioned in the centre of each circle, to create an even spread of light. accurately.



8. Setting Up the Side High Speed Camera

It is important that you have the GPS Simulator Program installed as the installation loads the drivers for the camera. The Camera can be placed on the right or left hand side from the hitting position. Its ideal position is up against the right hand wall of the booth. To position, a measurement needs to be taken from the glass covering the lens to the centre of the booth. Once this measurement is known you will need to halve the measurement to enable you to locate the camera position. For example, the measurement from the camera to the target line may be 2.4m. Therefore, the camera would sit at the side of the bay 1.2m in front of the centre of the hitting area. It is important that the lens in the camera is positioned to the same height as the ball, so before you fix the camera in place you will need to either adjust the fittings on the base of the camera or do away with them altogether. The pictures you see in the manual show the bracket fitted through the putting platform which enables the camera lens to be at the same height as the ball sitting on the simulator mat. The base has fixing holes so it can be secured permanently in place, so it does not move when fully calibrated. The USB 2.0 A to Mini B 5 Pin Cable is then fitted in the hole on the right side lopping through the cable tidy at the rear of the housing and back to the PC. If the PC asks you to install a driver use automatic driver, as the GPS Simulator has already installed it. Position and calibrate the **top** camera first before calibrating the side camera. After Calibration is complete it is important to secure the Camera Housing in place, so that it does not move and affect the performance.



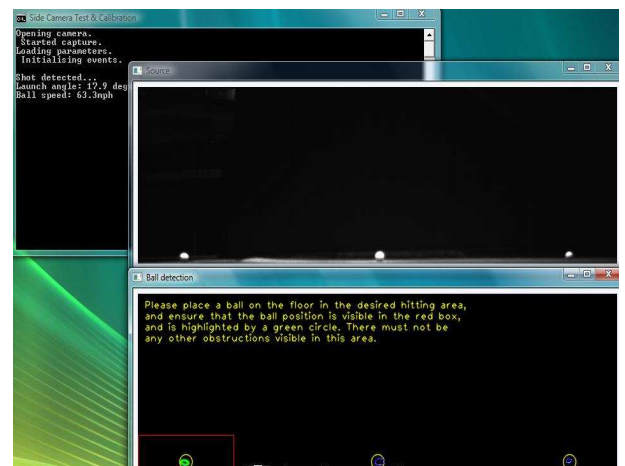
9. Calibrating the Side High Speed Camera

Leave the top camera calibration balls in place and click start, all programs, GPS golf simulator, Side Camera Test. The side camera screen will then appear. Locate the Ball Detection screen shown here. Adjust the camera from left to right until the ball in the hitting area from the top camera test is visible in the first yellow circle.

Position 2 further golf balls on the floor so that they appear inside the remaining yellow circles. The balls placed on the floor must be the same height as the balls in the hitting area. If the floor height is lower, the balls need to be raised to the same height as the ball in the hitting area. If the 3 balls do not all appear in the yellow circles, tilt the camera so that all 3 balls are shown at the same height on the screen. The camera should be angled so that it is looking directly across the booth, at an angle of 90 degrees to the opposite side of the bay.

Adjust the camera focus and aperture to obtain a sharp image (See Tuning High Speed Cameras). The ball in the hitting area should appear green, with the balls in the remaining circles appearing blue. The setup can be tested by hitting a shot and if successful the result will be shown as a "Shot Detection" message in the text window. There must not be any other obstructions visible in this area. It is important that you use standard white golf balls. The wall on the opposite side of the bay should be a dark colour to prevent reflections. If you hit a shot a ball in the hitting area, you will see the launch angle and ball speed information, which shows the camera is working.

If the camera is tilted too high, it will give higher launch angles, than are actually measured and lower ball speeds. If the camera is tilted too low, it will give lower launch angles, than are actually measured and may miss shots.



