beyond the technology

RFID Innovative Sample Labelling, Scanning and Tracking Technologies

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CSols RFTrackIT – Capabilities & Demo

RFID Team

- Team:

  - Keith Huxford   CSols RFTrackIT Brand Manager

 - Frits van Calker & Andy Ho   RFIDDirect MD & Problem Solver

  - Cedric Mochon   CSols Project Manager, Developer

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Agenda

- Introduction / CSols Capabilities / Recent Projects / New Projects

- An introduction to the World of RFID

  - Bottle scanning demo

  - Shoe shop video – finding items

- RFTtackIT – crate scanning, expected and not expected bottles

- What next?

The First Application of RFID Technology
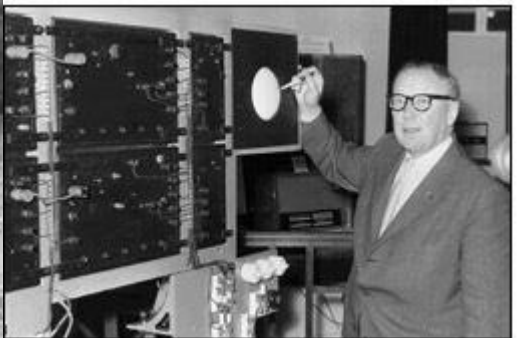
Radio Frequency Identification (RFID)

Uses electromagnetic waves to transfer information to and from 'tags' or 'smart labels'…
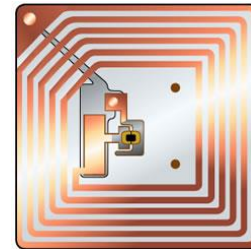
… which can be attached to or embedded within a wide range of objects or solutions

