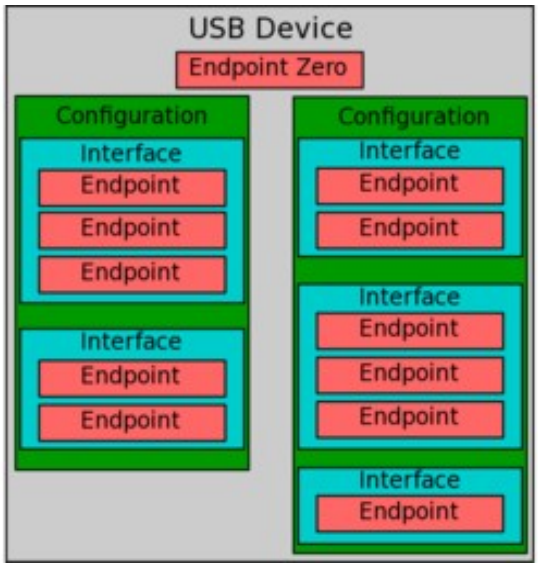
LINUX DEVICE DRIVER AND KERNEL PROGRAMMING

PREREQUISITE : C and Device Drivers and Porting

CH1: AN INTRO. TO DEVICE DRIVERS

- Role of the Device Drivers
- Splitting the kernel
- Classes of devices and modules
- Kernel Architecture or Model



CH 2: UNDERSTANDING USB DEVICE DRIVER

- USB Device Basics
- Types of USB Device Drivers
- USB Subsystem & Verticals
- USB Protocol & Device Layout
- Defferents types of data transfers
- USB and Sysfs Command
- USB Request Block
- Registering a USB Driver through Horizontal Layer

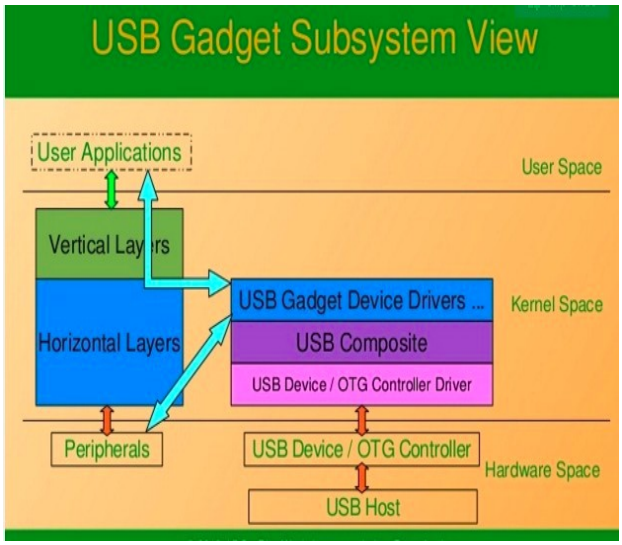
Hands-On Assignments

Lab1:Installing a and writing a simple USB device driver.The driver should register itself with the USB sub-system upon loading and unregister upon unloading.

Lab2: Write a USB device driver to print out information abot configuration , interfaces and endpoint for a registered usb device.

CH 3: UNDERSTANDING USB GADGET DEVICE DRIVER

- Linux USB Gadget & Host Drivers
- USB Gadget Driver Mechanism
- USB Host Driver Mechanism
- USB Core & Hot Plug n Play
- USB Gadget Transfer Functions
- Integration with a Vertical
- Types of USB Device Drivers

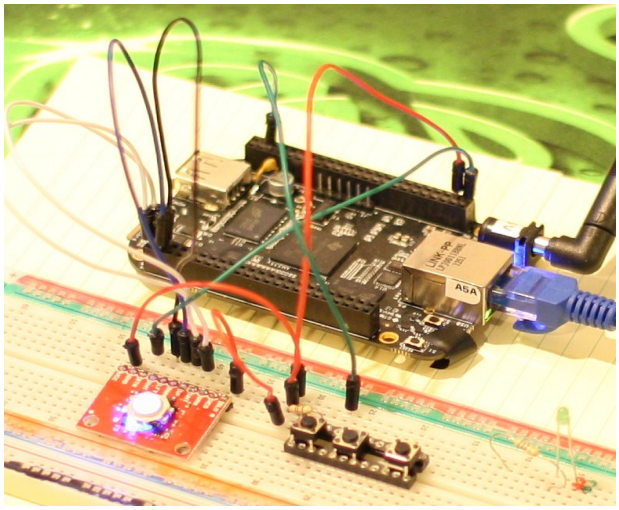


Hands-On Assignments

- First take at a USB Gadget Driver
- Getting down to the hardware of BBB
- Creating Interface for USB Gadget Driver
- Creating Enfpoint for USB Gadget Driver

CH 4: CREATING BEAGLEBONE as USB GADGET DEVICE DRIVER

- Register a composite driver
- Structure of usb_composite_driver
- Structure of struct usb_function
- Creating Beaglebone BBB as a USB I/O Device
- LoopBack USB Gadget Device Driver
- Getting down to the hardware of BBB
- Creating Multiple Interface for USB Gadget Driver
- Controlling using custom USB Host Driver & App
- BBB as standard USB Devices
- Controlling BBB Gpio LED through USB Drivers
- Creating as standard USB storage device



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