MIR FAISAL

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Career objective:

Looking for an Embedded Linux Developer position to utilize my skills and experience, while being competitive, productive and resourceful.

Summary:

- Total 9 years 7 months of mixed experience in embedded software using Non-OS bare metal and Embedded Linux.
- **5+ years of experience in Embedded Linux software development and complete development life cycle of product.**
- 6 years 5 months of experience in **Embedded Bare metal firmware development** with implementation of security protocols like AES-128, PKI, Open SSL, RSA, 3-DES. Development of secure embedded product having Anti Tamper Detection module and device integrity checks.
- Experience in Embedded Linux device driver and Linux Internals.
- Embedded Linux experience covers Board support packages, Boot loaders, Linux Interrupt Handling, kernel Threads, POSIX threads, Debugging techniques, Linux System Programming, socket programming while working as Senior Engineer in BEL, Ghaziabad on permanent role.
- Experience in embedded hardware design containing microcontrollers and sensors from component selection to critical hardware debugging.
- Significant role in up gradation of electronic voting machine and its gadgets for Election Commission of India, while working in ECIL, Hyderabad as Senior Technical Officer on permanent role.
- Experience in development of firmware for various microcontrollers like Renesas RX62N, RX64N, H8, RX100, RL78, STM32, TI-LM3S9B90 etc.
- Experience on TI DRAx SOC worked on SPI, UART, Pinctrl driver. Implemented dynamic pinctrl driver. Modified SPI and UART low level driver to customize. Worked on SPI tuner driver.

Skills:

- Languages : C, C++
- Linux Shell scripting
- Basic knowledge of ARM Assembly instructions

- Linux device drivers, Linux system programming, BSP, Linux Socket Programming.
- Embedded protocols: - I2C, SPI, 1-Wire, UART, USB, TCP/IP, UDP.
- Cryptographic algorithms
- Software version control: GIT.
- Good understanding of Embedded Hardware and Lab instruments.

Educational Qualification:

- Passed out B.Tech. In Electronics and Communication Engineering in year 2009.
- Scored 98.01 percentile in GATE 2009 in Electronics and Communication Engineering.
- Certification in: Linux Device driver and system programming, Bare metal programming, MATLAB Programming, Qt-C++.

Professional Experience:

0ct 2021 to till date:

Senior Engineer -I (Harman International, Bangalore)

- Worked on TI DRAx SOC on SPI, UART, Pinctrl driver. Implemented dynamic pinctrl driver. Modified SPI and UART low level driver to customize. Worked on SPI tuner driver. Developed test app to test drivers.

2018 to Oct-2021:

Senior Engineer (Bharat Electronics Limited, Ghaziabad)

- **Product: Built-In Self Test (Embedded Linux Project)** module for **Compact VME Chassis Compact VME Chassis** to receive and process data of Radar Sensor for IAF.
- Application of the module of my project is to periodically read health status of Power Supply, Temperature sensor, health of SBC cards, event logs and to publish over network with time stamp from RTC and to store system events and logs on EEPROM.
    - Enable drivers for peripherals using DTS and kernel configuration.
    - Enable MUX configuration in U-Boot for testing peripherals.
    - Understanding I2C, GPIO, ADC framework.
    - Understanding of each driver functions and customize or add new driver functions
    - Multi threaded User space application.
- Hardware: TI AM3358, EEPROM, RTC, Temperature Sensor, GPIO, LCD, Ethernet.
- Base: Customized Linux Kernel, Build System: Yocto, Qt IDE, GCC Cross Toolchain.
- Debugging: GDB, KDB, KGDB, Strace, Debug prints.

2012 to 2018:

Senior Technical Officer (Electronics Corporation of India Limited, Hyderabad)

- **Product: Electronic Voting Machine and its gadgets** Election Commission of India.
  Indian general election, fully tamper proof and highly secured.
- Involved in design and development of various modules and supporting gadgets for tamper proof, Highly secure and code verifiable Voting Machine.
- Features or modules implemented:
  Self diagnostic of memory, board and display using Current sensor, Tamper detection module, Battery ampere hour measurement, USB – CDC, HDMI interface to a gadget, SPI Flash, 1 – wire chip, porting Linux Kernel on ARM processor, Optical sensor in VVPAT, Thermal printer, LCD, 17 segment display, Keyboard, RTC, EEPROM, UART, RS485.
- Hardware: Renesas Microcontroller, TI-AM3358 SOC.
- Followed secure coding practices as per standard of organization.
- Algorithms implemented:
  Public Key Infrastructure, Digital Certificate, AES, RSA, CRC, Embedded H/w self diagnostic, Hashing Algorithm, Algorithm for tamper detection, Algorithm to read optical sensor, Secure coding practices, Firmware integrity check, algorithm to store data in FLASH.