



eLinux Application Development

IIoT Gateway Workshop



Day-1

Working on ARM Boards

- Setting up tool chain
- Setting up TFTP & NFS Server
- Image Flashing (Kernel, Root File system)
- Code Cross Compilation and Execution on ARM Board

Tea Break

GPIO Programming

- GPIO subsystem in Linux Kernel
- Configuration of GPIO in Linux Kernel
- Accessing GPIO from Linux Driver
- GPIO programming from User Application (C / Python)
- Demo 2x16 LCD Interface to WEGA Board

Lunch Break

UART Programming

- UART subsystem in Linux Kernel
- Configuring UART in Linux Kernel
- Accessing UART from User Application (C / Python)
- Demo programming GSM / GPS module to WEGA board

Day-2

I2C & SPI Programming

- Understanding I2C and SPI Subsystem in Linux Kernel
- I2C and SPI api for driver development
- I2C and SPI programming from User application
- Demo Sensor interface to WEGA Board

Tea Break

Keypad Programming

- Understanding Linux Input subsystem
- Configuring Keypad in Linux Kernel
- Programming key handling from user application

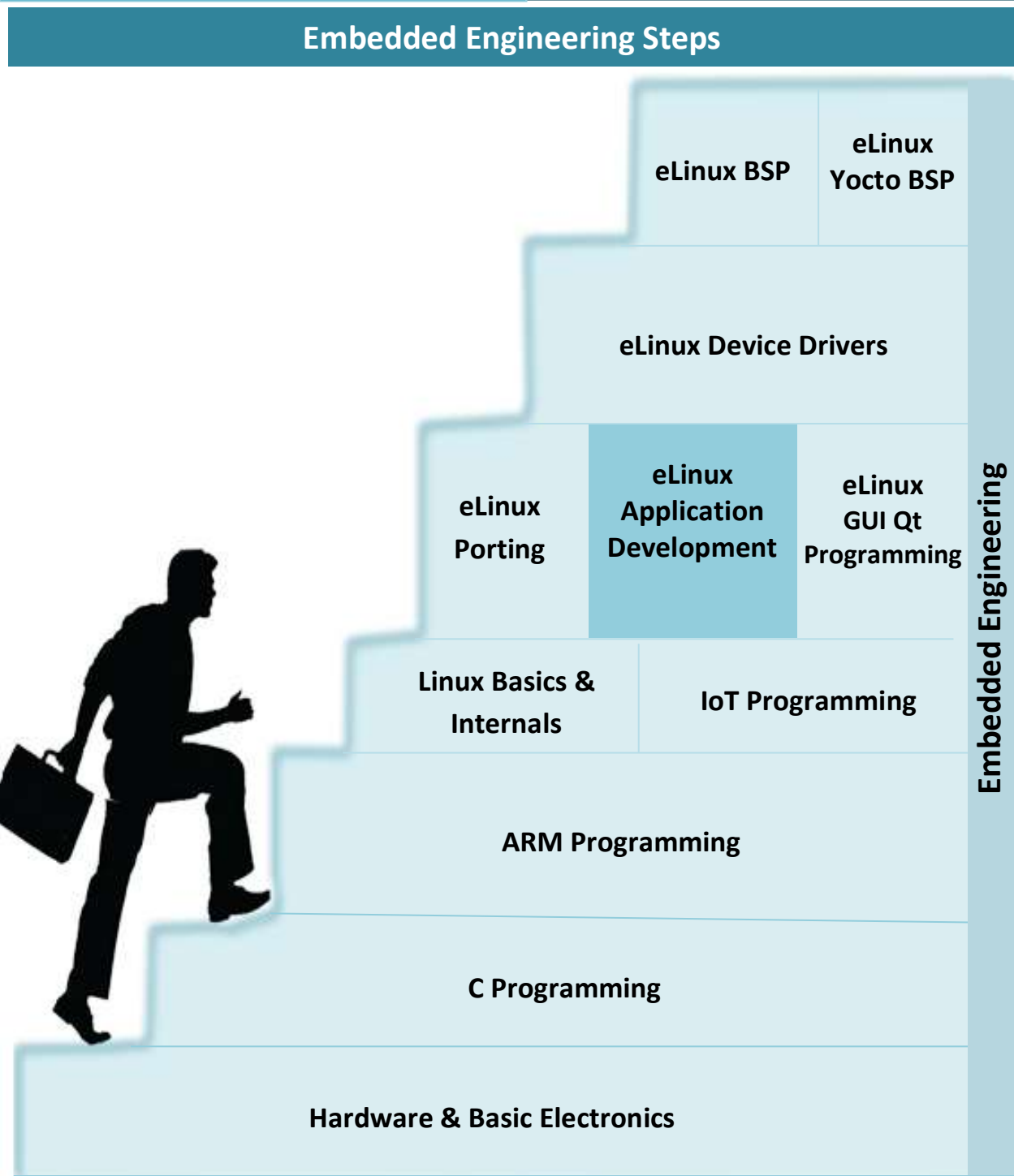
Lunch Break

Wireless Modules

- How to configure Wi-Fi on WEGA Board
- Demo of Accessing Cloud server from WEGA Board
- How to connect LoWPAN modules (BLE, Zigbee, 6LoWPAN, LoRA) to WEGA Board and program them

Web Server

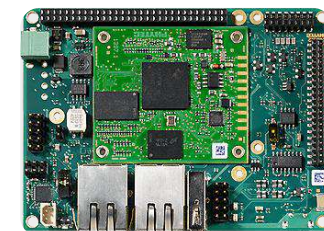
- How to configure WEGA board as Web server
- How to access hardware from web programming
- How to configure database on WEGA Board and accessing database from user application



