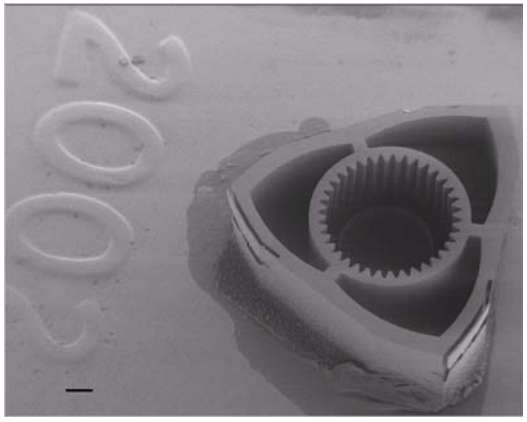
Center for Sensors and Actuators Center (BSAC or CSAC)

University of California, Berkeley and Davis Campuses
Dr. Richard Muller, Director (UCB)
Dr. Norman Tien, Director (UCD)
Phone: 510-643-6637
E-mail: muller@eecs.berkeley.edu

Rotary Internal Combustion Engine on a Chip



Researchers at the Berkeley Sensors and Actuators Center (BSAC) at the University of California-Berkeley designed and micro-fabricated engine components with features on the scale of tens of microns and an overall scale of millimeters with etch depths as large as 900µm. These MEMS engines--much like conventional-sized gasoline-powered generators--will be used to convert the stored chemical energy of liquid hydrocarbon fuels into usable electric power in the 10-100 mW range. Research efforts to develop the required auxiliary systems similar to those found on a modern automotive hybrid engine (ignition, fuel delivery, integrated generator) are ongoing. The system is expected to deliver specific power (W/kg) superior to conventional systems and to leverage the inherent advantages of liquid hydrocarbons: storage, safety, and specific energy (W-hr/kg). Several BSAC member companies, such as Textron Systems and Harris Corporation, have participated in the DARPA-funded research and testing of this device. For more information, contact Dr. David Walther, walther@eecs.berkeley.edu.

Radio-Equipped Wireless Sensors called “Smart Dust”

The Sensors and Actuators Center (BSAC) at the University of California, Berkeley has developed hardware and software for sensor networks. These radio-equipped wireless sensors called "Smart Dust" are larger than dust particles; about a cubic centimeter in size. Deployed in large numbers across a battlefield, they can track troop movements. Embedded in a road, they can report traffic density. Several BSAC member companies are funding additional R&D, and a startup called Dust, Inc. has been launched. Intel has established a new research lab in Berkeley to pursue research in this area. For more information, contact Kris Pister at kpister@dust-inc.com.