RFID Tag Types

- **Passive**

  - Operational power scavenged

    from reader radiated power

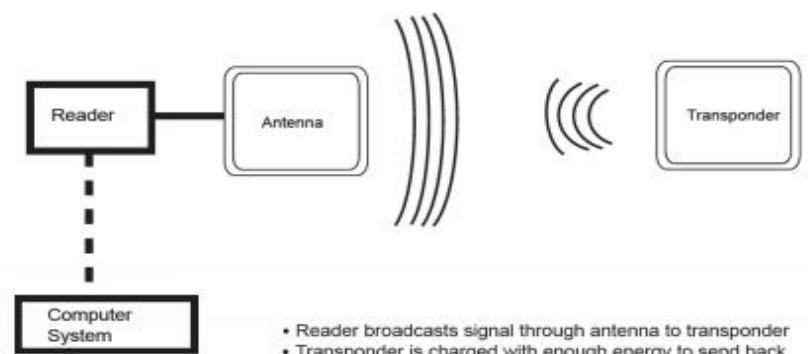- **Semi-passive**

  - Operational power provided by
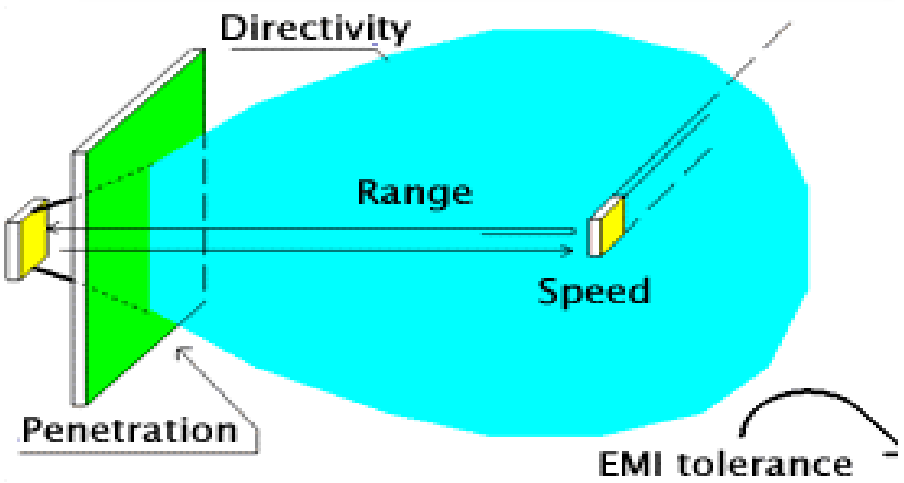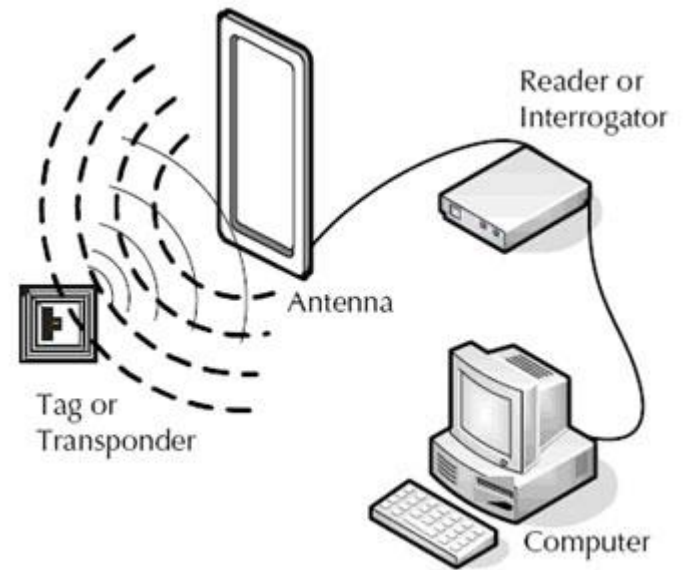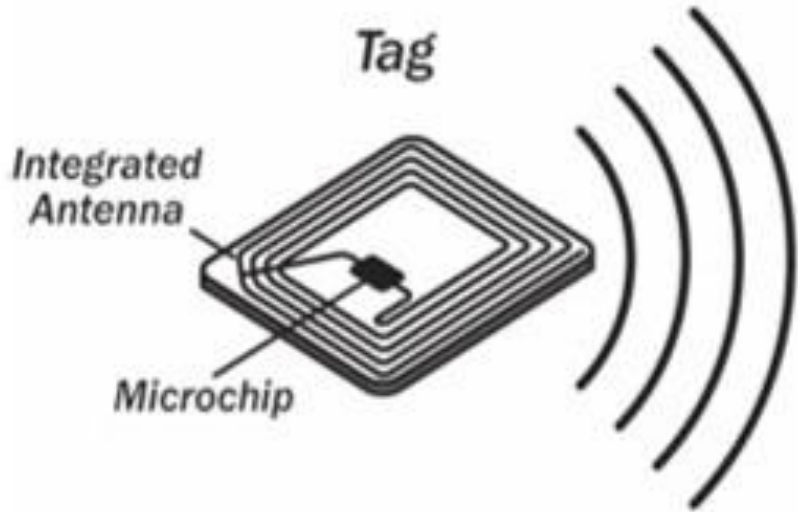
    battery

- **Active**

  - Operational power provided by

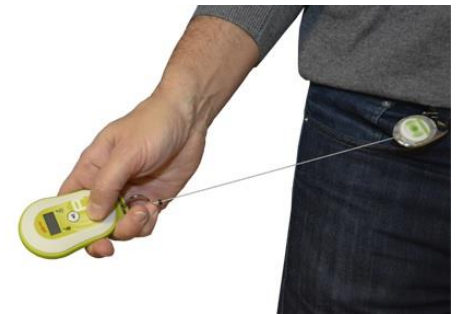   battery - transmitter built into tag

RFID – How it works

- Reader broadcasts signal through antenna to transponder
- Transponder is charged with enough energy to send back identifying response
- Reader sends info/data to computer system for logging and processing

RFID Scanners

RFID read / write label printers

RFID Printer Technology

- High Speed Printers

  - Can print on paper RFID labels

  - Sample information, 2D barcodes etc.