10. Tuning High Speed Cameras

Light Aperture should be set close to 0 the maximum to allow the maximum amount of light into the system. The Light Aperture should be adjusted for each camera, with the corresponding Calibration Window on screen. With low voltage lighting, it is likely to be set to fully open at (0). Whilst mains lighting aperture will not be quite fully open. Adjusting aperture so that the lumens displayed are close to those shown in the Lighting Lumens section.

Focus should be adjusted in the Calibration window so that the golf balls are as clear as possible. You should try to obtain the sharpest image possible. It is easier to do this with the aperture fully open.



11. Putting Setup with Top High Speed Camera

There are two putting locations that can be used, one is the usual hitting area, and another one is further forward towards the screen, just below the top cameras location. The top camera calibration program shows these areas with the yellow circles inside the coloured squares (the hitting area is the red square, and the putting area is the purple square). Only one area can be used, so choose the one that you would prefer to use (we normally use the purple putting area). To identify the precise putting position on the floor, place a ball in the desired area so it is fully inside the yellow circle. When the correct ball position has been found, mark this point on the floor so all future putts are taken from this location. The area that you have chosen must also be selected in the measurement setup screen in the GPS program, under the Putting Location option (Normal is the specific putting area marked with a purple square, Hitting Area is the area shown with a red square). When putting in a game, place a ball on the spot that you have previously marked. The status light will change to green, as will the putting arrow if turned on. If these indicators are red, the system has not seen the ball so a shot will not be registered. If the ball is placed slightly off the spot you have chosen, the green status light may still come on, however the accuracy of the putt will not be as good if directly on the calibrated spot.

12. Settings in the GPS Program

There are several important settings needed inside the GPS Program to get the best performance for the Cameras. In the GPS Golf Simulator program go to Defaults, then Measurement Setup. It is important to enter the actual distance of the side from camera lens to the centre of the hitting area. Similarly, it is important to enter the distance from the top camera lens to the floor.

Select the correct measurement system by clicking on cameras or Mat + Camera and set the side camera position to left or right.

Set the putting location as described in the previous section.

Camera Frequency allows you to select the power frequency. Choose 50 Hz for the standard power frequency used in Europe, Africa, Australasia, Most of Asia, Most of Arabia, Eastern Japan, Argentina and Chile or 60 Hz for North America, Central America, most of West Indies, most of South America, South Korea, Philippines, Saudi Arabia, Taiwan and Western Japan. To check the power frequency for any country, visit www.kropla.com/electric2.htm

Change the Hitting Perspective to relate to the camera and lighting configuration of the bay. If the lighting is in the centre, set this value to 1 / 2. If the lighting and camera is positioned 1 / 3 of the width of the bay, select 1 / 3. If the camera and lighting divides the bay into quarters (for example very narrow bays or twin lighting systems), then select 1 / 4.



| Warning | Comments |
|--------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Both cameras detected | Both a top and side camera have successfully been identified. This is updated immediately after you plug cameras in or out, ideal for testing |
| Side camera only detected | Only a side camera has been identified. If using a sensor mat, check that the measurement settings are configured to mat + camera. |
| Top camera only detected | Only a top camera has been identified. If using a side camera, remove and re-insert the camera to reset the drivers. |
| Side and 2 top cameras detected | For narrow bays using two overhead cameras, this message indicates that all cameras have been identified successfully |
| 2 top cameras detected | For narrow bays using two overhead cameras, this message indicates that both top cameras have been identified successfully. If using a side camera, remove and re-insert the camera to reset the drivers. |
| 1 dv camera detected | If using the Ultimate Academy or Ultimate Studio, this message indicates that the digital video camera has been identified successfully. |
| 2 dv cameras detected | If using the Ultimate Academy or Ultimate Studio, this message indicates that two digital video cameras have been identified successfully. |
| No cameras detected | The system has failed to identify any cameras. If inserted, remove any cameras and try connecting them to a different USB port. |
| Camera host controllers OK | All cameras have been successfully identified on separate USB2.0 host controllers. |
| Error - both cameras connected to same host controller | There is a conflict with the USB2.0 ports or IRQ settings. It is very important that both cameras are on separate channels for the cameras to work. Remove one of the cameras and try a different port. Often the channels on the rear of the pc are one channel and those on the front of the pc are on the second channel. |
| Vista Service Pack (1 or 2) must be installed | Go to SCS FTP Site to Download from Folder Vista Service Pack. |
| NVIDIA Graphics Card Driver needs to be updated | Go to SCS FTP Site to Download from the NVIDIA folder, or visit Nvidia at http://www.nvidia.com/Download/index.aspx?lang=en-us |
| Power Settings must be changed to High Performance | Go to Control Panel / Power Options / Change Plan Settings / Change Advanced Power Settings to High Performance. |
| Hard Drive and Monitor must be set to Never Turn Off | Go to Control Panel / Power Options / Change Plan Settings / Select Hard Drive and Display set to Never |
| General | All USB Devices except the Cameras, must be plugged into a USB PCI Card, otherwise the simulator will not be reliable. DV cameras require a dedicated PCI card PER camera. |

