Fall 2010 IAB - Agenda

BSAC Hands-On Workshop: Networking Wireless Inertial Sensors (Wednesday or Friday Session)

IEEE802.15.4e is a low-power communication standard for low-power sensor networks soon to be ratified. Developed through initial research over the past decade at BSAC, this low-power, high-reliability 802.15.4e protocol has now become an official standard. Open standards lead to interoperability and wide commercialization of sensor innovations. Come join us for a hands-on workshop to explore OpenWSN, an open-source version of this protocol stack presently being developed at BSAC. From this workshop, you will take home open-source hardware and software so you can demonstrate to your colleagues how a wide variety of sensors can be simply and cheaply interconnected into low-power ad-hoc mesh networks.
The photo shows the MOTE you will take home. It provides a 9-axis inertial measurement unit, a microcontroller, an IEEE802.15.4 radio chip and an enhancement interface for attaching your own sensors. The goal of this half-day workshop is to explore the OpenWSN protocol stack and exercise the capabilities of this General Inertial Navigation Assistant (GINA mote).
Attendees will receive:
HARDWARE: a GINA 2.2 mote and a RAVEN base station. Both will come pre-programmed;
SOFTWARE: Python scripts to interface a laptop to the base station, development environment for the GINA mote, code examples and OpenWSN protocol stack;
TRAINING: hands-on demonstrations on pre-programmed firmware, pointers to customize firmware to your own needs; access to developer WIKI.
No prior experience with motes or embedded programming is necessary. Demos will be self contained, with explanations for the novice, and pointers to resources available for more advanced attendees.

15 September 2010
David Brower Center, Kinzie Room, 2150 Allston Way, Berkeley CA

Time	Speaker, Event / Topic Information
08:00	**Arrival, Continental Breakfast** **Kinzie Room and Hazel Wolf Gallery**
08:45	**Prof. Kris Pister** **Dr. Thomas Watteyne** Introduction to the Workshop
09:00	**Dr. Anita Flynn** The Guidance & Inertial Navigation Assistant (GINA)
09:30	**Fabien Chraim** Development Environment on GINA
10:00	**Ankur Mehta** Inertial Measurements: Accelerometer & Microgyro Demonstrations
10:30	**Break**
11:00	**Ankur Mehta** IMU Data Fusion; Air Pen Demonstration
11:30	**Thomas Watteyne** OpenWSN Protocol Stack
12:00	**Thomas Watteyne** IPv6 Integration Networking Demo
12:30	**Ankur Mehta** Footstep & Intrusion Detection Using GINA
12:45	**Thomas Watteyne** Takeaways, Post-Workshop Activities, Developer Wiki
13:00	**Adjourn Workshop** **Sandwich Lunch**

BSAC Research Exhibition & Showcase

This informal BSAC Research Exhibition will feature a dozen or more posters and demonstrations from among 130 BSAC research projects. Topics will include Energy, Wireless, BioMEMS, Nanotech, Packaging, Materials and Processes and related areas. Faculty and UC researchers will be available to discuss research topics with industrial members and guests from MEMS Industry Group (MIG). The beautiful Brower Center also has a revolving art exhibition to serve as an interesting backdrop to the high-tech research displays.

15 September 2010
David Brower Center, Tamalpais Room & Terrace

Time	Speaker, Event / Topic Information
12:00	**BSAC Faculty, BSAC Members and MIG Visitors** **Informal mixing with posters & discussions of some of eight BSAC research thrust areas**
14:00	**Goldman Theater - Start of MIG/BSAC Thrust Session: "MEMS Commercialization: Launching the Next Innovation-Based Businesses"**

MEMS Industry Group-BSAC Joint Thrust Session
"MEMS Commercialization: Launching the Next Innovation-Based Businesses"

These sessions will explore multiple MEMS/NEMS inspiration-to-commercialization paths including successes and lessons learned from multiple models of research-to-commercialization: in-house corporate R&D; research outsource and syndication; organized industry pull; open collaborative research environments; roles of startups and mergers/acquisitions; and government programs.

Presentations, discussion, and a panel from top industry leaders and pioneers as well as academia and government will point the way to nurturing of disruptive technologies to and beyond the point of launch? How to get profitably from lab to fab (through the valley of death)?

Because technology-leveraged industries may not emerge from business contractions without major disruptions to their technologies, products, and/or customers, this is the perfect time and opportunity for MIG and BSAC to work together to facilitate this discussion.

The significance of these topics has been reinforced by the U.S. Office of Science and Technology Policy in the Executive Office of the President. In September 2009, President Obama released his national innovation strategy, which is designed to promote sustainable growth and the creation of quality jobs. Two key parts of this strategy are to increase support for both the fundamental research at our nation's universities and the effective commercialization of promising technologies.
The extended audience of 100-150 industry and university researchers, technology and business managers, government program offices, and members of the entire MEMS supply chain from materials to equipment to devices to fabrication creates an unusual opportunity for discovery and perspective sharing.

A mixing reception will follow the workshop.