- CSols software 'pairs' sample id with the RFID tags UID and stores the data in the LabCache database
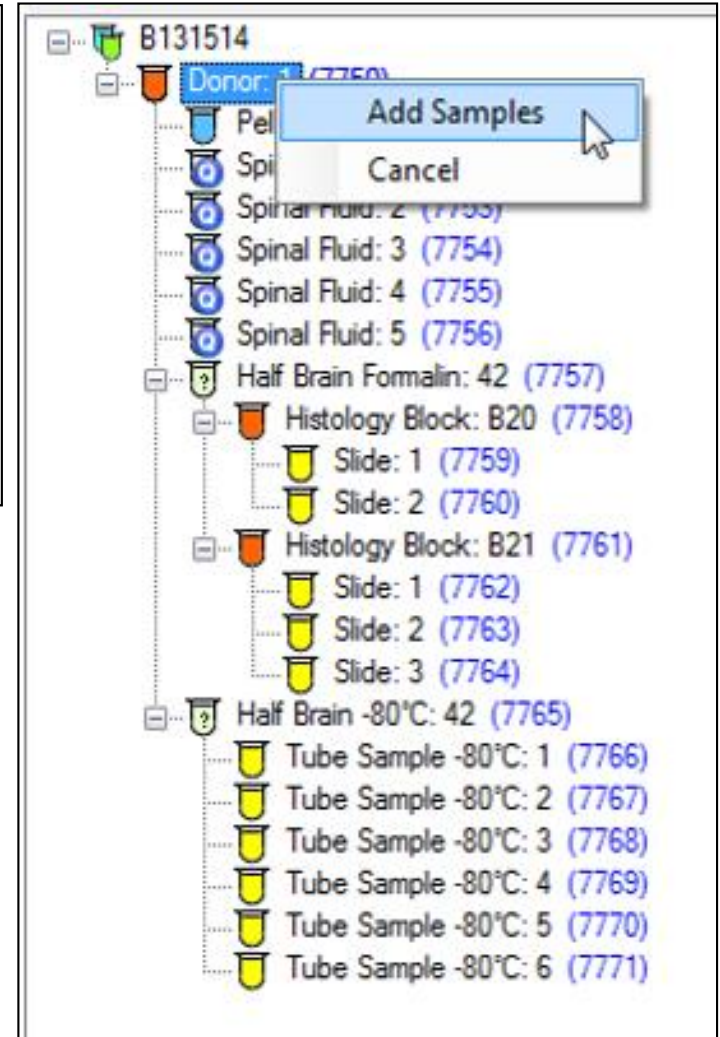
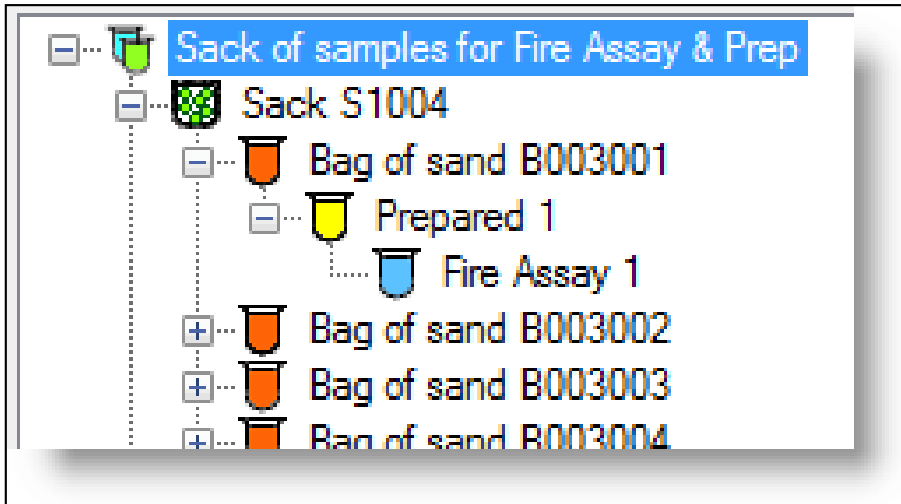# Applications