Rough Reduction controls the reduction distances, if using a Multi Surface unit, Rough Reduction should be Off.

Green Hardness affects the calculation of the ball speed when putting. Set to soft, normal or hard depending on the putting distances shown when testing putting in Virtual Putt.

Units Of Measurement Switch between metric or imperial to change the units of measurement for the simulator. This also includes the measurement setup screens or the camera distances.



Diagnostics

If you need to send diagnostic information to your vendor, close the Golf Simulator program, then follow the calibration instructions given for the top and side camera calibration. Following calibration, close the calibration screens and run the Golf Simulator program again. Click on Play, then Defaults, Measurement Setup and Save Diagnostics Info. Shot information, top and side camera setup images and system settings are saved as a zipped file on the desktop. This can be then copied to a PC with internet access so the file can be sent to the vendor for diagnostic purposes. It is important that you have run both Top and Side Calibration Programs before hand, with 3 golf balls showing. As well as having hit several golf shots in the GPS Simulator Program.



13. Dual Top Camera Setup

It is possible to configure the GPS Golf Simulator with two top cameras and if required, a side camera can be added for more accurate spin measurements. This configuration has been devised for smaller bays to give as much space for the driver as possible and accommodating both left handed and right handed players whilst also maintaining accurate readings.

Lighting

A pair of lighting strips with top cameras is spaced across the bay dividing it into sections. The picture shows a bay with lighting positioned so that the bay is divided into thirds. Smaller bays should be divided into quarters. The left top camera and lighting is then placed a quarter of the width of the bay to the left of the target line. The right top camera and lighting is placed a quarter of the width of the bay to the right of the target line. Please refer to section 4 and section 12 for lighting measurements and installation details. Moving the target line aspect is detailed in the Golf Simulator manual.



Cameras

If an optional side camera is added, this may be connected to a PCI card reserved solely for the side camera. By adding a side camera, the bay will become either left or right handed and will not be interchangeable. Refer to section 'Setting Up Side High Speed Camera' for side camera installation details. The top left camera and top right camera each require their own motherboard enhanced USB port. Refer to section 'Setting Up Top High Speed Camera' for camera installation details.

High Speed Camera Calibration (Side Camera)

To calibrate the side camera, please refer to section 'Setting Up Side High Speed Camera'

High Speed Camera Calibration (Top Cameras)

To calibrate the top right camera (ID 2), the existing top camera calibration screen can be used. Refer to sections 8 to 12 starting with 'Calibrating Top High Speed Camera' for more details. To calibrate the top left camera (ID4), click start, all programs, gps golf simulator, Calibration and Top Left Camera Test, then follow the instructions detailed in sections 8 to 12.

Perspective

In the GPS Golf Simulator Program, go to Defaults, then Measurement Setup.

