

## CAMMEGH EyeBall™

### Setup and Configuration Guide (Large PC type only)

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Please Consider the Environment before printing this document.

CammeGH Ltd. – International Gaming Award Winners – Eco Friendly Company 2010, 2011

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**For installation guidance, consult [www.cammeGH.com](http://www.cammeGH.com)**

**Downloads – Billboard Assembly Instructions**

**For further assistance with setup/troubleshooting,  
contact us [support@cammeGH.com](mailto:support@cammeGH.com)**

## 1.0 - EyeBall™ - Camera Portrait Mode

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### Roulette Software

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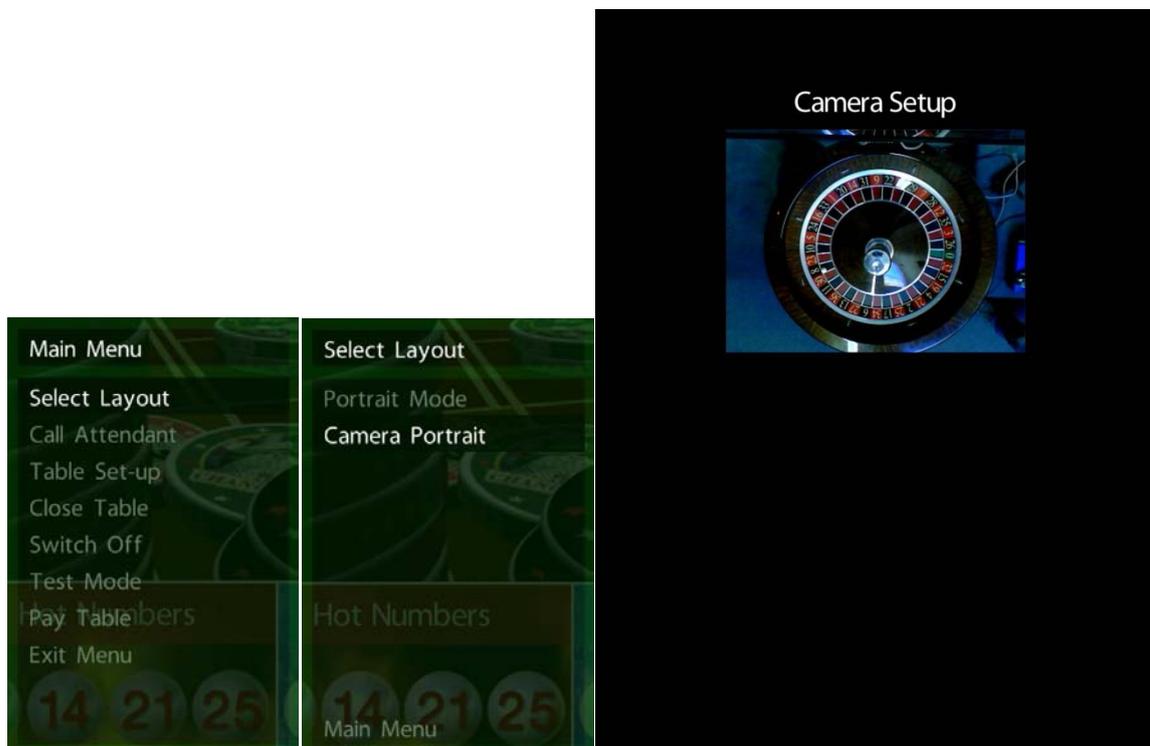
The roulette software includes a 'Camera Portrait' layout, accessible through the 'Select Layout' option of the Billboard User Menu, which allows the image from the EyeBall Camera to be evaluated. While no camera settings can be changed from within this layout, it is very useful for diagnosing faults and initially setting up the system.

### Access Camera Portrait Mode

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To access Camera Portrait Mode from within the roulette software, perform the following actions:-

1. Access the Billboard User Menu by pressing 'Num Lock'.
2. Use the arrow keys to highlight 'Select Layout', then press 'Enter'.
3. Use the arrow keys to highlight 'Camera Portrait' (possibly 'Mode Camera Portrait' or 'Camera Set-Up'), then press 'Enter'.
4. The feed from the EyeBall Camera will appear on the screen as shown below.