CSols RFID Applications

- Crate & Bottle Scanning

- Chain of Custody – Courier transfers, Night Stores, inter van, lab delivery

  - Temperature monitoring of vans / samples

- People, Column, Instrument Tracking

  - Asset / High Value item tracking

  - What was last run on column and how?

- Gold Ore analysis / traceability

- Solution tagging and tracking

- MS Azure MRC UK Brain Bank specimen storage in ultra low temperature freezers and at room temperature
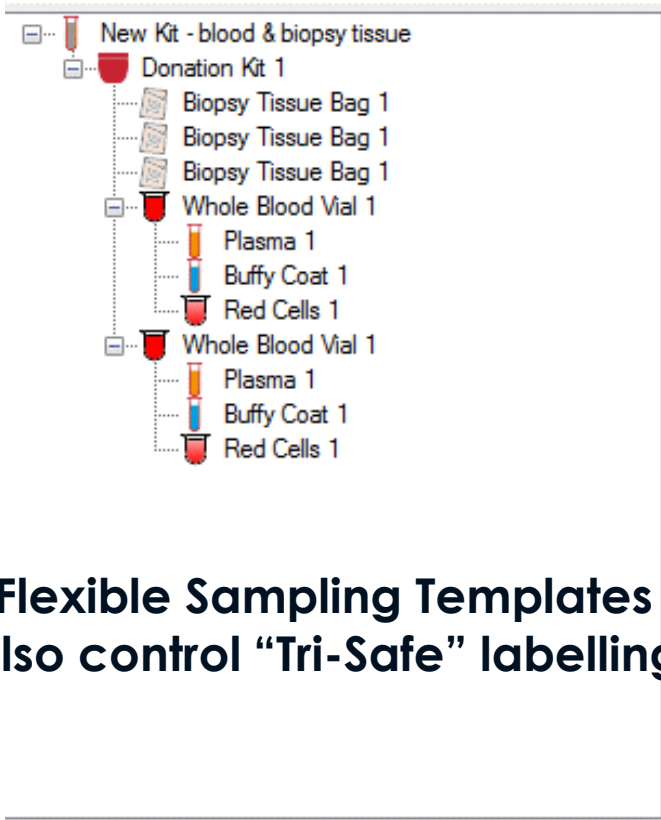
  - Retrospectively labelling frozen samples

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CSols Gold Lab Testing

- Track all sacks, bags, sub-samples

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Flexible RFID/Barcode Sampling Templates

Sack of samples for Fire Assay & Prep
- Sack S1004
  - Bag of sand B003001
    - Prepared 1
      - Fire Assay 1
  - Bag of sand B003002
  - Bag of sand B003003
  - Bag of sand B003004

B131514
- Donor: 1 (7750)
  - Pel...   Add Samples
  - Spi...   Cancel
  - Spinal Fluid: 2 (7753)
  - Spinal Fluid: 3 (7754)
  - Spinal Fluid: 4 (7755)
  - Spinal Fluid: 5 (7756)
  - Half Brain Formalin: 42 (7757)
    - Histology Block: B20 (7758)
      - Slide: 1 (7759)
      - Slide: 2 (7760)
    - Histology Block: B21 (7761)
      - Slide: 1 (7762)
      - Slide: 2 (7763)
      - Slide: 3 (7764)
  - Half Brain -80°C: 42 (7765)
    - Tube Sample -80°C: 1 (7766)
    - Tube Sample -80°C: 2 (7767)
    - Tube Sample -80°C: 3 (7768)
    - Tube Sample -80°C: 4 (7769)
    - Tube Sample -80°C: 5 (7770)
    - Tube Sample -80°C: 6 (7771)

