Educause Preconference Workshop

How Healthcare Organizations are planning for the Integration of IoT Technologies

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October 30, 2018
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- Vantage’s Healthcare Practice Leader
- Responsible for Strategic Technology Planning and Consulting Services for Vantage’s healthcare clients
- Member of winning Aditazz solution for Kaiser Permanente’s “Small Hospital, Big Idea” competition
- Clients include OSU Wexner Medical Center, NYU Langone Medical Center, UCLA Health System and UCSF
“When we talk about the Internet of Things, it’s not just putting RFID tags on some dumb thing so we smart people know where that dumb thing is. It’s about embedding intelligence so things become smarter and do more than they were proposed to do.”

Nicholas Negroponte
Real Time Location System (RTLS)

- Locates Doctors, Nurses and other staff
- Tracks Patients and Visitors
- Identifies location of clinical and other valuable equipment
- Custom algorithms to determine specific events, activities and alerts
- Enhances workflow, improves healing environment, increases efficiency
RTLS Sensors and Tags

Stanley Healthcare and AiRISTA Flow (Ekahau)
RTLS Use Case – Way-finding

Smartphone App guides Patient to Hospital via GPS and directs to Parking Space / Valet.

App switches to walking directions to guide Patient to Main Entrance. App alerts Department that Patient is en-route and can inform and redirect Patient if appointment is delayed.

App allows Patient to select various destinations at Hospital, and can also provide real-time assistance if needed.
IoT Healthcare Use Case

- Sutter Health / CPMC $1.1B, 740,000 sq. ft. twelve story Acute Care Hospital
- 264 beds, 20 Operating Rooms, and Emergency Department
- Integrated Project Delivery (IPD)
- IoT / Modelling / RTLS integrated deployment throughout project lifecycle
Technologies included in building model

Data exported from model

Equipment delivered to warehouse and tagged

Custom equipment delivered to room
Benefits

- Revit model tracks locations of technology devices, IoT sensors and other components
- Supply chain simplified
  - Optimizes design and improves efficiency
  - Real-time budgeting and cost data available
  - Facilitates room-based packaging and delivery
- Components tracked from warehouse to hospital
IoT enhances the Patient Experience

- Personalized Room
  - Lighting
  - Temperature
  - Décor
- Enables Positive Distraction Therapy, improves outcomes, and empowers the patient and their family

Adopt-a-Room, University of Minnesota, Fairview
Video Footwall

- Education & Entertainment
- Clinical Systems
- Care Team
- Schedule
- Family Window
- Video Visit
- Multi-language / Speech Recognition

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IoT Healthcare Use Case

• Laguna Honda Hospital; a $594M Skilled Nursing and Rehabilitation Hospital
• 780 beds in two Residence Towers, plus a Link Building for central services
• Traumatic Brain Injury and Alzheimer’s / Dementia Units
IoT facilitates Building as Caregiver
IoT facilitates Building as Caregiver

System Alert: Possible Elopement in Wing 12A

Fred Smith
Room 1234
No other details
IoT facilitates Building as Caregiver
Benefits

• Allows staff to focus on high-value tasks while system monitors the location of patients
• Improves patient safety and provides family members with a sense of security
• Enhances environment by reducing opportunities for negative encounters
• Provides valuable clinical data regarding recovery state of each patient
Command Center

GE Healthcare Partners
Extending IoT to the home

- Hospital coverage extends to home
- IoT sensors deployed in home monitor health
- Reduces recovery time and improves outcomes
Extending IoT beyond the home

- Connected health via smartphone and/or smartwatch app
- Wearable technologies
- Predictive analytics allow first responders to preempt emergency

Dario Blood Glucose Management System

Nokia / AMGA / Withings
Summary

- IoT can be embedded in Digital Hospitals and Outpatient buildings to create smart facilities
- IoT can provide value by improving outcomes, enhancing the environment and optimizing workflow
- IoT can provide value throughout entire project lifecycle from design through construction and throughout operation
"[T]he Internet will disappear. There will be so many IP addresses, so many devices, sensors, things that you are wearing, things that you are interacting with, that you won't even sense it. It will be part of your presence all the time. Imagine you walk into a room, and the room is dynamic. And with your permission and all of that, you are interacting with the things going on in the room."

Eric Schmidt, Google
Questions we might ask…

• What parallels can we draw between the deployment of IoT in Healthcare and my institution?
• How can we ensure that the CapEx and OpEx for these systems provide value to my organization?
• What impact will BYO(IoT)D have on my campus?
• What provisions have we made regarding information security and intrusion prevention under this coming proliferation of smart IoT devices?