



MobileHMI - Using QR Codes for Augmented Reality



APPLICATION NOTE

October 2015

Description: Guide to using QR codes with MobileHMI Augmented Reality.

Device Requirement: Windows Phone or Windows Tablet.

General Requirement: General understanding of MobileHMI and QR codes.

Introduction

QR codes can be used as a part of MobileHMI to allow users to execute different commands for MobileHMI. Some of the commands that can be executed are:

- Open a display
- Open an alarm subscription
- Open a trend, grid, or a specific asset
- Navigate to a web page
- Switch aliases

Currently, Augmented Reality is not supported on AnyGlass (Apple, Android, and other HTML5) MobileHMI devices.

This application note will go through the steps of setting up a QR code, an example of using the Augmented Reality with the QR code, and some limitations on the codes that can be read from MobileHMI.

Using QR Codes with Augmented Reality

One way to use QR codes with Augmented Reality would be to scan a QR code to see more detailed information about a device, which on the ICONICS backend could change a Global Alias used on GraphWorX displays. Then a GraphWorX display will overlay the camera image based on the QR code scanned.

This would allow the operators to change information in the display they are looking at by pointing to the device they would like to receive more information on. When the MobileHMI device scans this code, it sends the information back to the server, and the MobileHMI server processes this command.

Configuring MobileHMI QR codes

1. Open Workbench Desktop, and expand the MobileHMI provider.
2. Go to Configuration → Augmented Reality and right-click and select Add Location.
3. Add in a name for this new Augmented Reality.

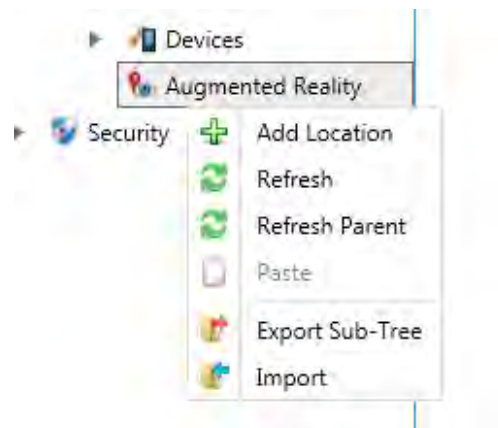


Figure 1 - Adding in new Augmented Reality

4. Now choose the type you would like to use for your Augmented Reality, for this application note we will use QR codes.
5. Choose the Action when this QR code is read, and then fill in the related information for that action.

Figure 2 - Augmented Reality Settings

6. Type in the Value for the QR code, and you will see a sample of the generated QR code. One aspect to consider is that having a shorter location name will have a faster recognition time when scanning the code.
7. Now Apply the changes you have made, and you now should be able to test the Augmented Reality on your device.



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8. Make sure to print out your QR code to use with Augmented Reality.

Example using Augmented Reality

1. Open the MobileHMI application, and connect to your server.
2. Swipe from the right side to reveal the Charm Bar, and select Settings. Choose Preferences to show the MobileHMI preferences.
3. Scroll down to the section called Augmented Reality, and enable the camera. This allows you to scan codes using the camera in MobileHMI. If this is not enabled, then you will not be able to scan in your code.

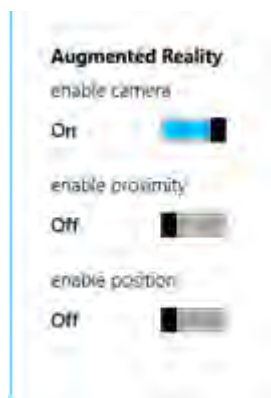


Figure 3 - Enabling Camera on MobileHMI device

4. Swipe up from the bottom of the screen to reveal the toolbar and select Augmented Reality, which should enable the camera within the MobileHMI application.

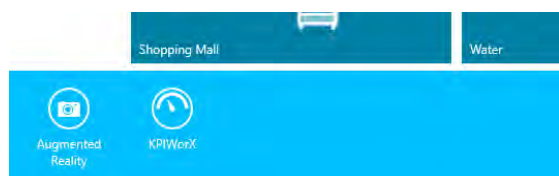


Figure 4 - Augmented Reality button

5. Place your QR code in front of your MobileHMI device, and the command you specified should execute, so if you selected the command "Load Display", then a GraphWorX display should load.
6. If you want the loaded display or loaded window to be an overlay to the camera, you can change the setting called "Make Transparent". This allows the display you load to be shown over the camera, so you can still see the camera on the device.
7. If you want to change the display that is currently loaded, you just need to swipe up and select Augmented Reality again, which will allow you to select a new display.

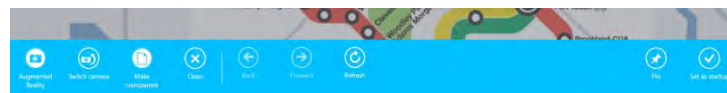


Figure 5 - Augmented Reality Toolbar

Limitations with codes in MobileHMI

There are some limitations when scanning codes into MobileHMI, mainly due to limitations in the technology. One way around this would be to use QR codes instead of barcodes to read MobileHMI commands. QR codes are designed to be read by a camera, and barcodes are not.

If you do want to use barcodes with MobileHMI, please keep in mind that there might be a chance that there are failed detections or misread values due to the technology. As mentioned before, a way around this would be to use QR codes exclusively.

Some aspects to consider if you are using a barcode:

- When creating a barcode, do not use a repeated sequence such as 55555555, use a different sequence instead.
- Some barcodes have restrictions on what the values of the barcode would need to be, so please keep this in mind. When creating the barcode, the configurator in Workbench Desktop should provide suggestions on what is needed for this type of barcode.