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Career Mission

- Having good knowledge as well as good experience on embedded system, Kernel, Device Drivers, and I want to grow in field of Linux kernel and Device Drivers.

Summary

- Currently working in **Sasken Technologies Ltd.** in field of Telematic chipset's end to end system design & develop, test, and deliver software modules/features.
- Areas currently working on: **System boot sequences use-cases**, **Bootloader (Little Kernel)**, **Kernel, Linux Kernel Internals, Device Driver Developer, related user space application, utilities, open-source packages,** and **Automation** needed to maintain system software in **Yocto/Embedded Linux** environment.
- Having 6 months experience in **Vector India** as an Embedded Software Programmer.
- Good understanding and hands-on experience in **porting, fine-tuning** Linux into different platform and **Board bring up**.
- Hands on experience on **Qualcomm based devices like Telematic (Auto) and Automotive devices.**
- Hands on experience on source code analysis techniques
- Strong knowledge and debugging skills on **Bootloader (Little Kernel).**
- **Investigate, debug** (root cause) and resolve complex issues reported on system software.
- **Hands-on-debug** and interact with customer as a part of commercialization process.

Skills	Deep knowledge of C, Embedded C, C++, Data structure & Algorithms, git, microcontroller 8051, Linux System Programming, Linux utilities,Linux kernel Internals, Linux Device driver, User space Linux Application, Multi-threading, Review code, Unit test. Communication protocol: UART, I2C, SPI.
Device Driver	System level programming, kernel level programming, char, device driver,

	procfs, sysfs , ioctl, waitqueues , interrupts, tasklets, workqueue, synchronization techniques- atomic operation, mutex , spinlock, memory management, Linux debugging .

Tools	Git, GDB, adb, fastboot, kdump, crashscope, minicom, cscope, Klocwork, FOSSID and several other tools.

Professional Project

Project	**Emergency Shutdown**
Description	Prevent memory corruption on abrupt power off by shutting down the system with reduced power off time. System to power off in less than 2 sec before the backup power goes off.
Role	• Writing a driver from scratch which registers for interrupt triggers on abrupt power off execute scripts to do – i- Send signal to modem stop, ii- Kill all daemons to stop access memory, iii- Sync and unmount the file system, iv- Shutdown the system. • Writing Device tree (DTS) node and update with GPIO pin number to detect Interrupt.
Project	**Linux Upgrade on Qualcomm msm8996 device**
Description	As a part of Android build, needed to upgrade Linux from 4.4 to 4.14 and board bring-up with Linux 4.14.
Role	• Understanding whole boot-up sequence and bring up board in same fashion. • Porting of drivers and making device tree changes. Debugging kernel issues and working inCLI. • Kernel Customization build. • Android full buildand working on Android layers. • Working in Qualcomm Kdev environment. • Booting with various RootFS like Initramfs, Ramdisk. • Flashing images and sanity test.

Project	Telematics
Description	Platform Team - Taking ownership from end to end and maintain and improve existing software as per requirement
Role	Hands on with: • Boot-up use cases • Bootloader- Little kernel • Investigate and debug root cause of issues reported in APPSBL, Kernel and supporting libraries in yocto environment. • Yocto/Embedded linux • Static Analysis Klocwork run and fix issues. • FOSSID report generation and CVE Analysis & fix's • Automating the required process. • Communication with different teams and passing on respective component issues to teams. • Review code and merging and propagation of gerrits to respective branch and respective SI's. • Unit testing patches on local build againststatic analysis and sanity test.

Project	Y2038 Problem on msm-5.4
Description	On 19th Jan 2038 is the Y2038 problem where the timestamp can no longer fit with signed 32-bit integer. On User space application for avoiding y2038 problem glibc and kernel should have support of Y2038 feature.
Role	• Design, develop and unit test whole feature. • Run cppcheck scan on all user-space source and kernel source.
	• Identify the portion of source that is making use to time. • Develop a template needed to fix the buggy code against y2038. • For user-space upgrade glibc which provide support to y2038 and analyze other packages and fix them. • Write down the test scripts for testing and perform all types of sanity testing.

Learning Projects

Project Name	Description
Designing GPIO driver for Raspberry pi Board	Developing GPIO driver with basic functions and doing **IOCTL**.
Linux Porting on SDM845	Porting and fine-tuning Linux as required and board bring-up with that image.
Designing C preprocessor	Design and development of C preprocessor
	trying to understand the compiler functions and difficulty level of design of those functions.

Education Qualification

Course	Institution	Board/University	Percentage	Year of Completion
Embedded System Design	Vector India	Vector India	-	2019
Bachelor of Engineering	S.G.Balekundri Institute of Technology	VTU, Belgavi	68%	2018
Higher Secondary	kendriya vidyalaya	CBSE	73%	2014
High School	kendriya vidyalaya	CBSE	8.6 CGPA (82%)	2012

Personal Details

Fathers Name	S.S. Mugali
Mothers Name	Jayashree Mugali
Date of Birth	21/04/1996
Address	C/O S.S.Mugali , Sahyadri nagar , Belgavi, Karnataka , 590019
Nationality	Indian
Languages Known	English, Hindi, Kannada
Hobbies	Watching and Playing sports (Boxing), Hanging out, Physical fitness.

Declaration:

I hereby declare that above information is correct to best of my knowledge and belief.

Place: Bangalore **Date:**

Basava Prabhu