## 2.0 - EyeBall™ - Setup and Configuration

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### Setup

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To setup the EyeBall system for use with Cammegh Billboard, perform the following actions:-

- **2.1 Connect the EyeBall Equipment**
- **2.2 Configure the EyeBall Camera Output**
- **2.3 Test the EyeBall Setup**

#### 2.1 Connect the EyeBall Equipment

1. Ensure the EyeBall is plugged into a rear USB port on the Billboard Controller.
2. Plug a keyboard and mouse into the Billboard, then switch on the Billboard PC by pushing the large round power button on the front of the case.
3. Wait for the Roulette software to load, then open the Billboard User Menu by pressing 'Num Lock'.
4. Use the arrow keys to highlight 'Select Layout', then press 'Enter'.
5. Use the arrow keys to highlight 'Camera Portrait' (possibly 'Mode Camera Portrait' or 'Camera Set-Up'), then press 'Enter'.
6. Ensure the feed from the EyeBall camera appears under the white title text (see section 3.0 – Troubleshooting - Issue 1 if the camera image is not displayed).
7. Position the EyeBall camera so the **ENTIRE balltrack of the wheel can be seen** in the camera feed, as shown with the green ring below.



## 2.0 - EyeBall™ - Setup and Configuration

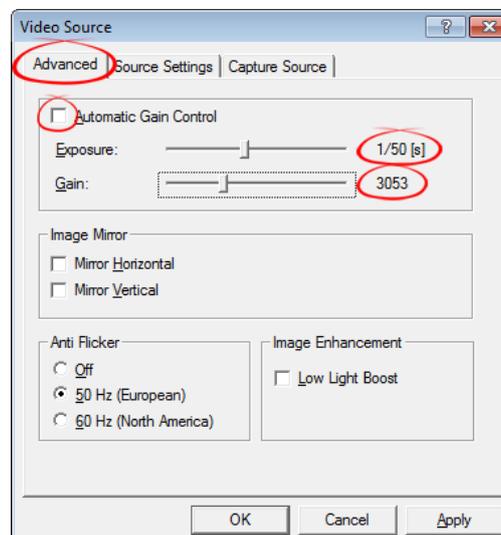
### Setup

#### 2.2 Configure the EyeBall Camera Output

1. Close the roulette software by choosing 'Switch Off', then 'Yes' from the Billboard User Menu, or press Alt + F4 on the keyboard.
2. Log off, then log on as the 'Administrator' user (password: 'cammegh\_letmein').
3. Open 'AvaCam' on the Windows Desktop.
4. Click 'Start' in the bottom-right and ensure the camera feed appears. If it does not, try unplugging the camera and plugging it into a different USB port, then clicking 'Start' again.



5. When the camera feed starts, click 'Camera Options' in the top-left.
6. In the 'Advanced' tab, un-check 'Automatic Gain Control'.
7. Set 'Exposure' to about 1/50.
8. Set 'Gain' to about 3000.



## 2.0 - EyeBall™ - Setup and Configuration

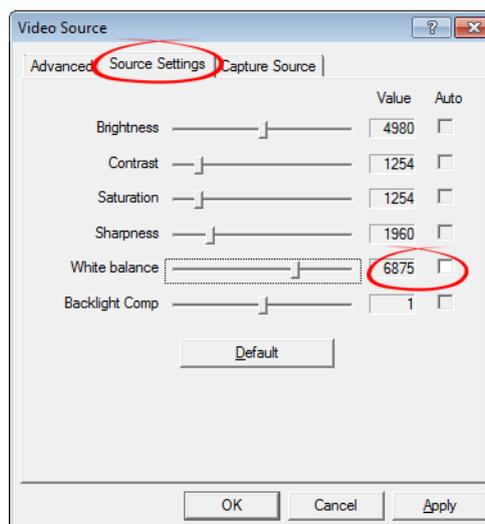
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### Setup

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#### 2.2 Configure the EyeBall Camera Output

