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# wiGroup Camera & Buzzer Hardware Install


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| Version Management | | | |
|---|---|---|---|
| Date | Author | Version | Changes Made |
| 29 April 2015 | Anton de Villiers | 1.0.1 | |
| 4 May 2015 | Anton de Villiers | 1.0.2 | Added additional figures |
| 1 June 2015 | Anton de Villiers | 1.0.3 | Additional tests, 6-step install process added and disclaimer added. |

# 1 Camera and Buzzer Integration

Integration into the wiCode Platform requires two pieces of hardware to be integrated into the POS (point-of-sale). These two components are:

- Webcam (camera) for QR code scanning – LifeCam HD-3000
- Serial buzzer to alert customers of a successful QR scan – RS232/DB9 Buzzer or RJ45 Buzzer

The webcam is a Microsoft USB device. The buzzer requires a RS232 port or a RJ45 as an option. If the POS terminal has an internal buzzer loud enough for the merchant environment, this can be used instead of the wiGroup supplied buzzer.

LifeCam HD-3000

Serial Buzzer RS232 Port

RS232 Port

RJ45 Connector

Serial Buzzer RJ45 Port

A development kit is provided by wiGroup, which enables the point of sale to communicate with wiGroup-supplied peripheries (QR reader and buzzer). On calling the DLL (`WiGroupDetect.dll`), the POS will be able to extract the wiCode from the QR code and invoke the buzzer to sound upon a successful scan. The development kit supplied is named `wiGroup_Test_Console`.

# 2 A schematic layout of the 6-step install process

The following diagram highlights the process of ensuring that the webcam and buzzer integration is successful. These steps contain the most basic processes that must be completed.

1. Ensure that the webcam and buzzer is plugged into the POS.

2. Copy the folder `wiGroup_Test_Console` onto the POS.

3. Make config changes to `SerialBuzzer.cfg`.

4. Present a QR code to the POS.


5. The POS scans the QR and displays the interpreted message.

6. The buzzer must beep upon a successful QR scan.

# 3 Various configuration settings for testing

The easiest manner of ensuring the functionality of the camera and (possibly) the buzzer is to use `wiGroup_Test_Console/WiGroup_QR_Detect.exe`. This executable can be run on any machine using a Microsoft Windows operating system. The use of this executable is accompanied by the use of a configuration file `wiGroup_Test_Console/SerialBuzzer.cfg`. This config file contains six fields that can be altered:

| Field | Description | Default |
|---|---|---|
| **COMPORT** | The communication port between the POS and an external device (using an RJ45 connection) that can be used for utilizing an external buzzer. | COM1 |
| **InternalBeepEnabled** | Whether the internal beep of the POS is used or not | 1 |
| **SerialBuzzerEnabled** | Whether the external beep (buzzer) of the POS is used or not | 0 |
| **BeepOnInitialize** | Whether the POS is instructed to beep once the camera is activated or not | 1 |
| **EnabledVideoStream** | Whether a video display appears showing the feed captured by the webcam or not | 1 |
| **EnabledLED** | This field may be set to 0 and will not have any impact on the integration process | 0 |

All these fields (except for `COMPORT`) should be set to be either 1 (enabled) or 0 (disabled). It is important to note that the field names should not be changed. Any changes to `SerialBuzzer.cfg` (which can be done in a text editor, such as Notepad), must be saved before the changes will take effect. Once these fields are set correctly, the initial testing may commence with using `wiGroup_Test_Console/WiGroup_QR_Detect.exe`.

