



IPFW Systems Engineering Symposium

Software Defined Radio

Defining System Functionality with Software: A Case Study



*October 17, 2008
8:00 AM - 11:30 AM
Room G46
IPFW Kettler Hall*

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Software defined radio (SDR) is a key disruptive technology shaping the future of wireless communication. It has evolved from a technology path driven by a desire to reduce cost, size and power and also increase operational flexibility.

The “*ideal*” SDR, consists of a wideband antenna, wideband ADC and DAC, and a programmable processor. Software-defined radios allow users to reconfigure the radio without modifying the hardware. Software upgrades can be performed via wireless signals. Software defined radio alters traditional hardware architectures and designs in three distinct and complementary ways:

- (1) Analog-to-digital conversion occurs in the RF front-end;
- (2) Signal processing is programmed in software, not hard wired in hardware
- (3) Transitions from dedicated to general-purpose hardware.

Each of these changes has important system implications.

In a more general sense, the term SDR encompasses all the enabling technologies that are required to realize the ideal radio architecture. These technologies include hardware technologies such as wideband antennas, smart antennas, wideband ADCs, powerful DSPs, ASICs, FPGAs, etc. Other enablers include advanced algorithms and software technologies.

The SDR evolution path is headed towards “cognitive radio,” which will provide radios with the intelligence to reconfigure themselves to maximize bandwidth, reduce noise and optimize other important performance characteristics.

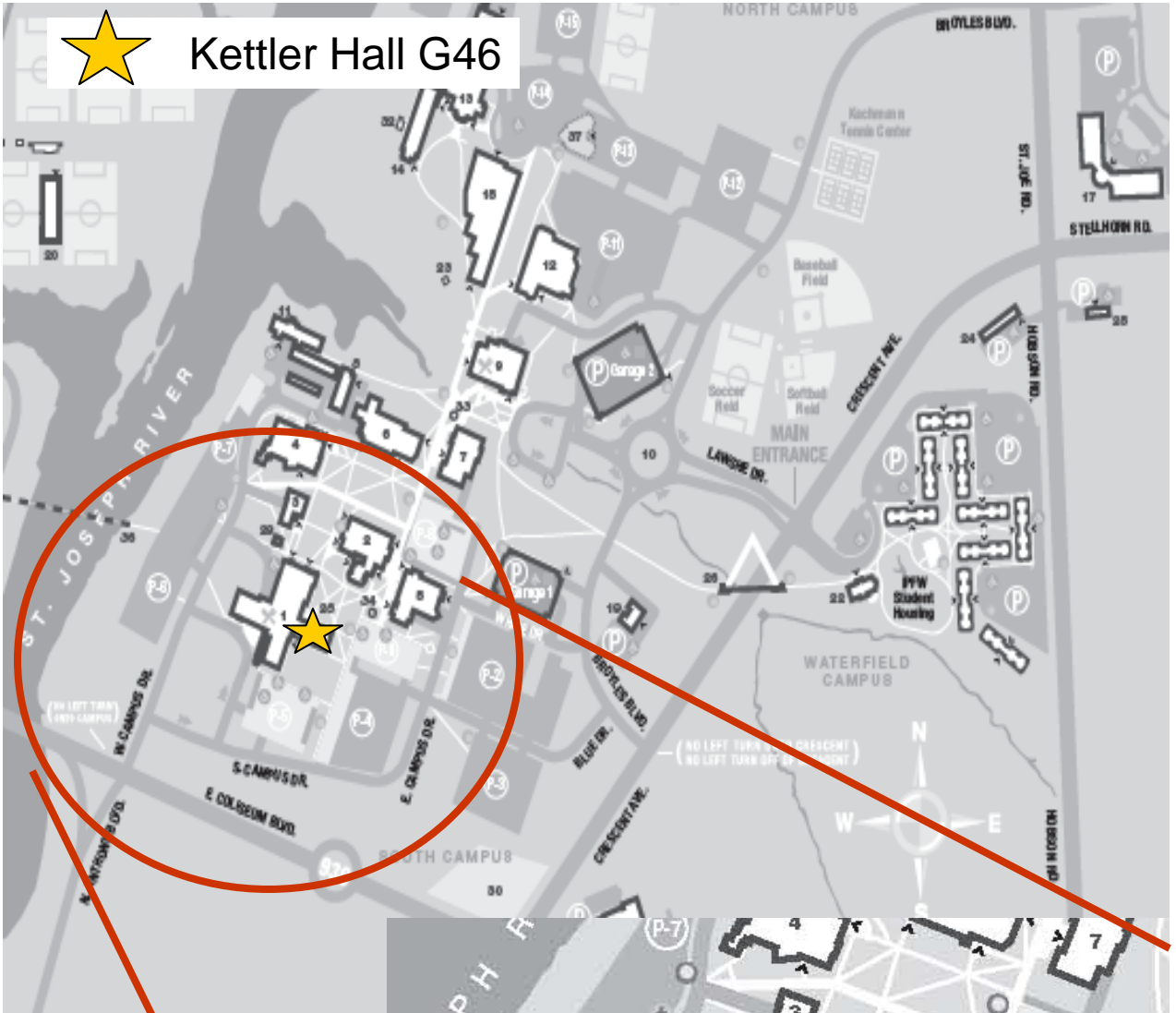
IPFW Center of Excellence in Systems Engineering

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If you plan to attend, please RSVP to IPFWSysEng@yahoo.com



Kettler Hall G46



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