Set the display perspective in Measurement Setup. If lights have been fitted $\frac{1}{4}$ or the width of the bay on each side, set the perspective to $\frac{1}{4}$. When running the GPS program, the hitting perspective will adjust accordingly depending on whether the simulator has been configured for a left handed player or a right handed player.

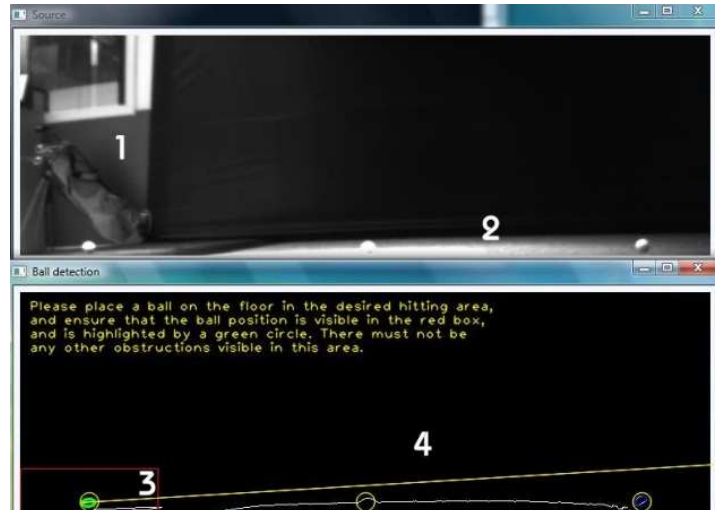
The picture shows a screen shot from the Virtual Chip program showing the hitting perspective for a right handed player.



14. Setup Issues

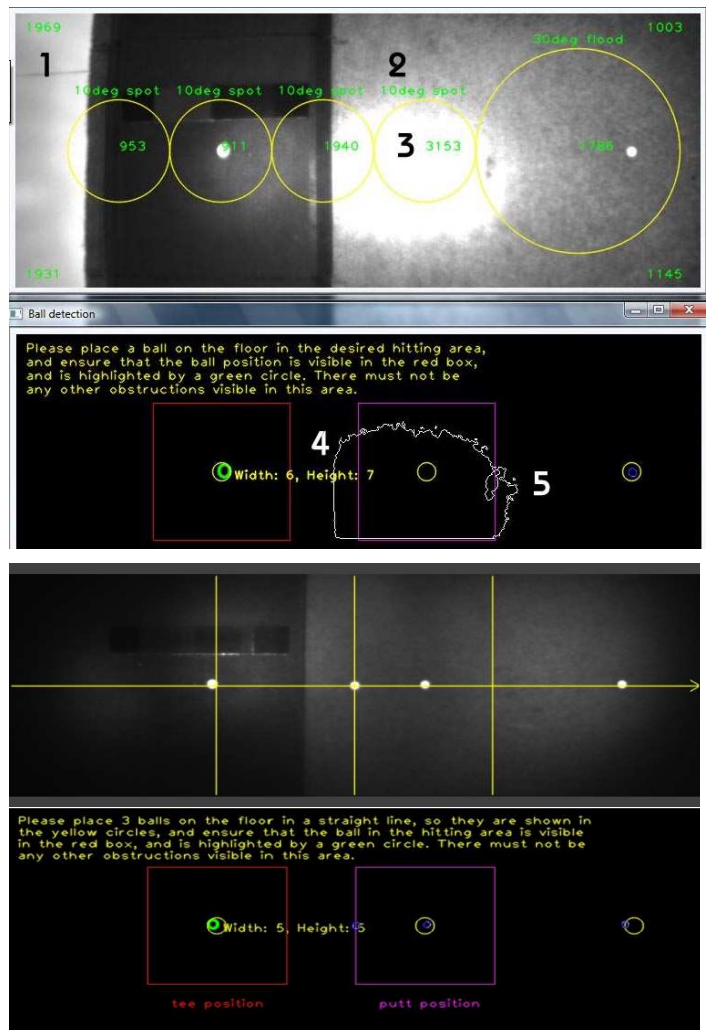
Side Camera Calibration can show setup issues, which will certainly affect performance.

