

# 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, NewtMgr  
**Micro-Processors** : ARM Cortex-A9 (i.MX6)  
**Micro-Controllers** : STM32F4 Cortex-M4, nRF52832, nRF52840

## 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.**

**JUN 2014 - SEP 2016**

**DESIGNATION** : Project Engineer

**EXPLORIDE TECHNOLOGIES PVT. LTD.**

**SEP 2016 - DEC 2017**

**DESIGNATION** : Firmware Engineer

**PATH PARTNER TECHNOLOGIES PVT. LTD.**

**JAN 2018 - PRESENT**

**DESIGNATION** : Sr. 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 ADC in root file system.
- C application to diagnose eMMC, RAM, LVDS and GPIO pins in boot-loader.
- 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.

## **BSP PORTING FOR MDEK BOARD ON MYNEWT OS**

**FEB 2018 - MAR 2018**

- BSP Porting for nRF52832 based mDek board on myNewt OS.
- Board bring up (nRF52832 BSP).
- DW1000 chip bring up (SPI interface).
- Developed low level read, write and configuration APIs.

## **LWIP, 6LOWPAN STACK INTEGRATION**

**APR 2018 - JUN 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**

**JUL 2018 - PRESENT**

- Developed sample applications 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.
- Integrated BLE, TDMA(Time Division Multiple Access), Site-Survey, CLI commands and lwIP into a single application.

## **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 <sup>nd</sup> March 1992
CURRENT LOCATION	Bangalore
NATIONALITY	Indian
LANGUAGES	Hindi and English