SUYOG BURADKAR

Professional Summary

As an Embedded Systems Engineer with expertise in Linux kernel development and maintenance, I have written several test modules and code for protocols like I2C, SPI, and UART. I have adeptly managed GitLab tickets, ensuring swift resolutions for system issues to maintain project momentum. My proficiency extends to modifying Device Tree Blob (DTB) files, where I've tailored configurations to support intricate vendor-specific features, optimizing hardware functionality.

Recently, I have been engaged in integrating an I2C device (MPR121) into the Linux kernel, with the work showcased in my GitHub repository [https://github.com/suyog44]. I am passionate about leveraging my skills to drive innovation and excellence in embedded systems development.

Experience

Embedded Systems Engineer, HCL Technologies. Bangalore, Karnataka
August. 2022 - Present

- **Client: Sony Software India Pvt Ltd, Bangalore**
- Developed a kernel module using **KProbes** to test the **`do_execve`** system call for Sony's proprietary user application.
- Debugged deferred initialization calls using **Ftrace**, creating **test code** and **kernel modules** for testing purposes.
- Created **test frameworks** using Python scripts to **debug boot-time kernel modules**, **calculating the time** taken by kernel modules to load during **system boot**.
- Developed a **test module** for a **PCIe** LAN card on the **NXP Freescale IMX8MM Plus development board**.
- Updated **Kconfig** for **ERRATA on IMX6-based CPUs** and wrote a **kernel module** to retrieve information from **MIDR and REVIDR CPU registers** in the format RxPy (e.g., R2P10).
- Set up a **QEMU testing bench** for **debugging kernel-related activities** and wrote test scripts in **Python and Shell** to test kernel modules for features like **NOATIME, PERF, and LZ77**.
- **Customized Device Tree Blob (DTB) files** to support Sony proprietary kernel features.
- Regularly used the **GIT version control system** to address issues and manage merge requests.
- Worked on fixing **CVEs in the Linux kernel** by integrating patches provided by Sony's Patch Team, ensuring they were

Personal Info

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Skills

- **C Programming**
- **Shell Scripting**
- **Python Scripting**
- **CI/CD**
- **Device Tree file creation/modification**
- **Embedded Linux**
- **Linux Kernel Device Driver Development (I2C, GPIO, SPI, UART)**
- **Linux OS concepts, Linux internals.**
- **Data Structure And Algorithms**
- **PCIe/USB driver programming**

Languages

- **English**

correctly **cherry-picked into the maintained Linux kernels.**
- Developed **kernel drivers for snapshot boot** (SSBOOT) on **Qualcomm Dragon Board 410c and NXP IMX8MM Plus board**.
- Regularly engaged in **kernel release activities**, including **version upgrades** and **resolving merge conflicts** due to upstream commits. These revisions ensure clarity and technical accuracy.

Contractor - Embedded Systems Engineer (Freelance), Brisker Electronics. Mumbai, MAHARASHTRA
December. 2018 - June. 2022

- Client: **Shining Sun Vision, Nagpur**
- Led the integration of HVAC protocols
- focusing on **Texas Instruments Sitara ARM64-based controllers** for **BACnet** and **Modbus** implementations.
- Engineered solutions for protocol handling and device communication improving system efficiency and reliability.
- Fixed **Modbus protocol** issues over **RS485 UART** connections to integrate centralized air conditioning systems.
- Conducted board bring-up for **Amlogic S905 based ARM64 board**.
- Erased flash memory and loaded new **Uboot loader** on systems.
- Prepared **Debian-based customized root filesystems**.
- Integrated customized infrared remotes as keyboards for the application.

Linux Device Driver Developer , Personal Work .
Jan. 2022 -

Worked on customised jtag debugger like RPI 2040 JTAG, Openocd used for debig the Target Link: https://github.com/suyog44/RP2040_RPI_JTAG

worked on customised linux kernel based on I2C, SPI protocols, Mostly this kernel designed with I2C Character device (MPR121 capacitive sensor), Proc device with path (/proc/mpr121) with device tree overlay file (mpr121_overlay.dtbo)

Link: https://github.com/suyog44/Linux-Study-Material/tree/main/9.I2C_Device_MPR121_New

Education

Kamla Nehru Mahavidyalaya, Nagpur, MAHARASHTRA
Bachelor of Science, Computer science and electronics (Pursuing), Present

AM-IETE, New Delhi , New Delhi , Delhi
B-Tech (Information Technology - Drop out) University has case in Supreme Court of india, Dec. 2015

Hindi

Marathi

Achievements

- Best Performer Award for Valuable Contribution
  Linux SARD Project
- Tokyo (Team Award)
  Recognized for outstanding contributions to the project team
  Most Valuable Contractor Award
  Sony Awards 2024
- Individual Category
  Awarded for exceptional performance and contributions as a contractor
  OpenHack IISc Bangalore (Runner Up)
  Developed an innovative solution based on generative AI and LLMs
- Google GENAI Hackathon 2024 (Finalist)
  Ranked in the top 15 among 24000 participants from the Asia-Pacific

Training

- EMN Technologies, Hyderabad,
  Intern: January 2015 - March 2016,
  Developed applications in C programming
  Integrated peripherals like SPI, UART, I2C