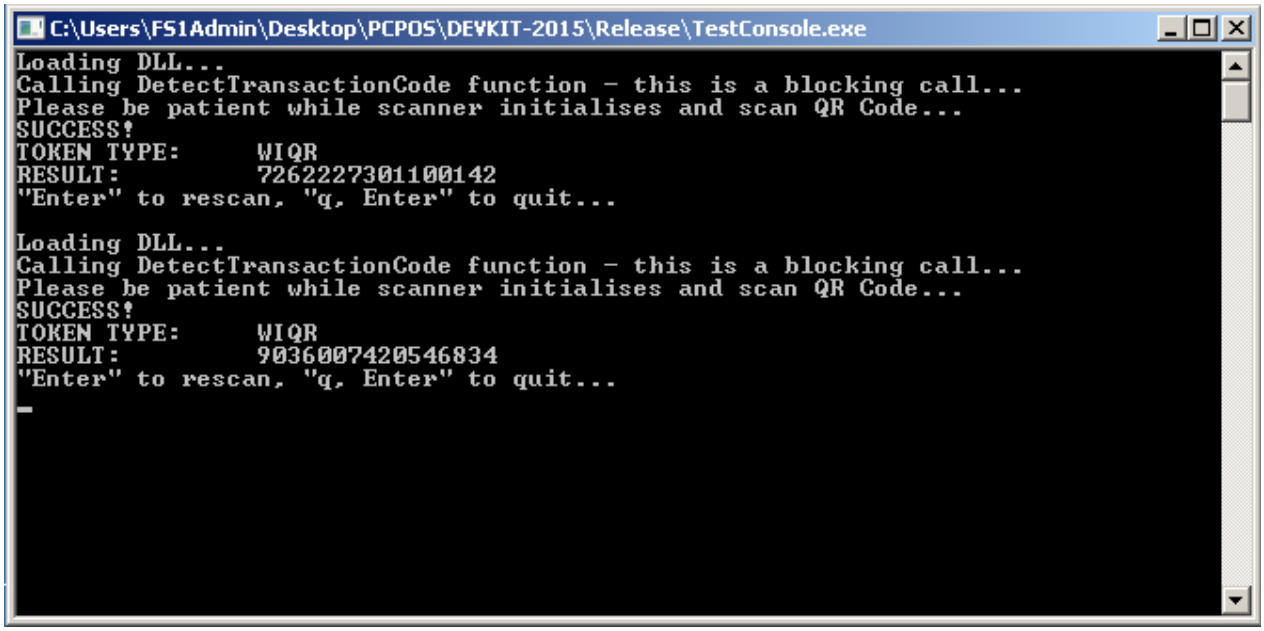
The field `InternalBeepEnabled` can be used to activate the internal sound of the POS is able to provide a beep sound. It is important that the internal sound is enabled in this case. Similarly, the `SerialBuzzerEnabled` is used to activate the external sound device to provide a beep sound.

The field `BeepOnInitialze` is used to create a beep once the scanner is activated. Finally, `EnabledVideoStream` may be used to display the visuals captured by the camera in real time. This may aid in identifying potential problems related to QR scanning, lighting, the quality of the visuals etc. Various configuration settings can be tested until a feasible set of parameter assignments are found.

It is of the utmost importance that the configuration settings in `SerialBuzzer.cfg` is **not** hardcoded on the POS. This is to ensure that standard configuration changes may easily be applied on various POS terminals that may have different hardware components available and may be running different software applications.

# 4 Tests to ensure successful camera and buzzer integration

The easiest manner of testing the functionality of the camera and the buzzer (if the POS contains no internal sound) is in a simulated live environment, is to use `wiGroup_Test_Console/TestConsole.exe`. Once this executable is opened, the user should see the blue light of the activated camera. The user should then present a QR to be scanned by the camera. Upon a successful QR scan, the contents of the QR code will be displayed in the executable, and this should be accompanied by a sound from the buzzer or the POS itself. The user can press "ENTER" to scan another QR code or close the executable by entering the letter "q" followed by "ENTER". The configurations as set in `wiGroup_Test_Console/SerialBuzzer.cfg` will be used with the exception of the field `EnabledVideoStream`.




A screenshot of `TestConsole.exe`

The following tests must be successfully completed to ensure that the webcam and the buzzer are working as expected. These tests should be completed using the executable is the development kit `wiGroup_Test_Console/TestConsole.exe`:

| | Yes | No |
|---|---|---|
| **Is the camera plugged into a POS USB port?** | | |
| **Is the buzzer plugged into a POS USB or COM port?** | | |
| **Does the POS have the ability to beep? (Is the POS's sound turned on, or is the buzzer inserted into the POS?)** | | |
| **Does the camera become activated once TestConsole.exe is executed on the POS?** | | |
| **Does the blue light appear when the camera is active?** | | |
| **Is a beep sound generated once a QR code is scanned?** | | |
| **Can a QR code be read and displayed on the POS?** | | |
| **Does the camera switch off once TestConsole.exe is closed?** | | |

| | | |
|---|---|---|
| **Does the conversion of the QR code to a wiCode take less than 3 seconds?** | | |
| **Have all of the above tests been conducted on all the variations of *POS devices* that will be used in a live environment?** | | |
| **Have all of the above tests been conducted on all the variations of *POS software* that will be used in a live environment?** | | |
| **Does the POS scan all three QR codes as shown below successfully?** | | |

Result: 11 22 345

Result: 4000 0153 7225 0142

Result: Your testing is complete!

# 5 Disclaimer

For the purposes of this document, we assume the use of the Microsoft LifeCam HD-3000. All tests must be performed successfully to advance to the implementation of the DLL that is used in `TestConsole.exe`.