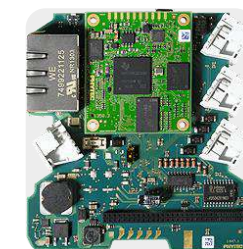
Locations / Fees / Duration
<p>Locations</p> <ul style="list-style-type: none"> Pune Bangalore Hyderabad Chennai Kochi Delhi USA Europe
<p>Duration:</p> <ul style="list-style-type: none"> 2 Days
<p>Fees:</p> <ul style="list-style-type: none"> 6000.00 INR Europe: 500 Euro USA: 500 USD Register Now
<p>After development workshop:</p> <ul style="list-style-type: none"> When you return to work, You are entitled to schedule a technical discussion with the course instructor for help and guidance as you apply your new skills to your projects.
<p>Address:</p> <ul style="list-style-type: none"> AESLAB #9/1 1st Floor, 3rd Main, 8th Block, Opp. Police Station, Koramangala, Bengaluru, Karnataka 560095 Email: info@aeslab.com, Phone:+91-80-41307589 +91-9972039671, Web: www.aeslab.com

Boards

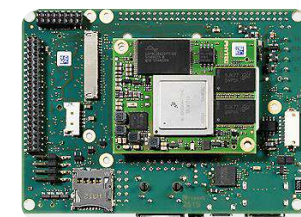
Technical Details	phyBOARD WEGA	phyBOARD REGOR	phyBOARD Mira	phyBOARD Segin
SOM	phyCORE-AM335x	phyCORE-AM335x	phyCORE-i.MX 6	phyCORE-i.MX 6UL
ARM Core	ARM Cortex™-A8	ARM Cortex™-A8	ARM Cortex™-A9	ARM Cortex™-A7
Clock frequency	800 MHz Upto 1GHz	1 GHz	1 GHz	528 MHz
CPU	AM3352, AM3354, AM3356, AM3357, AM3359	AM3352, AM3354, AM3356, AM3357, AM3359	i.MX 6Solo, i.MX 6Dual, i.MX6Quad	i.MX 6ULG0, i.MX 6ULG1
Operating system	Linux / Android	Linux / Android	Linux / Android	Linux
Memory	256 MB Upto 512 MB RAM, 128 MB Upto 512 MB NAND, 4kByte EEPROM	512 MB RAM, 512 MB NAND, 8 MB SPI NOR, 4kByte EEPROM	1GB RAM 64 Bit, 1GB NAND, 16MB NOR, 4kByte EEPROM	512 MB RAM, 512 MB SLC NAND, 4kByte EEPROM
Interfaces				
Ethernet	2x 10/100 Mbit/s	2x 10/100 Mbit/s	1x 1 Gbit/s	2 x 10/100 Mbit/s
USB	1x USB OTG, 1x USB Host	1x USB-OTG	1 x USB Host, 1x USB Host/OTG	2x USB Host/OTG
Serial	1x RS232	2x RS232, 1x RS485	1x RS232	1 x RS232 or 1x RS485
CAN	1x CAN	1x CAN	1x CAN isolated	up to 2x CAN
Audio	1x Stereo Line In, 1x Stereo, Speaker Line-Out	4x Digital I/O	optional via Expansion Port	up to 3x I ² S/SAI
Expansion & Configuration				
Mass storage	μSD Card Holder	μSD Card Holder	μSD Card Slot	1 x μSD Card Holder
Expansion Bus	UART 0, SPI 0, I ² C 0, JTAG, MMC 2, UART 2, UART 3, GPIOs, Interrupt, Reset, Analog Inputs	UART 0, SPI 0, I ² C 0, JTAG, MMC 2, UART 2, UART 3, GPIOs, Interrupt, Reset, Analog Inputs	I ² C, 2x SPI, UART, JTAG, SD, SATA,USB, Host	SPI, UART, SD, JTAG, CAN, GPIOs, ADC, Timer, Watchdog
User control elements	1x Button Reset	1x Button Reset	Button: Reset	1x Button Reset, 1 x Button CPU ON/OFF
RTC	Yes with RTC	Goldcap for on module RTC	Real Time Clock with Gold Cap Backup	Goldcap for SOM & Onboard RTC
Display & Touch	Parallel (on A/V Connector), HDMI with Adapter	Upon request	HDMI	Audio-/ Video Connector
Supply Voltage	5V or 12-24V	12-24V	12-24 V (+/-10)	5 V via (12-24V)
Temperature range	0°C to 70°C	0°C to 70°C, -40°C to 85°C	- 40°C to 85°C	I Temp Grade
Dimensions SBC	100 x 72 mm (Pico-ITX format)	100 x 95 mm	Pico-ITX (100 x 72mm)	Pico-ITX (100x72 mm)
More details	Click Here	Click Here	Click Here	Click Here



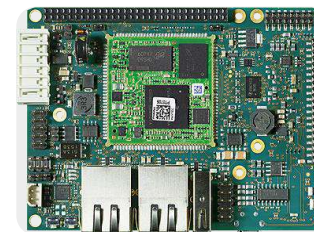
Industrial HMI ARM Based SBC – phyBOARD WEGA



Industrial PLC ARM Based SBC – phyBOARD REGOR



Highly Scalable Multimedia SBC – phyBOARD MIRA



Light Weight ARM Based SBC – phyBOARD SEGIN