Australian Retail RFID Alliance

RFID & IoT – What’s it all about?

14-11-2017

GS1 – 8 Nexus Ct, Mulgrave

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Who Am I?

• **Geoffrey Ramadan**
  • Founder & Managing Director (1983)
    • Unique Micro Design Pty Ltd www.umd.com.au
    • Engineering ICT Solutions in IoT
  • Founder & Managing Director (2014)
    • Provectus Wealth Pty Ltd www.provectuswealth.com
    • Technology Investment Club (my hobby!)

• **Australian Industry Group**
  • Member of the Innovations Leaders Group

• **Past Chairman**
  • Automatic Data Capture Australia (ADCA)

• **Founding Member**
  • RFID Association of Australia (no longer exists) www.rfidaa.org

• **Education**
  • Bachelor of Engineering (Electrical) Degree from Monash University (Clayton)
Technologies

- Barcoding
- Cloud / Hosting
- Digital Communications (eg. Wifi, BLE, Cellular, Ethernet etc)
- Electronics and Interfaces
- Embedded Computing
- IT (computers, networks, servers, peripherals etc)
- Mobility
- Payment Gateways (Credit Card, EFTPOS, Payment API Integration)
- Point of Service / Point of Sale
- Radio Frequency Identification (RFID)
- Software (embedded, mobility, application and cloud)
- The Internet
IoT

Internet of Things
My Definition of IoT

• An IoT Device is
  • So small
  • So low power
  • So cheap
  • So powerful
  • So connected (Wi-Fi / 3G / ZigBee / BT / Lora etc)

• You can stick it in anything!
The Value of IoT

- IoT can convert "dumb" assets and “disparate” systems into "smart" assets and “integrated” systems
  - Enhance / extend existing legacy systems

- IoT enables businesses to:
  - enhance their product and service offering
  - optimise and enhance their own operations

- Which can result in business transformation and disruptive applications
What can You do with it?
POS Application
Add IoT Device

Let's turn a “dumb” asset into a “smart asset”
Then connect this to the Internet
Add UHF RFID
Attached dual EAS/RFID Tags (or inlays to labels)

Note:
If using Dual EAS/RFID Tag
Now no longer about the
cost of the tag.
Program RFID Tag

1. Read Barcode on Garment
2. Program RFID Tag (GS1 EPC SGTIN)

Hand Held Barcode/RFID Reader/Writer
Program RFID Tag
Program RFID Tag
Update External Inventory Database (real time)

<table>
<thead>
<tr>
<th>RFID</th>
<th>Barcode</th>
<th>Item</th>
<th>Qty</th>
</tr>
</thead>
<tbody>
<tr>
<td>SGTIN1</td>
<td>1234</td>
<td>Shirt</td>
<td>1</td>
</tr>
<tr>
<td>SGTIN2</td>
<td>1234</td>
<td>Shirt</td>
<td>1</td>
</tr>
<tr>
<td>SGTIN3</td>
<td>1234</td>
<td>Shirt</td>
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Sell RFID Tagged Item

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(1) EAS/RFID Tag scanned at POS
(2) IoT Device Converts EPC SGTIN into a GS1 Barcode and Injects into POS (no software changes)
(3) Also update Cloud Service
Share the Data

(1) Cloud Service Inventory
Database now has mirror image of POS inventory
(2) In real time
(3) Can now be shared

Real Time Data
Shared with
- Omni-channel systems
- Marketing
- Suppliers
- Management
Also with the Hand Held

(1) Inventory / Stock Take / Audit against list
(2) Find specific Items/Barcodes
(3) Display Descriptions (and identify misplaced sizes)

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<td>Shirt</td>
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<td>1234</td>
<td>Shirt</td>
<td>-1</td>
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Things to note

• System only works with GS1 barcode based system
  • Direct correlation between GS1 Barcodes and SGTIN encoding in EPC

• Does not required ANY POS software changes
  • System converts SGTIN back into a Barcode and injects into POS

• Only need Wifi access

• Optional upload of SKU File
  • To attribute details to Barcode to data
But There’s More!
Add RFID ID Contactless Loyalty Cards
(UHF or HF)

(1) At POS, customer simply places Contact Card on IoT Device before any items are scanned.
Scan Items at POS

1. Either Product Barcode or RFID Tag
2. Any scanned item is simply associated with the Loyalty Card and is sent to the cloud service
3. We now know in real time products purchased by customer

<table>
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<tr>
<td>AB1234</td>
<td>5264</td>
<td>Shoe</td>
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</tr>
<tr>
<td>AB6666</td>
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<td>Coke</td>
<td>1</td>
</tr>
<tr>
<td>AC6587</td>
<td>2365</td>
<td>Coffee</td>
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Loyalty System

IoT

1234

RFID

Loyalty Card

AB1200

AB1200, 1234
Brand Promotion

(1) Barcode is scanned
(2) Loyalty Card ID and Barcode send to Cloud Service
(3) Loyalty System recognises Barcode is subject to discount (10th purchase by Customer)
Brand Promotion

(1) Loyalty Systems injects suitable discount barcode / voucher into POS Z (V001)

(2) Operator assistance is not required

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Imagine Solution in Shopping Centre

1) Works across all (barcode based) retail
2) Can collect and redeem Loyalty points
3) POS hardware / software agnostic
4) Real time
So that’s what can you do with RFID and IoT
About UMD

• Since 1983 UMD has been solving customer’s needs for productivity improvement by adding real time visibility and control using Edgeware, IoT and our engineering IoT solution skills, which reflects our ability to:
  • **Design** and manufacture IoT devices and Interface electronics
  • **Source** & Integrate ICT products from our agencies
  • **Support** through our professional engineering, software and support services
• In simple terms “we add eyes and ears” to software
Our Services

IT Services
- Systems Integration
- Solutions Architecture
- Systems Engineering
- Software Development (Embedded, Mobility, Applications & Web)
- Wireless & RFID Site Surveys
- Installation & Commissioning
- After Sales Support & Service
- Electronic Design
- Industrial & Mechanical Design
- Rapid Prototyping (3D Printers, Laser Cutters..)
- Manufacturing and Assembly

Electronics Engineering
Thankyou!

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