9. In the 'Source Settings' tab, un-check 'Automatic' for the 'White Balance'.
10. Set 'White Balance' to about 7000.



11. Click 'Apply', then 'Okay', then click 'Stop' in the bottom-right of the main AvaCam window.
12. Close AvaCam and restart the roulette software by double-clicking the 'Run Billboard' icon on the Windows desktop.
8. Wait for the Roulette software to load, then open the Billboard User Menu by pressing 'Num Lock'.
9. Use the arrow keys to highlight 'Select Layout', then press 'Enter'.
10. Use the arrow keys to highlight 'Camera Portrait' (possibly 'Mode Camera Portrait' or 'Camera Set-Up'), then press 'Enter'.
11. Ensure the feed from the EyeBall camera appears under the white title text (see section 3.0 – Troubleshooting - Issue 1 if the camera image is not displayed).

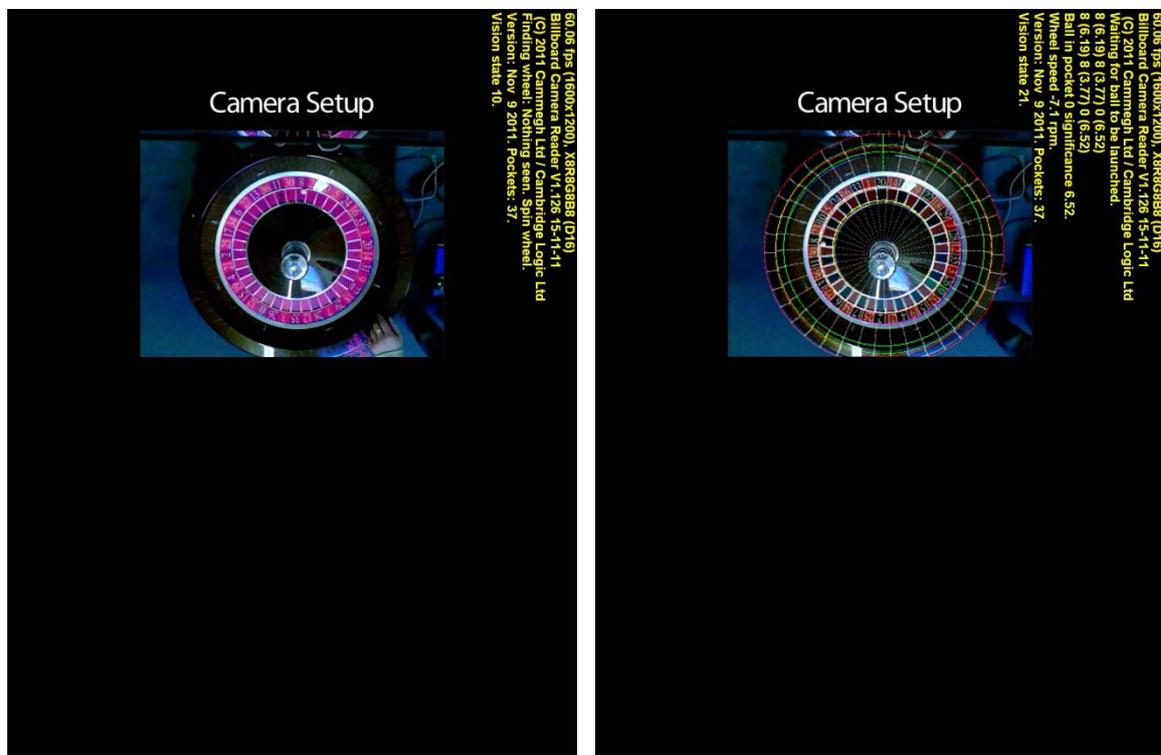
## 2.0 - EyeBall™ - Setup and Configuration

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## Setup

### 2.3 Test the EyeBall Setup

1. Ensure the camera feed is of a reasonable brightness and does NOT automatically change brightness when the camera's lens is covered. Repeat the EyeBall Camera Output setup – section 2.2 if the image is changing. The brightness should be similar to that shown in example images, section 2.1, step 7.
2. Press 'F11' on the keyboard to display the perspective wireframe overlay and the EyeBall software's attempts to locate the wheel. While the software is locating the wheel, the image will be overlaid with pink lines, indicating areas of movement. When the software has located the wheel, a wireframe wheel overlay will appear over the top of the wheel.