- 1) Source Screen, the background has to be dark, for the golf ball to be detected correctly. At the beginning of this image, there is a light coloured wall, window and golf bag showing. This will cause the golf ball not to be detected correctly when struck. Solution either get the wall, window darkened, or move the hitting position forward, so that there is no light areas showing up in this screen.
- 2) Very light area showing, this indicates the carpet is too reflective.
- 3) Ball Detection Screen, the yellow line drawn indicates that if the green and blue lights are not in the 3 yellow setup circles, then the camera must be tilted incorrectly, which will affect performance.
- 4) If there are detected areas shown in white, this shows that there is a reflective object such as the carpet. Solution: remove or hide any objects that show up as white, as they will affect performance.
- 5) If the tee position is higher than the rest of the play area and all three balls are fully in view, the camera may pick up too much carpet and should be set lower so that the whole of the ball in the tee area is visible and the tops of all other calibration balls can be seen.
- 6) If the calibration screen is showing different sized balls, then it is possible that the balls are not correctly in line for calibration or that the camera is not pointing at 90 degrees directly across the bay.



Top Camera Calibration Screen can show setup issues, which will certainly affect performance.

- 1) Source Screen, the background has to be dark, for the golf ball to be detected correctly. At the beginning of this image, there is the carpet showing before the golf mats, it is too bright or reflective. This will cause the golf ball not to be detected correctly when struck. Solution is to get the area covered with a darker carpet.
- 2) Lumens any figures shown over 1,300 are too high and indicate the carpet is too bright or reflective.
- 3) Width 6 and Height 7 any figures shown over 5 indicate the camera is too low, so needs raising.
- 4) If there are detected areas shown in white, this shows that there is a reflective, object such as the carpet. The solution is remove or hide any objects that show up as white, as they will affect performance.
- 5) If some shots are not being detected by the top camera, check the camera is positioned correctly. By placing three balls in the tee position, putt and range positions, they should show up highlighted in



the three circles. Place a fourth ball directly under the camera. It should appear in the cross in the centre of the calibration screen (top).

15. Warranty

The Systems are covered by a 12 month back to base warranty, against faulty workmanship. Any transportation charges are the sole responsibility of the customer. If any other form of damage occurs like, water damage, transportation damage, wear and tear etc. It is not the responsibility of Sports Coach Systems Limited, to cover any eventuality, so we ask that you take out an Insurance Policy to cover any eventuality. All repairs must be paid for before despatch of goods. Sports Coach Systems reserves the right to change specifications without notice or obligation. All names all trademarks are the property of there respective owners.

16. Frequently Asked Questions

Question Shots are not going the right distances or directions.

Answer Make sure you are using exactly the correct bulbs as specified in section 3. Make sure there are no golf balls lying in the camera detection area. Check the top camera calibration and ensure all lighting is aimed into the circles on the calibration screen. Adjust the aperture and focus on the top camera so that the calibration reads Height=5 Width=5. Distances can be affected if there is insufficient light behind the tee area.

Question Certain Shots are not being picked up.

Answer Make sure both Cameras are plugged into separate USB Channels on the Motherboard and the other USB devices are plugged into USB PCI Cards. Also make sure the computer meets the minimum requirements. Check the cameras are being recognised in the Measurement Setup screen. Check that the carpet is the correct specification as section 2. Check the Lighting is the correct lumens as section 3. Make sure there are no golf balls lying, in the camera detection area. Make sure that the top and side camera focus and aperture are set correctly.

Question Unsure about your Simulator Setup.

Answer Open the camera calibration screen, follow the instructions given, Run the simulator program and play some shots. Exit your game and enter the Measurement Setup screen. Email Diagnostics Info, to sales@sports-coach.com so setup can be analysed, section 12.

Question Accuracy of direction of shots do not seem right.

