Location Services for Healthcare

Class 5: Available Products and Future Trends

August 25, 2017

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This Week's Agenda

Monday	Overview
Tuesday	Tags and Sensors
Wednesday	Systems and Software
Thursday	Implementation Issues
Friday	Available Products and Future Trends

Course Description

Location service refers to a set of devices and software that allow the tracking of all manner of items in an enterprise. In general these are real time tracking services. Thus, an enterprise has a real time picture of where everything that needs to be tracked is and can deploy, resupply and maintain all these items in a consistent manner. This is a truly Internet of Things (IoT) environment. In the healthcare environment, this level of management can be critical, and can also lead to major efficiencies. In this course we will review the general field of Real Time Location Services (RTLS) and then discuss their application of and use in a healthcare setting.

Today's Agenda

- Overview
- Vendors
- Standards
- Technology Directions
- Conclusion
- Contact Info

Overview

- In this class we will look at some of the vendors with healthcare specific RTLS systems
  - In general we will introduce them a look at what they say about their systems
  - This is not a comprehensive list, but shows that there are healthcare specific solutions which can be a starting point for your own investigations
- We will also look at standards being applied
- Finally we will look at some new technology directions that might be applied in this area

Vendors

- Versus RTLS (http://www.versustech.com/)
- Uses Wi-Fi and infrared sensors
  - Sensors can be wired or wireless
  - Leverages existing networking architecture
- Tags are “badges” and “Asset Tags”
- Supports mobile applications on iOS devices
  - Tablet or phone

Vendors

Coverage

Emergency Department
Eliminate time-consuming walking surveys, overhead paging, phone tag and interruptions. Improve efficiency and create a calmer, quieter ED.

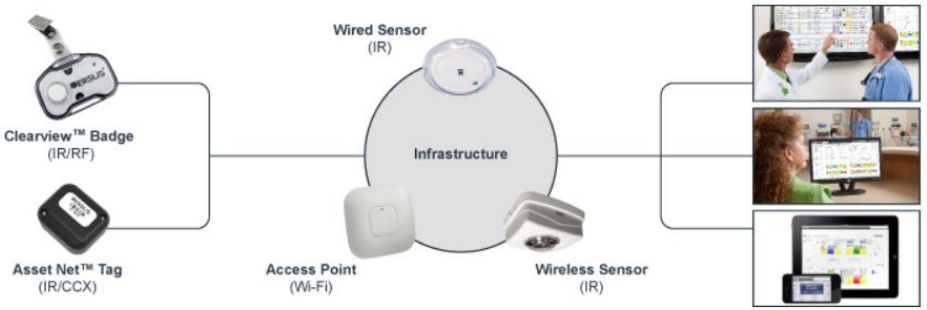
Operating Room
You know efficiency is key to physician, staff and patient satisfaction. Create efficiency through visibility by tracking patients throughout their surgical visit.

Clinic
You want more time with each patient, but you need to see more patients. What if you could have both? You can by improving patient flow with RTLS.

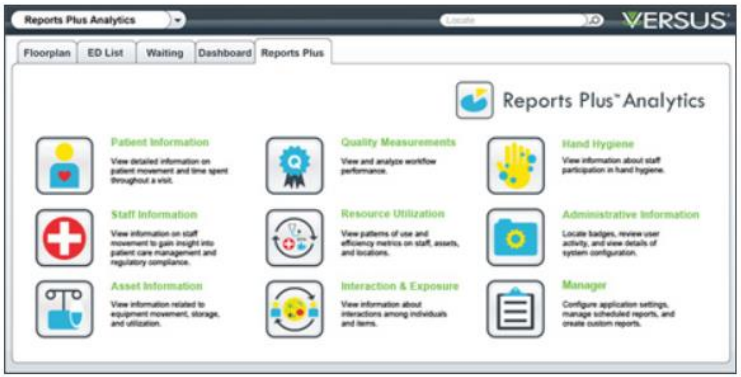
Asset Management
Are you buying or renting more medical equipment just to ensure availability? Automate fleet deployment in real-time with par-level alerting and replenishment.

Bed Management
Do you walk the halls to see if beds are available? Call back and forth to bed patients? Receive automatic bed status updates and alerts to improve bed turnover.

Hand Hygiene Safety
Of course you know that proper hand hygiene is the best line of defense against HAIs. But do you know how often staff wash their hands? You will with RTLS.



Extensive Analytics Applications



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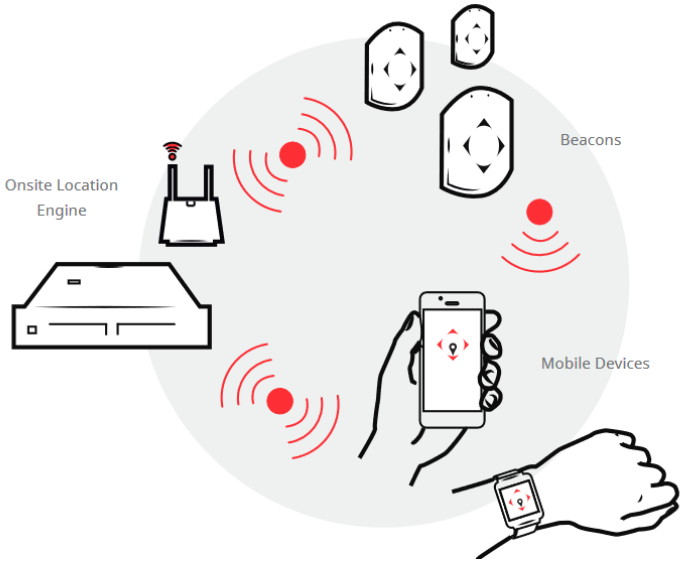
Vendors

