

Highlights from TSensors Summit Tokyo, December 8-9, 2014

The Summit <http://techon.nikkeibp.co.jp/tsenglish/#welcome> attracted about 200 attendees. The TSensors event at GSA/Semi Forum, Tokyo attracted about 400 people.

Highlights:

- UCSD (Dean AI Pisano) supports development of all 8 exponential technologies through modification of curriculum.
 - Has created 40 coaches with \$10M budget each to promote entrepreneurship in this area.
 - He brought a medical doctor on the team to support biotech development.
 - Enables students to roll-to-roll fabrication for graphene devices.
- Microspectrometer is expected to have the biggest (from all sensors) impact on healthcare.
- Taste and smell sensors are already commercially deployed in Japan (although low volume). They already created significant impact of food and beverage industry, enabling tuning both to local likings.
 - One cup of tea has 500 distinguishable tastes.
 - Taste and smell sensors could be used for water taste and drug testing.
 - Smell camera is emerging.
- Emerging sensor for robots is the smell sensor.
- Crowd funding moved to Japan. One of the first crowd funded sensors was a radiation sensor (radiation-watch.org) brought on-line in several weeks after Fukushima accident, currently selling 60k units/year.
- There are 60 trillion membrane protein sensors in the human body.
- Supercapacitors emerge as energy storage for sensing systems.
- New radio technologies delivered 100 uW wakeup receiver power operating from 30 mV.
- Panasonic demonstrate screen printed PZT.
- Energy scavengers aim at reaching 100 uW by 2020 from human movement.
- There is a new trend to make sensors organic, to reduce environmental waste for trillions of them.
- Emerging robots and cars will have embedded 10,000s tactile (force) sensors each, to enable safe operation.
- Cellphone is becoming a de-facto standard platform for eHealth embedding:
 - Medical grade disposable and wearable sensors
 - "Preventive" sensors
 - Multigas sensors with 2 ppb sensitivity (GaN)
 - Particle (<100 um) sensors (killing currently over 20M people/year)
 - Breathe sensors, including acetone detecting diabetes.
 - Supporting multiple standards
- New generation of microphones with increased sensitivity emerges, capable of infrastructure monitoring.
- Glucose power pump was demonstrated.

Proceedings are available from Nikkei BP. To order contact Tsuneyuki Miyake miyake@nikkeibp.co.jp.