



# *Integrating with Barcode and RFID readers*

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# Code Rage 2018

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# Agenda

- *Motivation*
- *Tested Devices*
- *Integration Models*
- *Some Code*
- *Q&A*



# *Initial Considerations*

- *First of all, important to mention, my tests are all based on Android powered devices*
- *Integration (via Bluetooth) for iOS is a way more complicated due to the iOS Bluetooth/profiles restrictions*
  - <https://www.slideshare.net/purvikrana/bluetooth-restrictions-and-supported-profiles-in-i-os>
- *Some versions of Android (specially 4.x) doesn't behavior as expected, and some available readers still being shipped with this version (e.g., Zebra MC32 and MC40)*

# *Motivation*

- *Customers wants to use Barcode readers (and some RFID) in their applications for inventory, stock control, etc.*
- *You can – of course – read barcodes with your mobile device, but with a limited efficiency in terms of performance*
- *In any case, let's review how to do this using the ZXing ("Zebra Crossing") library before looking to specific devices*

# *Zxing (Zebra Crossing Library)*



- *ZXing ("Zebra Crossing") barcode scanning library for Java, Android*
  - <https://github.com/zxing/zxing>
- *Among several others, there is a Delphi port of this library*
  - <https://github.com/Spelt/ZXing.Delphi>
- *Alternatively, there is a Zxing app (for Android) that can be integrated as well using Intents:*
  - <https://play.google.com/store/apps/details?id=com.google.zxing.client.android&hl=en>

# *Physical Devices*

- *There are a plenty of devices available in the market, really a lot!*
- *With prices ranging from less than 100 dollars up to 2k+ (for a high performance RFID reader)*
- *With several technologies, but similar integration models*
- *For this webinar, we'll explore 4 distinct devices, using 3 different integration approaches*
  - *Keyboard Direct Input*
  - *Intents / Broadcast*
  - *Bluetooth SPP*

# *Keyboard Direct Input*

- *Available in the most part of embedded barcode scanners*
- *Very easy to implement - actually you don't need to do anything*
- *Just put the focus in a data entry control (aka TEdit) and that's it*
- *Cons:*
  - *Doesn't work with all Android versions (sometimes the reader just can't "see" your applications in FMX). Probably this is not a problem anymore with new native controls for Android*
  - *You can't really control the application. Maybe the focus isn't in the right place? Risk of values manipulation?*

# *Intents / Broadcast*

- *Uses the concept of Android Broadcast Intents and Broadcast Receivers*
- *Very elegant and has a good performance, you are on the control!*
- *Some references on the topic*
  - [https://www.techotopia.com/index.php/Android\\_Broadcast\\_Intents\\_and\\_Broadcast\\_Receiver](https://www.techotopia.com/index.php/Android_Broadcast_Intents_and_Broadcast_Receiver)
  - [http://docwiki.embarcadero.com/CodeExamples/Rio/en/FMX.Android\\_Intent\\_Sample](http://docwiki.embarcadero.com/CodeExamples/Rio/en/FMX.Android_Intent_Sample)
  - <https://stackoverflow.com/questions/33609494/how-to-check-and-hang-up-reject-incoming-outgoing-calls-on-android-in-delphi>
  - <http://blog.blong.com/2016/09/android-callbacks-wrapped-by-firemonkey.html>
  - <https://www.packtpub.com/application-development/delphi-cookbook-third-edition>

# *Honeywell EDA50*



- <https://www.honeywellaidc.com/products/computer-devices/handheld/scanpaleda50>
- ***Processor***  
***Qualcomm Snapdragon 410 MSM8916 1.2 GHz quad-core***
- ***Memory***  
***2 GB RAM, 8GB/16GB Flash***
- ***Operating System***  
***Android 7.1.1***

# *Opticon H-27*



- <https://www.opticonusa.com/products/mobile-solutions/h-27.html>
- ***Qualcomm® Snapdragon™ S4 MSM8960 Dual core Krait 1.5GHz CPU***
- ***Memory: 8GB Flash NAND, DDR2 1GB SDRAM and microSD up to 32GB***
- ***Android 7.1***

# *Bluetooth SPP*

- ***SPP = Serial Port Profile***
- ***Serial Port Profile defines how to set up virtual serial ports and connect two Bluetooth enabled devices.***
  - [https://en.wikipedia.org/wiki/List\\_of\\_Bluetooth\\_profiles#Serial\\_Port\\_Profile\\_\(SPP\)](https://en.wikipedia.org/wiki/List_of_Bluetooth_profiles#Serial_Port_Profile_(SPP))
- ***Basically we use a Bluetooth Socket to communicate***
  - <https://developer.android.com/reference/android/bluetooth/BluetoothSocket>

# *Bematech BR-200 BT*



- <https://www.bematech.com.br/produto/br-200-bt/>
- *Portable Wireless Bluetooth*
- *Battery: 80 hours of operation*
- *Bluetooth 2.1*

# Zebra RFD 8500 SERIES



- <https://www.zebra.com/us/en/products/rfid/rfid-handhelds/rfd8500.html>
- ***High-performance UHF RFID***
- ***Bluetooth 2.1+***
- ***700+ tags/sec***
- ***Battery: 10 hours of operation***

# *Partially Tested Devices (works in a similar way)*

## **DOTR-900**

- [http://www.dotel.co.kr/products/product.asp  
?productId=TQIX&productIdx=42](http://www.dotel.co.kr/products/product.asp?productId=TQIX&productIdx=42)



## **BT-1128**

- <https://www tsl.com/products/1128-bluetooth-handheld-uhf-rfid-reader/>





# Q&A

- **Contact**
  - [fernando.rizzato@embarcadero.com](mailto:fernando.rizzato@embarcadero.com)
- **Blog**
  - <https://fernandorizzato.com/>
- **Samples**
  - <https://github.com/flrizzato/CodeRage2018-US>

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