

QR-Toolbox Version 1.1 Updates

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Updates:

1. Combined the Local version (which had no use of or connection to the internet) and the SharePoint version into one program, keeping functionality of both.
2. Added option for user to choose which camera they want to use.
 - a. Camera options:
 - i. Integrated webcam – computers' built-in camera
 - ii. Separate webcam – a webcam connected via USB
 - iii. PiCamera – a webcam connected via Raspberry Pi
 - b. *Note: Program assumes that the selected camera is, in fact, connected.*
3. Added option for user to choose where data should also be stored (it is already stored in the programs root folder regardless).
 - a. Storage choices
 - i. Local – User can select a location on the computer to store the data
 - ii. SharePoint – Data is stored on the SharePoint site
 - b. *Note: Some of the programs' behavior depends on the user's selection of storage*
4. Added bad file name handling (disallowed file name characters [ex. *] are replaced with '-'). An Error message is also printed to this effect, providing the user with the new file name.
5. Added (BETA, Local only) ability to run two instances of QR-Toolbox at the same time, and start the QR Reader for both of them, assuming both of them have different cameras selected.
 - a. The data each one reads is stored separately but can still be combined together via the consolidate function.
6. Added a question when generating QR Codes (SharePoint only): When a special character is found in a text, the user is asked if they want to convert it to a regular character.
 - a. If yes, the character is converted only for the online CSV.
 - b. If no, the text in question is skipped.
 - c. *Note: For the QR Creator – Single, user is returned to main menu if they choose 'No'.*
7. When generating QR Codes from a CSV (QR Creator – Batch), program can handle either one or two columns - previously the program was rigid and could handle only one or the other of the two cases, now it handles both.
8. Created an easy installation method in the form of a batch file, called Setup.bat. Installs Python 3.7.4 64-bit as well as all of the necessary packages.

9. Updated User Guide according to the changes that were made and included some screenshots.
10. README.md was also updated with some information, however the User Guide has what is pertinent and necessary.
11. Documented code with comments, adjusted formatting.

Changes:

1. The “Establish Share Folder” menu option was removed. Functionality integrated into the local version of the program if user selects ‘Local’.
2. The “Consolidate Records” menu option only appears to users that select the ‘Local’ option upon startup.
3. For the CSV file stored on SharePoint, the records saved from scanning QR Codes in QR Reader are all printed on one line, instead of only the latest record being saved (as in the SharePoint only version of the program).
 - a. Names with special characters that are read in have their special characters replaced by their regular character equivalents only for the purpose of SharePoint storage.
4. Special Characters now show properly in local CSV files, in the Command Line, and in the QR Reader video stream shown to the user.
 - a. Special Character QR Codes are now generated by replacing the special character with a code, and when the QR Code is then read again by the QR Reader, this code is converted back into the special character.
5. Local Data from each instance of the QR Reader is stored in a different file with a name similar to SharePoint (“QRT-...”), instead of overwriting ‘barcodes.csv’ as was done previously.

Bug/Error Fixes:

1. Fixed crash that would occur when a QR Code with a special character is shown to the camera. Program now reads it in properly.
2. Fixed crash that would occur if non-system generated QR Code with special character is shown to the camera. Now an [ERROR] message is shown to the user every time such a QR Code is shown.
3. Fixed error message that would show when the QR Reader camera was closed.

Testing:

Tests and Results Summary

Ran 3 Types of Tests (All for QR-Toolbox ver. 1.1, with Logitech webcam on PowerPoint slideshow)

1. Type 1 (Local Version) - Ran from 9:45am 2/19 to 10:25am 2/21 – PASS
2. Type 2 (Local Version, looking to recreate generation of fake codes) - Ran from 4:40pm 2/21/20 to 7:28am 2/24/20 – PASS
3. Type 3 (SharePoint Version) - Ran this test 6 times, all resulted in an error – FAIL
 - a. Test #1: 11:34am to 1:32pm 2/21/20 - FAIL - TimeoutError [WinError 10060] - 4sec interval
 - b. Test #2: 7:29am to 8:24am 2/24/20 - FAIL - TimeoutError [WinError 10060] - 4sec interval?
 - c. Test #3: 10:33am to 10:44am 2/24/20 - FAIL - HTTPError: 503 Server Error - 4sec interval?
 - d. Test #4: 10:51am to 11:07am 2/24/20 - FAIL - TimeoutError [WinError 10060] - 4sec interval?
 - e. Test #5: 11:12am to 2:58pm 2/24/20 - FAIL - TimeoutError [WinError 10060] - 10 or 9.5sec interval
 - f. Test #6: 3:04pm to 3:08pm 2/25/20 - FAIL - TimeoutError [WinError 10060] - 1.5sec interval

My conclusion from these tests is that the error is not caused by the client/local side, but rather that at a certain point, the server either becomes overwhelmed by the number of requests that are sent to it, or that it only allows so much load from one source, and so if the client exceeds that limit, it denies the connection

(either can be concluded from: when a smaller interval was used, the error occurs faster)

However, I think the second case is likelier as I expect EPA servers to be more robust and able to handle heavy loads.

Notes:

- Have not seen a single fake QR code yet (not quite a fix, but important to note).
- If user is in SharePoint mode, and the same QR Code is generated constantly, the actual QR code's value will become disrupted (it begins to merge QR Codes with the same file name). This can cause issues with identification, signing things out, etc.
 - Solution: Generate a QR code for a person only once.