Realizing Human-Centricity: Data-Driven Services

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The world, including us humans, is getting quantified.

The world is generating data: new input to the IT infrastructure.

This creates an opportunity for a new class of services.
Sprout = Platform for big data from sensors
Sprout enables continuous IoT services

- Off Body
- Non bio-data streams
- Bio-data streams
- Sensing
- Analysis
- Services
- Real & non-real time

Fujitsu
The Health-Tech Disruption

Health | Care

How am I? | How can I get better?

episodic

continuous
Now, we can be measured, anywhere/anytime

Sensors (essentially, tiny computers) are increasingly ubiquitous

Getting smaller and cheaper on Moore’s Law (roughly)
Healthcare as a Service

An Example Application: Mobile Real-time Stress Assessment

Real-time ECG/PPG

Mobile continuous stress management services

Beat-to-beat time variability is a measure of stress
Some examples of Sprout apps
“Me”-centric maps

- Tracking our own stress using chest strap and Fujitsu analytics
- Tracking Location using GPS
- Mashing-up

- **Drive home:**
  - Stressed for 1st ½ of drive

- **Drive to work:**
  - Unexpected stress pattern
Come experience it – Booth # 11
shaping tomorrow with you
Summary of FLA’s technologies

- “Sprout” platform for mobile, real-time, multisensor data based services
  - Synchronizes sensor data streams from any number of sources
  - Designed to handle fast velocity data streams, e.g., live EKG
  - Has an API for building real-time multisensor data analytics and services
  - Real-time cloud integration, e.g., with EHRs

- Platform available on lab-built custom hardware (“hard” Sprout) as well as on Android devices (“soft” Sprout)

- Robust, mobile stress analytic
  - Outperforms state-of-the-art analytics in accuracy, resilience to noise, performance, and work across people of varied health conditions
RelaxTube: Stress Management through Personalized Media Consumption

Fujitsu Laboratories of America (FLA), Ubiquitous Business Strategy Unit

**Effective, Personalized Stress Management**

Stress is a causal factor in many chronic illnesses, but discerning and addressing one’s own stress is difficult. Through technology that estimates and displays stress levels in real time, methods of reducing stress that are tailored to an individual’s characteristics and circumstances can be provided, enabling appropriate stress management.

**Key Features**

- **Fast, accurate, real-time stress estimation and display**
  Heart-rate data is measured by a sensor and sent to a smartphone. Using that data, stress is estimated and displayed in real time. Stress estimation algorithms were developed using data from clinical trials conducted with medical institutions.

**Anticipated Customers and Services**

- For smartphone users, continuous stress monitoring and mobile services for contextual and personalized stress reduction
- For businesses, measuring the stress created by certain tasks and activities, and providing services for reducing stress to increase safety and employee health

**Anticipated Availability**

- **Mobile services**: Aim to launch services during fiscal 2014
- **Corporate wellness services**: Now conducting field tests with entertainment and insurance companies (October 2013). Aim to launch services during fiscal 2014
Some examples of Sprout apps

Results are being displayed in real-time on booth PDP, connected to native Android app on F-04E.

Subject is not 'wired'. They are connected wirelessly to F-04E.

Subject’s hands and PPG are stable on armrest, providing a good reliable signal.
Global Healthcare: Costs vs. Benefits

We're over here

Western Europe is here

Japan, Korea are here
Market Driver: Unsustainable costs

Projected National Health Expenditures
(in millions of dollars)
www.healthguideusa.org

Data Source: Centers for Medicare and Medicaid Services