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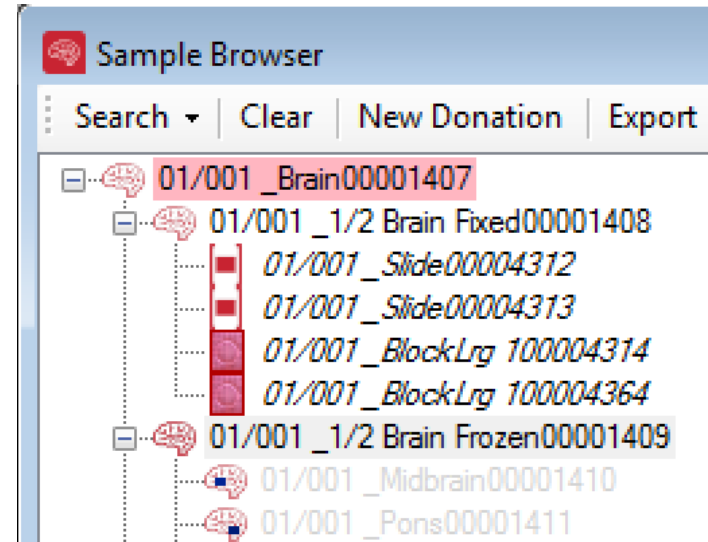
Biopharma / MRC UK Brain Bank Network

Flexible Sampling Templates
Also control "Tri-Safe" labelling

Room Temperature
QR Code RFID label

Cryogenic RFID label

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Water company demo configuration

Consignment Tracking

- Flag too many too few samples in a consignment
- Flag Items in wrong place / incorrect samples in van compartment (waste/clean)
- Prevent Clean in waste van and vice versa before it happens
- Flag ad hocs in a consignment
- Prevent accidental discards
- Notify of required discard(s)
- Allocate discard place

Flexible RFID/Barcode Sampling Templates

Two missing samples

One wrong sample

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CSols Applications / Ideas

- Integrated Remote Sampling Room, Van, Fridge, Freezer temperature monitoring

- Chemicals & Reagents Tracking

- Instrument / Personnel / Asset Inventory Tracking

- Column Identification / Instrument Information / PAT

- Gas Cylinder Identification & Tracking

- Linking items together – Instrument Modules, Pipes / Connectors, People / Tasks, Fuel Delivery Systems

- Automated PrepLab login and weighing / instrument queue building and setup

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Fully Integrated Vertical Audit Reports

CSols Remote Sampler
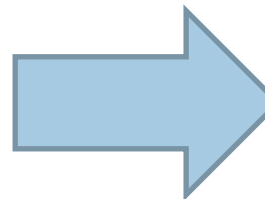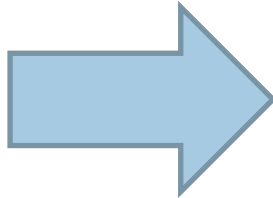
Bag Temperature vs Time
Specimen put into fridge and placed in bag later

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Temperature tag in bag without sample

