



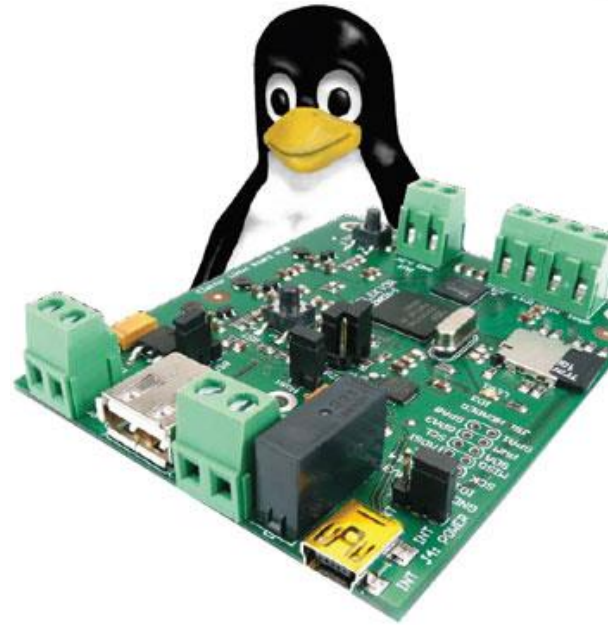
Linux For Embedded Systems

For Arabs

Course 101:

Introduction to Embedded Linux

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Lecture 1: Introduction to Embedded Systems

What is an Embedded System ?



- An embedded system is a computer system embedded in a device with a dedicated function
- This is different from the traditional, general purpose computer systems





EXAMPLES OF EMBEDDED SYSTEMS

Phones and Tablets

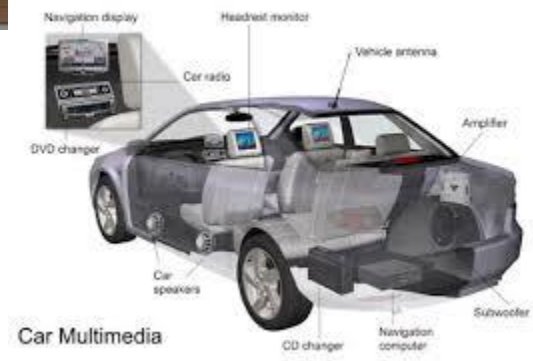


- Communication Processor (s)
 - Wifi
 - GSM/3G/LTE
 - Bluetooth/NFC
- Audio/Graphics Processor (s)
 - Audio Processing
 - Graphics and Video Processing
- Application Processor
 - Android
 - Windows Phone
 - iOS

Robotics



Automotive



Networking Devices



And Other Gadgets



So Why is it different from Desktop Development



- Embedded Systems normally come with constraints in hardware resources
 - Processing
 - Memory
 - Storage
 - Power
 - Display
 - Input/Output devices
- Also, embedded system applications often comes with real time system constraints
 - Latency
 - Throughput
- The system has a strong association between the HW and SW



OK So What ??

- The developer has to deal with all of these constraints
 - Development should take into consideration, code efficiency, and code foot print
 - Debugging tools are “closer to the metal”
 - Special attention to power consumption in some cases

Develop

Compile

Unit Test

Deploy

Debug

Improve

Run



Cross-Platform Development



- Development Environment is different from target environment
- Need for cross platform development and debugging tools



Linux 4

Embedded Systems

<http://Linux4EmbeddedSystems.com>