

DODDI MOHAN KUMAR

Embedded Software Engineer

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OBJECTIVE:

I have acquired practical expertise in Embedded Software Development, with a strong emphasis on Yocto-based projects. My competencies include application development and the customization of Board Support Packages (BSP) using Yocto, as well as configuring and compiling the kernel and the Yocto root file system (RFS). Additionally, I possess skills in porting and enabling board functionalities, ensuring seamless integration and optimal performance of embedded systems within the Yocto framework.

TECHNICAL SKILLS:

- Work experience board bring up and BSP development on various RBA5D2X, i.MX6UL and AM335X based products.
- Work experience on development/customization of various Linux Basic Device Drivers including, LCD, WiFi/BT, I2C, SPI, UART, Led, Keypad, GPIO, and IO expander.
- I am proficient in the C programming language.
- I have a good knowledge of debugging and Schematics understanding.
- Good presentation skills and quick learning, and excellent team player having the ability to meet deadlines.
- Flexible and versatile to adapt to any new environment and work on any project.
- Knowledgeable in communication protocols such as UART, I2C, SPI, and CAN.
- Knowledge of STM32F446re, F411RE and Nordic nRF5340DK boards with Bluetooth data transmission from the nRF5340DK board to a custom board.
- Good in Linux Basic Device Driver development and Proficient in using Git for source code management.

Experience

SBCS India Pvt. Ltd. (Client: Phytec Embedded Pvt. Ltd.) — Bengaluru, Karnataka

Embedded Software Engineer

June 2023 – Present

San NexGen ElectroTech Pvt. Ltd. — Visakhapatnam, Andhra Pradesh

Technical Training for Embedded Systems

October 2022 – March 2023

Tech Mahindra Pvt. Ltd. — Hyderabad, Telangana

Customer Support Associate

June 2021 – July 2022

PROJECTS

PROJECT 1	
Company /Customer	PHYTEC Embedded Pvt Ltd /Internal Project
Description	Designed and developed Fledge South/North plugins (C++/Python) for real-time energy meter data collection and cloud transmission. Integrated smart sensors via UART and secure FOTA updates using RAUC OS and Application. Deployed end-to-end IoT solutions with Things Board cloud, enabling GUI-based remote access and monitoring.
Platform (SW/HW)	<ul style="list-style-type: none">• Yocto 4.0.9 (kirkstone)• Debian 12.1 rootfs• Linux Mainline Kernel 5.15.0-139-generic (LTS kernel)• Barebox v2022.02.0• GUI platform showing output
Role & Responsibilities	<ul style="list-style-type: none">• Developed Fledge South and North plugins in C++ and Python for data• Collection and cloud transmission.• Integrated smart energy meters via UART and custom sensor protocols• Enabled secure cloud connectivity with ThingsBoard for visualization and analytics.• Managed full device setup and integration for both edge device and host PC.• Ensured remote access through IP-based GUI, accessible from any location.
Skills	Worked with basic C++, Python,JSON for application development, set up GUI interfaces, integrated with the Things Board cloud platform and created memory maps for embedded system management

PROJECT 2	IISC EV Charger integration with RB-i.MX6UL
Company /Customer	PHYTEC Embedded Pvt Ltd / IISC BANGALORE
Description	Developed an advanced EV Charging Station integrating the RB-i.MX6UL SBC with a TMS Controller Board, enabling cloud connectivity via AWS. The system features four charging ports, supporting different voltage levels: Port 1 (48V), Port 2 (60V), Port 3

	(72V), and Port 5 (100V-400V adjustable). Implemented a Mode 5 charging screen to configure and control the adjustable voltage port through the EVCS mobile application. The user provides inputs for display selection and voltage settings via the app, which communicate using the CAN protocol between the i.MX6UL SBC and the TMS Controller Board. Operations via Web/Mobile App, local control through an LCD touchscreen, and hardware switches for manual ON/OFF functionality.
Platform (SW/HW)	<ul style="list-style-type: none"> • phyBOARD-Segin, phyCORE-i.MX6UL • Yocto 4.0.9 (kirkstone) • Linux Mainline Kernel v5.15.102 (LTS kernel) • barebox v2022.02.0 • Qt 5.15.7 from meta-qt5 (kirkstone)
Role & Responsibilities	<ul style="list-style-type: none"> • Complete Yocto BSP Layer development and write recipes for our sources • Test the application from end to end through the ethernet and wifi. • Make an internet connection using an ip address through the web page • EVCharger RuggedBoard firmware installation.
Skills	Yocto, BSP Development, Board Bring-up, Root file System, firmware installation, Application testing.

PROJECT 3	BLE Gateway Communication for Smart Meters and IoT Integration
Company /Customer	PHYTEC Embedded Pvt Ltd / IISC BANGALORE
Description	This project aims to enable BLE communication between smart meters (smart meters, water meters, and energy meters) and the cloud using a mesh network and gateway. Nordic nRF5340DK boards are used to form a BLE mesh network where nodes communicate with each other using UART to exchange data. The gateway, based on i.MX6UL, collects node data and uploads it to the cloud via MQTT protocol, leveraging Things Board as the IoT platform for data visualization and management
Platform (SW/HW)	<ul style="list-style-type: none"> • Hardware: Nordic nRF5340DK, i.MX6UL, Smart Meters (UART-enabled). • Software: BLE Mesh Protocol, MQTT, Things Board, VS Code.
Role & Responsibilities	<ul style="list-style-type: none"> • Designed and implemented the BLE mesh network for seamless communication between nodes. • Configured UART communication on Nordic nRF5340DK for data exchange with smart meters. • Developed gateway logic on i.MX6UL to aggregate node data and send it to the cloud. • Implemented MQTT-based communication for reliable data transfer to Things Board.

	<ul style="list-style-type: none"> • Debugged and optimized BLE communication to ensure low latency and Reliability.
Skills	C Programming, BLE Mesh, UART Communication, MQTT Broker, VS Code, Things Board Integration.

PROJECT 4	Yocto BSP Upgrading for Ruggedboard-a5d2x
Company /Customer	PHYTEC Embedded Pvt Ltd / Internal Project
Description	Main uses of the Rugged Board A5D2X include industrial automation, embedded systems, IoT deployments, and rugged applications where reliability and environmental resilience are crucial. Upgrading from Yocto 3.3.x to Yocto 4.0.13 with Linux kernel version 5.15 ensures access to the latest features, security enhancements, and improved hardware support, while maintaining compatibility and stability. The upgrade process involves updating the Yocto Project environment, adjusting configuration files, rebuilding the image with the new kernel version, and testing compatibility and functionality before deployment.
Platform (SW/HW)	<ul style="list-style-type: none"> • Hardware: Ruggedboard-a5d2x • Software: Yocto 4.0.13 (kirkstone), Linux Kernel v5.15.71
Role & Responsibilities	<ul style="list-style-type: none"> • Develop and maintain Yocto BSP Layer for Rugged Board A5D2X. • Integrate and configure part 1.0.0 for streamlined flashing processes. • Ensure compatibility and stability during Yocto version upgrades, including kernel updates.
Skills	Yocto, BSP Development, Kernel Porting, Board Bring-up, Pin Muxing and Adding Sled Drivers.

EDUCATION:

B-TECH (2015-2018): ASK College of Technology & Management, Anakapalle, AP
Electronics & Communication Engineering

Diploma (2011-2015): Sri Chaitanya Polytechnic College, Anakapalle, Andhra Pradesh
Electronics & Communication Engineering

SSC (2010-2011): ZPP High School, Nagulapalle, Andhra Pradesh