15 September 2010
David Brower Center, Goldman Theater

Time	Speaker, Event / Topic Information
14:00	**John Huggins, Executive Director, BSAC** Open the Session; Syndicated Research
14:15	**Karen Lightman, Managing Director, MEMS Industry Group** Bridging the Gap from Lab to Fab
14:30	**Stefan Heuser, Senior Advisor, Siemens Corporate Research** Corporate Models for Research Collaboration & Outsourcing
15:00	**Joseph Seeger, Director, MEMS Development, InvenSense** MEMS Startup Success Story: Fabless Design Boutique to Industry Leader
15:30	**Bert Bruggeman, CEO, Silicon Valley Technology Corp. (SVTC)** MEMS Commercialization - Bridging the Chasm from Ideation to Production
16:00	**Tammi Smorynski, Director, Intel Capital** Technology Launch from Seed Funding to Liquidity Event
16:30	**Networking Break**
17:00	**Audience & Panel: Moderated by Karen Lightman, MIG** Discussion, Insights, Questions
18:00	**All** Social Reception (Tamalpais Room & Terrace)

Research Review & Poster Sessions
This is the main event, an all-day review of 120+ research projects in two extended poster sessions, with 12 projects selected for plenary talks. Awards Banquet for Best Paper, Best Poster and Keynote address.

16 September 2010
David Brower Center, Goldman Theater

Time	Speaker, Event / Topic Information
07:30	**Light Breakfast, Registration & Conference Materials**
08:30	**John Huggins** Welcome, Open the Session
08:40	**Session I: Prof. Liwei LIn** Three Researcher Talks + Morning Poster Preview
08:45	**Plenary 1: Christopher W. Hogue** A Self-Nucleating Evaporator Surface: A Novel Approach to Stabilized, Low-Superheat Microscale Boiling
09:00	**Plenary 2: Gabriele Vigevani** Aluminum Nitride Tuning Fork for Inertial Sensing
09:15	**Plenary 3: Dr. Mei-Lin Chan** Liquid Bearing Electrostatic Micromotors
09:30	**61 Researchers** 45-Second Morning Poster Previews (by the Researchers)
10:25	**MORNING POSTER SESSION** **Tamalpais Room & Kinzie Room**
11:55	**Session II: Prof. Ali Javey** Three Researcher Talks
12:00	**Plenary 4: Rehan Kapadia** XOI FETs
12:15	**Plenary 5: Wei-Chang Li** PolySilicon-Filled Carbon Nanotube Grass Structural Material
12:30	**Plenary 6: Dr. Kuniharu Takei** Low-Power, High-Performance Electronics and Sensors on Bendable Substrates
12:45	**SANDWICH LUNCH** **Tamalpais Terrace** DARPA: Lunch for current MiNaSIP participants in the Kinzie Room (main level)
13:40	**SESSION III: Prof. Michel Maharbiz** Three Researcher Talks + Afternoon Poster Preview
13:45	**Plenary 7: Mitchell Kline** Power Transfer Over a Capacitive Interface
14:00	**Plenary 8: Vedavalli Krishnan** A Tesla Microturbine for Power Generation from Low Pressure Heads at Low Flows
14:15	**Plenary 9: Qin Zhou** Micro CVD for Nanostructure Synthesis
14:30	**61 Researchers** 45-Second Afternoon Poster Previews (by the Researchers)
15:25	**AFTERNOON POSTER SESSION** **Tamalpais Room & Kinzie Room**
16:55	**SESSION IV: Prof. Ming Wu**
17:00	**Invited Faculty Talk** **Prof. Jan M. Rabaey, Donald O. Pedersen Distinguished Professor, EECS/BWRC** The Swarm at the Edge of the Cloud: Ultra Low-Power System Design
17:30	**Plenary 10: Shao Ning Pei** Light-Actuated Digital Microfluidics
17:45	**Plenary 11: Dr. Patrick Goodwill** Macroscale Imaging of Superparamagnetic Iron Oxide Nanostructures Using Magnetic Particle Imaging
18:00	**Plenary 12: Peter Ledochowitsch** A High-Density Large-Area Micro-Electrocorticography (ÂµECOG) Array
18:15	**END SESSION: John Huggins** Break for Lunch & MiNaSIP
18:30	**Walk to Hotel Shattuck Plaza**
18:45	**SOCIAL RECEPTION** **Hotel Shattuck Plaza, Courtyard**
19:30	**AWARDS BANQUET** **Hotel Shattuck Plaza, Crystal Ballroom**
21:30	**Adjourn**

INDUSTRIAL ADVISORY BOARD MEETING (closed)
17 September 2010
David Brower Center, Tamalpais Room

Time	Speaker, Event / Topic Information
07:45	**Continental Breakfast**
08:25	**John Huggins** Open IAB
08:30	**Dorian Liepmann** Ho-Am Award
08:40	**Dr. Richard P. Welle, CTO, Phasiks** New Member Company Profile
09:00	**Prof. Clark Nguyen** Fall 2010 Poster and Plenary Ratings & Project Feedback from Members
09:30	**John Huggins** State of the Center; Discussion and Questions Referred to IAB (e.g., NSF Phase III Membership)
10:00	**INDUSTRIAL ADVISORY BOARD** Closed Discussion (Industry Members Only)
10:45	**INDUSTRIAL MODERATORS: John M. Parsey/Takeo Oita** Feedback and Evaluation of Center
11:30	**John Huggins** Close IAB
11:45	**Box Lunch** **Tamalpais Terrace & Lobby**

BSAC Hands-On Workshop: Networking Wireless Inertial Sensors (Friday or Wednesday Session)
Same Hands-On Workshop as Wednesday morning...see website http://wsn.eecs.berkeley.edu/workshop
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17:00	**Adjourn Workshop**