- Awarepoint (http://www.awarepoint.com/)
- Advertises “Location as a Service”
- Vertical Industries supported include healthcare, industrial and retail
- Provide a “managed service” option where they perform the whole planning and installation and then train users

Vendors

Technologies include
BLE and Wi-Fi



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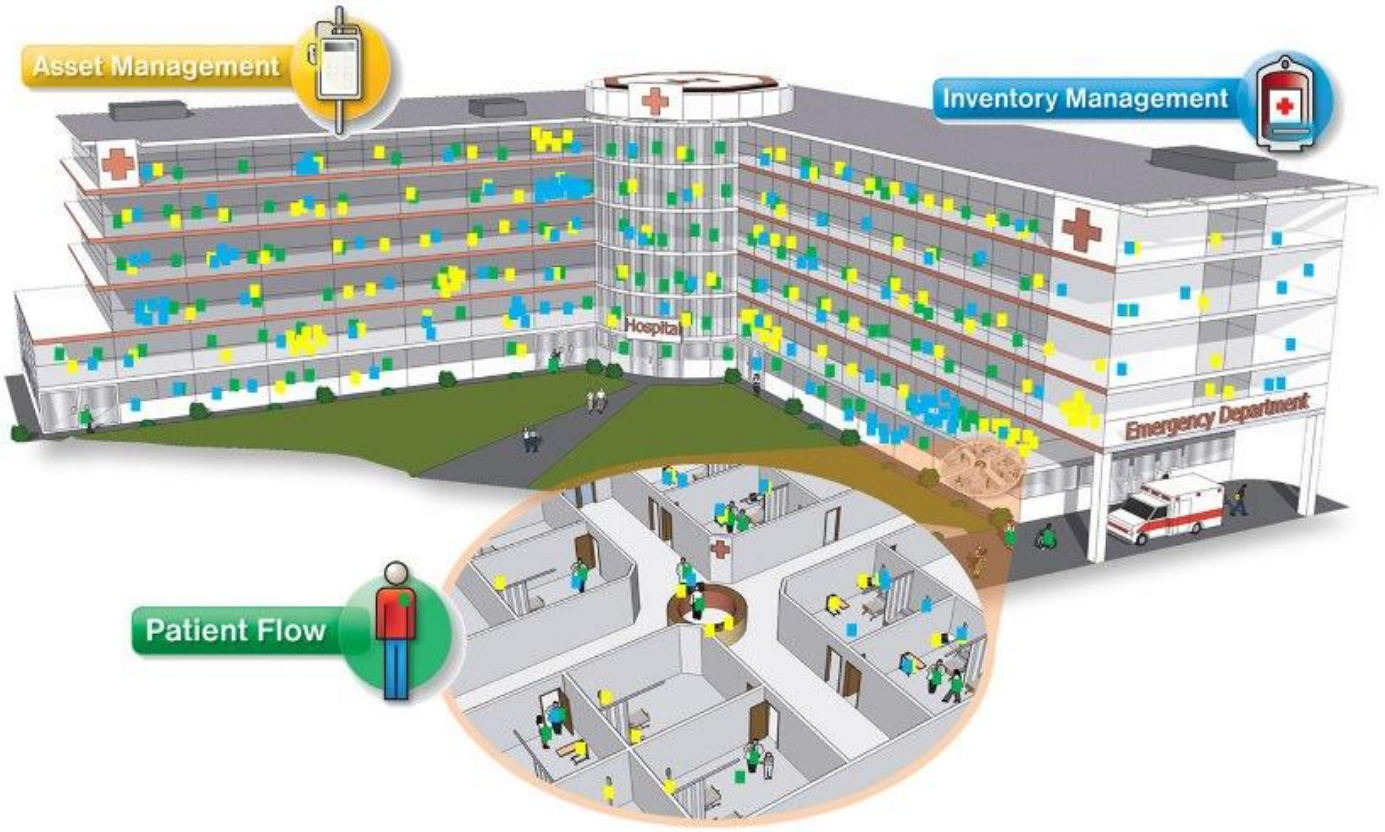
Vendors

- Securecare (http://www.securecare.com/)
- Oriented toward many functions in the hospital setting and Senior Care and Infant Tracking
- Technologies include Wi-Fi, Infrared and RFID
  - Extensive use of active tags
- Extensive reporting capabilities

Vendors


Asset Management
Inventory Management
Hospital
Emergency Department
Patient Flow

Standards

- Standards are used extensively in the communications area, such as standard Wi-Fi protocols and Bluetooth Low Energy (BLE)
- Standardized RFID tag technology is often used
- Standards for enclosures
- HIPPA standards for handling patient data

Standards

- Interoperability between systems is an area where standards do not yet exist
- IEEE has a working group developing such a standard
  - P1847
- Attempting to standardize the architecture so that different implementations can exchange data, and perhaps use more standardized protocols in tags

Technology Directions

- There is extensive opportunity for new technology development
  - Developments in tags
  - Development in sensors
  - Developments in deployment
    - Servers vs Cloud implementations or a mix of the two
  - Analytics capabilities
    - These are already in place for many vendors, but new functionality leveraging advanced analytic methods are always being developed

Technology Directions

- Advances in tags may include new protocol stacks which incorporate security
  - Thread: protocol stack that runs on BLE with built in security features
- Sensors
  - Optical
    - Enhanced scene understanding
    - Does not require tags
    - Detect anomalies
    - Deep Learning neural networks

Conclusion

- Today we have looked at vendors, standards and some future technology directions in Healthcare RTLS
- This week we have discussed the details of the technology and the issues of deployment and management
- This is a large and potentially complex application area growing extensively
  - Over $.5B in 2015, projected to grow to over $3B in 2022

Contact Info

- I can be contacted several ways:
  - On Design News (naperlou, or search for Louis Giokas)
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