Answer Make sure that the Top Camera is not tilted, refer to section 8. Check that the lighting is correct using the top camera test program. Check that the correct bulbs are being used and that spot and flood bulbs are in the right place. Go to Measurement setup and check that the distances to each camera have been entered correctly. If a side camera is in use, make sure that the simulator setup is configured to identify whether the camera is on the left or the right.

Question Accuracy of vertical launch angle and ball speed is being questioned.

Answer Check the side camera by opening the side camera test screen. Check the camera is not tilted. Check that the camera is aiming directly across the bay. Adjust the focus and aperture for the best possible image. Ensure that the opposite side of the bay is dark and that it has no reflections and is not picking up moving images. Install the latest software.

Question Shot accuracy keeps changing.

Answer Check that the cameras are not picking up moving images outside of the bay. Make sure that the cameras are plugged into Enhanced Host controllers and that all other USB devices are installed on a separate PCI USB card.

Question Graphics are not appearing smoothly

Answer Update the graphics driver and ensure that the correct graphics driver is being used for the card. If there is no improvement, check the computer configuration. The minimum specification is Intel Core 2 Quad 2.33Ghz, 4GB RAM and a NVIDIA GT250 graphics card.

Question Program freezes randomly

Answer Update the graphics driver and ensure that the correct graphics driver is being used for the card. Ensure that the power settings have been configured correctly so that the hard disk shutdown, standby, sleep mode and screen saver options are switched off. Make sure that the USB cables to the cameras are correct. Side cameras have a 5m cable. Top cameras have an 8m cable (3 metres cable from the camera plus a 5m active extension). USB specifications only allow a distance of 5m. To increase this distance, an **active** extension is required.

Question How do I know if the cameras are positioned correctly?

Answer Open the top camera test screen and follow the instructions. The ball at the tee spot should be highlighted green and show Height=5, Width=5. The balls in the putt and range area should be highlighted blue. With the balls in place, open the side camera test screen. The ball in the tee spot should be highlighted green. You should move the remaining two balls to check the side camera calibration is correct.

Question How do I know if the top camera is pointed correctly?

Answer Open the top camera test screen. Place a ball directly underneath the camera. There is a screen showing a yellow grid. The ball directly underneath the camera should be visible on the central cross hair in the screen.

Question The simulator crashes after being idle or after a number of shots have been played.

Answer Check the graphics card and graphics card driver. The graphics card should not be a lower specification than Nvidia GE Force GTS 250, and it should have the correct and most recent drivers.

Question The simulator does not recognise the ball in the tee area at all.

Answer Insufficient light. Open the top camera test screen and check the camera is in focus and the aperture is high enough. All the lights should be pointing into the circles on the screen. Check to see if there are other balls in the play area and remove them.

Question The cameras recognise the ball, then stops recognising the ball during play.

Answer The cameras may not have re-started correctly. Click on the red square on the top left of the screen to reset the cameras during play. If the issue occurs regularly, contact your vendor with a diagnostic file to check your simulator configuration.

Question Slow putts are being picked up, but faster ones are not.

Answer Check the top camera calibration. Line three balls up as instructed. If the tee and putt points can be seen with green and blue highlighted circles respectively, but the third ball cannot be seen, the aperture is too low, or lights nearest the screen need replacing.

Question When I enter the simulator program, all the options are blue without any text.

Answer The display resolution has changed. This can happen if a high resolution screen is added as the primary device. Check that the graphics card and windows display resolutions are the same for all screens in use. This is normally 1024 x 768. If two screens are cloned, you must set them to individual screens before setting the resolution, then clone them again.

Question I am only using a projector, but the simulator options are displaying without any text.

Answer The simulator is being accessed in the wrong resolution. Check the resolution in display settings, graphic card settings and the selected simulator option are the same.

Question The camera calibration screens are grey.

Answer Camera driver or PCI card driver problem. Remove cameras, try one camera at a time, in different ports, to check if this is a hardware failure. If different ports fail, replace camera USB cables.



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