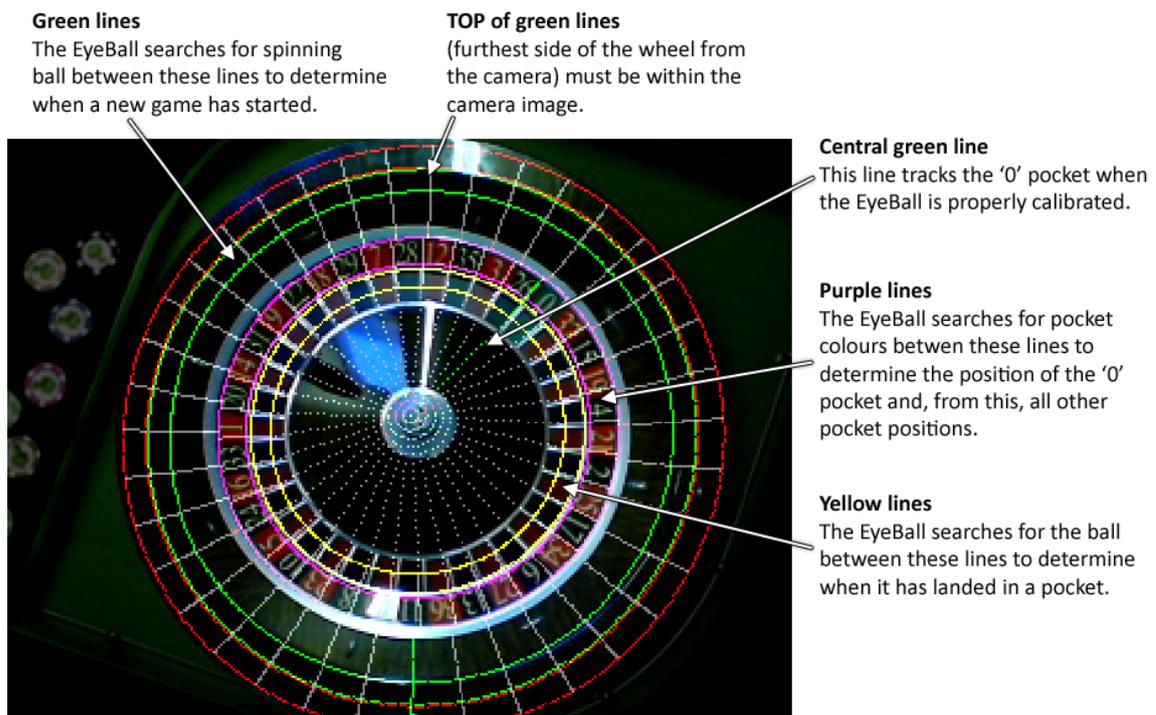
3. Ensure the wireframe wheel overlay has been correctly drawn over the camera feed. If incorrect see section 3.0 – Troubleshooting – Issue 2.

## 2.0 - EyeBall™ - Setup and Configuration

### Setup

#### 2.3 Test the EyeBall Setup

4. Ensure the **GREEN** circles on the wheel overlay are entirely visible. If they are not, move the camera, then refresh the layout by choosing 'Select Layout', then 'Camera Portrait' again from the Billboard User Menu.
5. Ensure the **GREEN** line is being correctly drawn from the centre of the wireframe wheel overlay to the '0' pocket. If it is not, see section 3.0 – Troubleshooting – Issue 3.



6. Play a game on the wheel and ensure the correct winning number appears in the yellow 'debug' text. If the winning number result is not correct, see section 3.0 – Troubleshooting – Issue 6.



7. Return to the regular game layout by choosing it from the 'Select Layout' menu within the Billboard User Menu. To save the settings, switch off the roulette software by selecting 'Switch Off' and 'Yes', then restart the Billboard by choosing 'Restart' from the Windows Start Menu.

