

LUCKY TYAGI

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EMBEDDED LINUX - DEVICE DRIVERS - YOCTO - KERNEL PORTING - ANDROID - RTOS - LWIP

TECHNICAL SKILLS

OS : Linux, Embedded Linux, Android, MyNEWT OS
Languages : C, Shell Scripting, Yocto Recipes, Python
Protocols : I2C, SPI, RS-232, RS-484, UART
Linux Tools : Makefile, GCC, GDB, KGDB, Yocto, GIT, Linaro, Valgrind, ADB, Newt
Micro-Processors : ARM Cortex-A9 (i.MX6)
Micro-Controllers : STM32F4 Cortex-M4

EDUCATION

Amrita School of Engineering, Coimbatore, India

MAY 2014

Bachelors in **Electrical and Electronics Engineering**, GPA 7.88

WORK EXPERIENCE

E-CON SYSTEMS INDIA PVT. LTD.

MAY 2014 - SEP 2016

DESIGNATION : Firmware Engineer

EXPLORIDE TECHNOLOGIES PVT. LTD.

SEP 2016 - DEC 2017

DESIGNATION : Firmware Engineer

PATH PARTNER TECHNOLOGIES PVT. LTD.

JAN 2018 - PRESENT

DESIGNATION : Senior Software Engineer

PROJECTS

YOCTO BUILD SYSTEM

AUG 2014 - OCT 2014

■ Yocto Build Setup for custom BSP

Developed a Yocto build setup for automating BSP creation for i.MX6 Processor. It includes creating own BSP Layer, adding machine support and adding custom recipes.

BSP DEVELOPMENT

NOV 2014 - MAR 2015

■ Custom Board Support Package

Developed a custom BSP for i.MX6 Processor. It includes porting Linux Kernel, Device Tree File, U-Boot boot-loader and Root File System for the target board.

- U-Boot : 2013.04, 2014.04
- Kernel : 3.10.17, 3.14.28
- Ubuntu RFS : 12.04, 12.10, 14.10

DIAGNOSTICS

APR 2015 - JUL 2015

■ Code development for board diagnostics

Developed codes requiring minimal human input to test all peripherals of eSOMi.MX6 board while maintaining minimal time of execution and completion for faster production cycle.

- C application to diagnose eMMC, RAM, LVDS and GPIO pins in boot-loader.
- C application to diagnose ADC in root file system.
- Shell Scripts to test USB OTG, Ethernet, Wi-Fi, HDMI, 3 Camera interfaces (1-MIPI, 2-Parallel), Bluetooth, RS-232 and RS-485 Ports.

DEVICE DRIVERS

AUG 2015 - DEC 2015

■ Developing and Porting device drivers

- Ported device driver for ADC Chip AD7949.
- Ported device driver for HDMI and LVDS display interfaces.

- Developed device driver for DAC Chip AD5724R connected over SPI interface.
- Developed device driver for RS-232 and RS-485 Muxed serial port.

TICKET HANDLING, BSP RELEASES and DOCUMENTATION

JUN 2014 - SEP 2016

Includes handling customers tickets for custom or additional support. Fixing bugs reported by QA or customer, integrating the bug fixes into new release and setting up to Yocto to create a new BSP. Preparing easy to read, simple and detailed documents for BSP Releases and for customers.

ANDROID DEVICE DRIVERS

SEP 2016 - NOV 2016

■ *Custom Device Drivers in Android Linux*

Created and integrated custom device drivers in Android Linux Kernel for custom devices (ALS, Projector Display Device and Battery Charger Controller driver).

HAL LAYER INTEGRATION

DEC 2016 - JAN 2017

■ *Integrating Custom Device Drivers with HAL Layer*

Customized and integrated HAL Layer implementation for Light Sensor, GPS and Projector Display device with custom device drivers Android Linux Kernel.

BOOT TIME OPTIMIZATION

JAN 2017 - MAR 2017

■ *Optimizing boot time for Android Embedded System*

Optimized android embedded system at three levels :

- U-Boot
- Kernel
- Android File System

BUG FIXING AND CODE OPTIMIZATION

MAY 2017 - JUL 2017

■ *Bug fixing and adding new features as reported and requested by beta testers and investors.*

CAMERA AND OBD INTEGRATION

AUG 2017 - DEC 2017

- Wireless rear camera streaming to help in parking.
- Front camera for recording videos and taking snapshots.
- Getting OBD data from the vehicle and displaying on the HUD.

LWIP, 6LOWPAN STACK INTEGRATION

FEB 2018 - MAR 2018

■ *Integration of lwIP and 6LoWPAN stack with RAW API support in MyNEWT OS*

- Developed netif interface driver for communicating with the stack.
- Developed lwip p2p service driver on top of netif to communicate with other devices.
- Integrated RTLS (Real Time Location Service) with lwIP to decrease load on UWB Bandwidth.

SAMPLE APP DEVELOPMENT

APR 2018 - JUL 2018

■ *Developed sample applications for user showcasing the lwIP stack implementation*

- Basic lwIP Ping application.
- lwIP P2P application with the capability of sending user defined payloads.
- lwIP P2P application integrated with Auto-Site Survey.

PERSONAL SKILLS

- ❖ Exploring, Learning and Living LINUX.
- ❖ Habit of delivering before or on time on continuous basis.
- ❖ Ability to work in multi-cultural and multi-functional team environment.
- ❖ Excellent Communication skills.
- ❖ Extremely detail oriented and organized.

PERSONAL DETAILS

PERMANENT ADDRESS	Electronic City, Phase-I, Bangalore - 560100
DATE OF BIRTH	2 nd March 1992
CURRENT LOCATION	Bangalore
NATIONALITY	Indian
LANGUAGES	Hindi and English