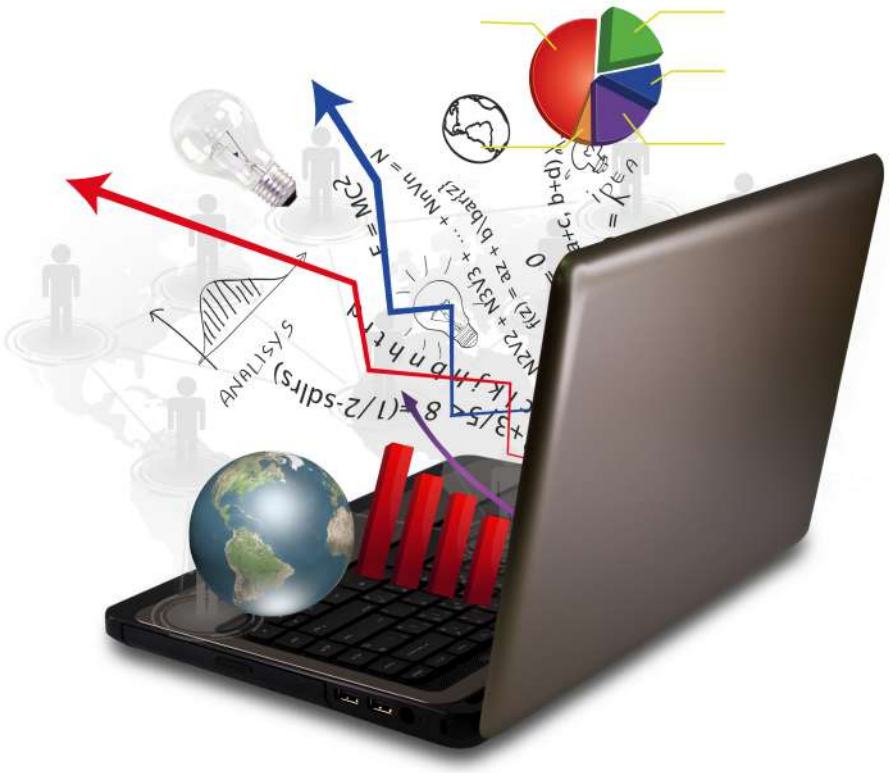

Skills for becoming An Embedded Champion

Types of Skills



1. Technical Skills
2. Technology Stack Familiarity
3. Soft Skills

Technical Skills

01 Setting Up a microcontroller board and debugging it.

02 Writing firmware by directly manipulating MCU registers without a library

03 Understanding ARM Architecture

04 Handling interrupts within firmware

05 Designing and optimizing firmware for different boards

06 Device Driver development

07 Board Support Package Porting

08 Algorithm Development

09 Designing Complex Data Structures

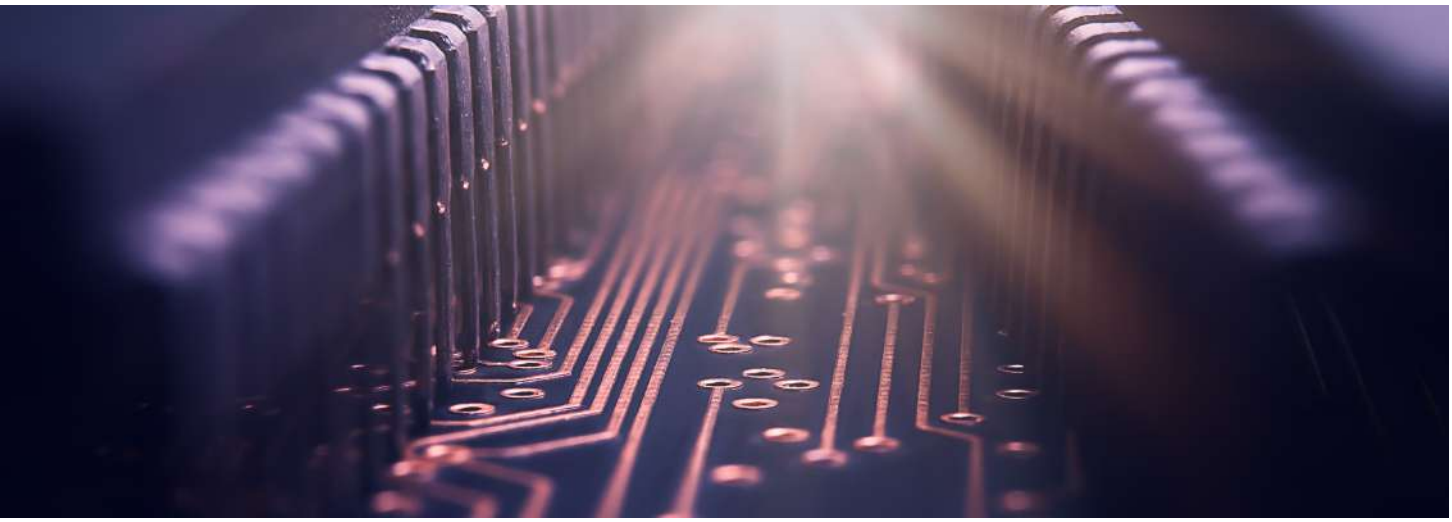
10 Designing Graphics and Gesture Libraries

11 Working with File-Systems

12 Working with Real-time Operating Systems (RTOS)

13 Understanding the Linux Kernel compilation, optimization and & boot sequence.

Technology Stack Familiarity



01 Bus Protocols
E.g. I2C, SPI, USB, RS232, CAN, MODBUS, USART, SDIO

02 Wireless Protocols
