

IEEE SCV Signal Processing Society presents Election (for the remainder of 2007) and Technical meeting

Date: May 21st 2007

Title: Tesla Roadster: Embedded microprocessors and Design trade-offs!

Speaker: Doug Bourn, Senior Electrical Engineer, Tesla Motors, Inc

Location: National Semiconductor (north end of Building E - see maps on the Chapter web site <http://www.ewh.ieee.org/r6/scv/sps/>), 2900 Semiconductor Dr., Santa Clara, CA 95051 (Near the intersection of Lawrence and Central Expressway);

Directions: Take 101 to Lawrence Expressway. Head south on Lawrence to Kifer (past Central). Turn right on Kifer. Turn right on Semiconductor Dr. and drive all the way back to north end to Buldg E. Entrance is on the West side of the building.

Time: 6:30pm: Fast Food & drinks (\$2 Donation Recommended towards Refreshments)

7:00pm: Announcement

7:05pm: Officer Election (for the remainder of 2007)

7:15pm: Talks starts

Abstract:

Tesla Roadster, like most modern vehicles, relies on embedded microprocessors for safety and performance. From the anti-lock braking system (ABS) to motor control, firmware-defined functions control all aspects of vehicle behavior.

For example, control loops in a dozen microprocessors monitor battery environmental parameters, state of charge, and safety interlocks. Three processors interpret driver inputs from the shifter and accelerator to control motor speed and direction. A fourth processor monitors motor and controller temperatures to modulate power to two blower fans for cooling. Four CAN busses connect these and other vehicle subsystems to gather status and coordinate control functions.

This presentation will outline the history of the Tesla Roadster and discuss a few of the design trade-offs resulting in the decisions made in its implementation.

Biography:

Doug Bourn is currently a senior electrical engineer at Tesla Motors Inc., where he shares responsibility for the design and testing of modules for the Tesla Roadster. Prior to Tesla Motors, Mr. Bourn spent 10 years as a senior EE at IDEO, a product design and development company in Palo Alto, CA where he worked on a wide variety of consumer products and medical electronic devices. Doug received a B.S. in Electrical Engineering from Stanford University. In his 'spare' time he enjoys motorcycling, skydiving, flying, and teaching others how to fly. Doug holds commercial pilot, instrument, multi-engine, ground instructor, and single/multi-engine flight instructor ratings along with a ham radio Amateur Extra Class license.