## 3.0 - EyeBall™ - Troubleshooting

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### Troubleshooting Cammegh EyeBall™

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#### Issue 1 – The live feed from the Eyeball camera doesn't appear in Camera Portrait Mode.

- Ensure the LED light on the top of the camera is lit, as below. If it is not, try unplugging the camera and plugging it into a different USB port, then restarting the Billboard.



- Check that Avacam has been closed and that it is not running at the same time as the roulette software.

#### Issue 2 – The wireframe wheel overlay is not drawn over the camera feed, or is not correct.

- Ensure that 'F11' has been pressed to switch on the debug elements within Camera Portrait Mode.
- Ensure the camera feed shows no significant areas of bright glare (such as spotlights) or dark shadow obscuring the wheel.
- Ensure the camera feed shows no significant reflections or other moving objects aside from the wheel itself.
- Ensure the 'fps' reading (the first line in the yellow debug text) is not significantly below 60 (see Issue 4).
- Ensure the camera feed image is bright enough that the pocket colours are distinct (see section 2.2 Camera Output setup to change camera settings).

## 3.0 - EyeBall™ - Troubleshooting

### Troubleshooting Cammegh EyeBall™

#### Issue 2 – The wireframe wheel overlay is not drawn over the camera feed, or is not correct.

- Follow the procedure below:-
  1. Close the roulette software by pressing 'Alt' + 'F4' on the keyboard
  2. Open Windows Explorer by pressing 'Windows Key' + 'E' on the keyboard
  3. Open the 'C:' drive and open the 'Exec' folder
  4. Open the 'EyeBall' ini file and ensure that the specified wheel type is appropriate for your wheel, as shown below.

```

EyeBall.ini - Notepad
File Edit Format View Help
// THIS INI FILE IS AN EXPERIMENTAL PRO5000 ONE - SETTINGS ASSUME 15 FPS
// 0.38 for Pro 4000, 0.357 for QuickCam for Notebooks Pro, 0.447 for Quickc
CameraFieldofView = 0.447

// This setting is ignored at present, it needs to be #defined in the code
NumberOfPockets = 37

FOLLOWING SETTINGS ARE FOR CAMMEGH MERCURY WHEEL
// Wheel measurements - absolute scale does not matter, as everything scales
// Next line was 0.68 for Mercury. For Scalloped wheels we know the ball is r
PocketRadiusInner = 0.75
PocketRadiusOuter = 0.86
PocketHeightInner = -0.07
PocketHeightOuter = -0.03
NumberRadiusInner = 0.866
NumberRadiusOuter = 1.000 // UNSUPPORTED, ASSUMED 1
NumberHeightInner = -0.03
NumberHeightOuter = 0.000 // UNSUPPORTED, ASSUMED 0
BallTrackRadiusInner = 1.22
BallTrackRadiusOuter = 1.3
BallTrackHeightInner = 0.084
BallTrackHeightOuter = 0.151
SecurityRadiusInner = 1.35
  
```

5. If the wheel type specified is incorrect, replace this ini file with one from the 'Alternate ini Files' folder, located inside the 'Exec' folder, ensuring you rename the new ini file to precisely match the original one.

## 3.0 - EyeBall™ - Troubleshooting

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### Troubleshooting Cammegh EyeBall™

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#### **Issue 3 – The green line is not drawn from the centre of the wireframe wheel overlay to the '0' pocket, or is not tracking the zero pocket during revolution.**

- Ensure the camera feed image is bright enough that the pocket colours are distinct (see section 2.2 Camera Output setup to change camera settings).
- Ensure the camera feed shows no significant areas of bright glare (such as spotlights) or dark shadow obscuring the wheel.
- Ensure the camera feed shows no significant reflections other moving objects aside from the wheel itself.
- Ensure the 'fps' reading (the first line of the yellow debug text in Camera Portrait Mode) is not significantly below 60, see section 3.0 – Troubleshooting - Issue 4
- Check the correct rotor type has been specified in the roulette.dll file. If incorrect or unknown, see section 3.0 – Troubleshooting – Issue 5