E.g. Bluetooth Low Energy (BLE), Bluetooth Classic, ZigBee, XBee, NFC

03 Network Protocols
E.g. Wi-Fi, Ethernet, TCP, UDP, FTP, DHCP, GSM, DNS, SNTP,VPN

04 Interfaces
E.g LCD, Timers, Flash Memory, EEPROM, OLED, Keypads, Camera, SD Card

05 General Peripherals
E.g. ADC, DAC, DMA, RTC, PWM

06 Operating Systems
E.g. FreeRTOS, uCOS-III, Linux, ThreadX, QNX,Azure RTOS, TI-RTOS

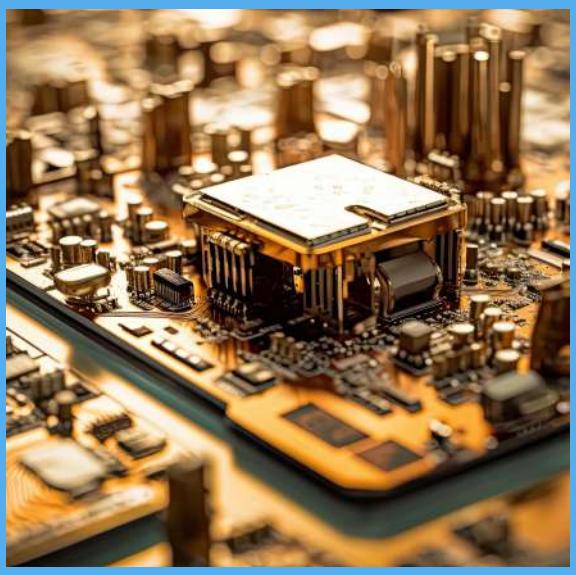
07 Programming Languages
E.g. ARM assembly, C, C++, Python, Bash Shell

08 Development Tools
E.g. Eclipse, Keil uVision, IAR Workbench, Visual Studio, Atmel Studio

09 Debug Tools
E.g. ARM CoreSight, JTAG,GDB

10 Version Control System
E.g. SVN, CVS, GIT, Perforce P4V

Soft Skills



01 Market Research

02 Risk Analysis

03 Proposal Writing and Submission

04 Project Budgeting

05 Documentation

06 Interpersonal Communication

07 Architecture Design and Modelling

08 Troubleshooting

09 Client Handling

10 Systems thinking