Specimen taken from the fridge and placed in a bag with the temperature tag

Specimen and temperature tag in the bag

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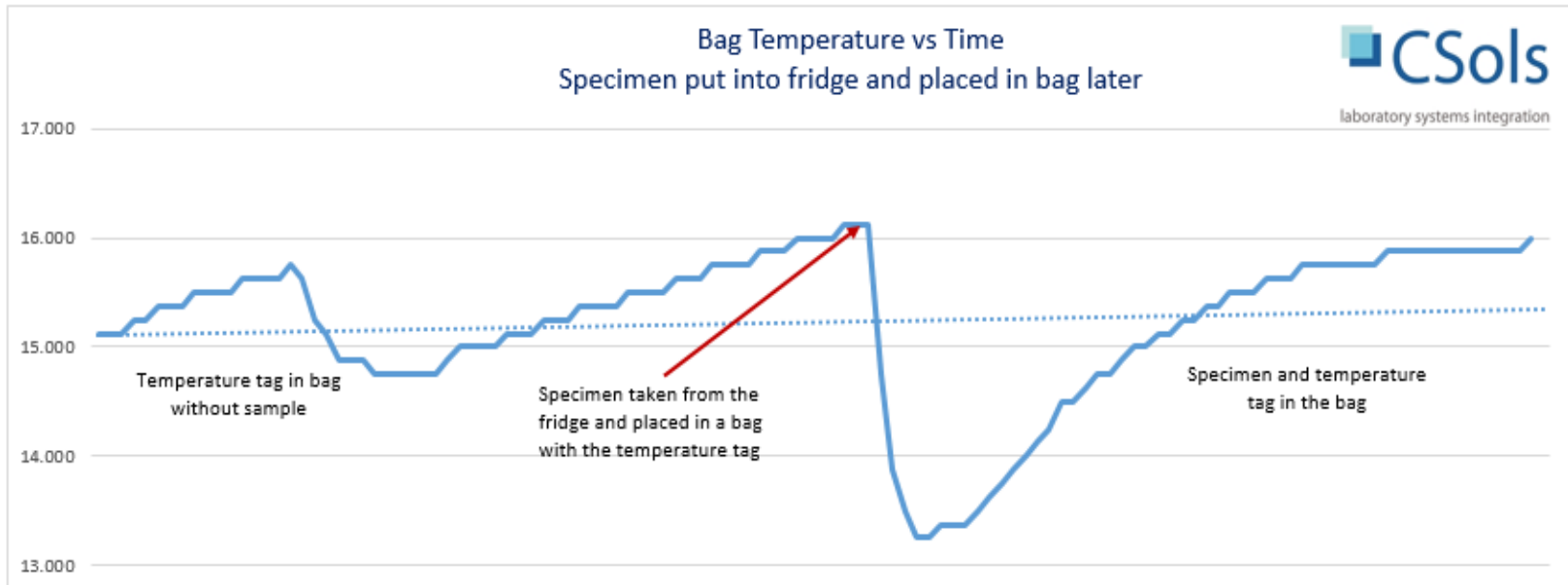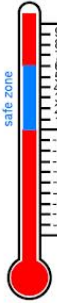
Challenges

- Identifying ore / rock cyanide slurry sample id

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Tagging Columns for better information

- Also tag instruments / assets, columns and components to ensure modular instrument is validated

- Feedback support, management and maintenance data in real time

- Feedback real time usage / service data across company

NFC / HF Tags with stored data

Instrument ID

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LC-MS001A
Model E1M18
23 Jan 2013
A343-24-904
36kgs
SN 0171698476
Organics Lab
Dave Smith
01827 456322

Personnel Authorization

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Keith Huxford
3636756
keith.huxford@csols.com
www.csols.com
01928 246233
Sales & Marketing

Column ID

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KH179415
367
M1344-34A
ODS HYPERSIL 5
100X2.1
B4678A
pH 12, 350 bar, 70c

NFC Scanning Area

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Another Project Idea

Automated PrepLab

- Automatic user authentication

- Automated sample identification & weighing

- QC samples added

- Automated user worklist build & automated instrument queue build

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Key Benefits of RFID

- Carry unique identifiers that positively identify items

- Saves time, speeds up tasks, improves traceability

- Does not require direct line of sight to be read

- Multiple tags can be read at one time

- Data can be stored in tags

- Can easily track movement of multiple items between locations

- Can automate actions when tag is read (cloud links, SMS, alarms, email, link to results/invoice etc.)

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