"Weekend Workshop on Building Embedded Linux System"
by **Pradeep Tewani**

Day 1

+ Session 1: Introduction to Embedded Linux
- W's of Embedded Linux
- W's of Beagle board
- Getting comfortable with Beagle board

+ Session 2: Bootloader
- W's of Bootloader
- Beagle board booting process
- Understanding the *ramdisk* and *initramfs*
- Beagle board Bringing up Process
- Configuring and Compiling the X-Loader for Beagle board
- Understanding Environmental Variables in U-Boot
- Setting up the bootargs in U-Boot for the Kernel
- Configuration & Compilation of the U-Boot for Beagle board
- Writing bare-metal code for Beagle board
- Adding a custom command in U-Boot

Day 2

+ Session 3: Toolchain
- W's of Toolchain
- Various Components
- Setting up & Using the Toolchain
- The Dependency Structure
- Building a desired Toolchain using the *crosstool*

+ Session 4: Embedded Linux Kernel Overview
- Linux Kernel Source Organization
- Linux Kernel Start Up
- Linux Kernel Configuration & Building
- Linux Kernel Image & Kernel Arguments
- Linux Kernel menuconfig options
- Minimizing the Kernel Size
- Understanding Device Tree Blob (DTB)
- Configuring the kernel for *initramfs* & *ramdisk*

+ Wrap Up
- Conclusion
- What Next?

Caution: All sessions are highly interactive & hands-on with Beagle Bone Black.

Hands-On Details

+ *Getting Comfortable with Beagle board*
- Setting up the environment
- Booting with the pre-built images
- Exploring the Beagle board

+ *Bootloader*
- Board Bringing up & setting up the MMC card
- Playing around with the U-Boot environmental variables to boot from various interfaces
- Configuring & Compiling the U-Boot for Beagle board
- Booting With Serial Interface
- Running a bare-metal code on Beagle board
- Adding a command in the U-Boot

+ *Toolchain*
- Setting up & Building the Toolchain for the Beagle board
- Testing the Toolchain

+ *Embedded Linux Kernel*
- Patching & configuring the kernel for Beagle board
- Building the kernel and booting the board with same
- Minimizing the Kernel size and booting with the same
- Booting the Kernel with Device Tree Blob (DTB)
- Booting the Kernel with *initramfs* & *ramdisk*