#### **Issue 4 – The 'Frame Time' reading shows a value significantly lower than 30.**

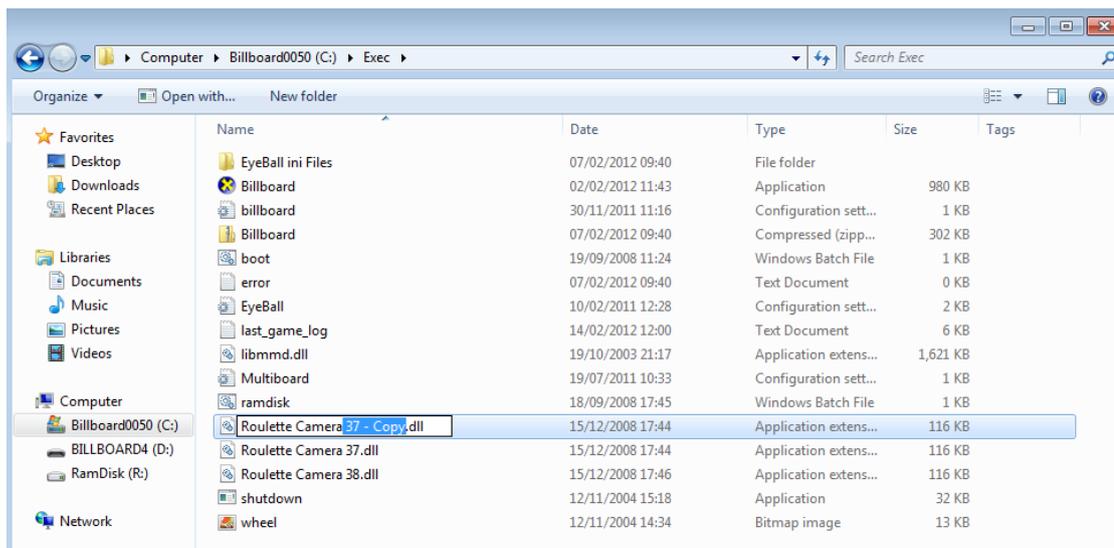
- Use the Avacam application to lower the 'Exposure' / 'Gain' as much as possible.

## 3.0 - EyeBall™ - Troubleshooting

### Troubleshooting Cammegh EyeBall™

#### Issue 5 – The rotor specification is not correct – single zero/double zero

- Follow the procedure below:-
  6. Close the roulette software by pressing 'Alt' + 'F4' on the keyboard
  7. Open Windows Explorer by pressing 'Windows Key' + 'E' on the keyboard
  8. Open the 'C:' drive and open the 'Exec' folder
  9. Delete 'Roulette Camera.dll'
  10. If your wheel is single-zero ('0'), make a copy of 'Roulette Camera 37.dll' ('Ctrl' + 'C' on the keyboard to copy, then 'Ctrl' + 'V' to paste).



11. If your wheel is double-zero ('00'), make a copy of 'Roulette Camera 38.dll' ('Ctrl' + 'C' on the keyboard to copy, then 'Ctrl' + 'V' to paste)
12. Rename the copied DLL file to 'Roulette Camera.dll', replacing the renamed file. There should now be three files as before - 'Roulette Camera.dll', 'Roulette Camera 37.dll' and 'Roulette Camera 38.dll'.



13. Restart the Billboard

## 3.0 - EyeBall™ - Troubleshooting

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### Troubleshooting Cammegh EyeBall™

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#### Issue 6 – The incorrect winning number is shown

- Check the camera feed is operational - Issue 1
- Check the wheel wireframe overlay best matches the wheel used – Issue 2
- Check the green line tracking of the zero pocket is smooth and correct in rotation – Issue 3
- Check the 'fps' reading (the first line of the yellow debug text in Camera Portrait Mode) is not significantly below 60, see section 3.0 – Troubleshooting - Issue 4
- Check the roulette.dll file for correct rotor specification – Issue 5
- Check the camera feed is at correct brightness – Section 2.1.7