

OBJECTIVE:

Utilize my expertise in Embedded Software Development, especially with Yocto-based projects, to contribute to high-performance embedded systems. I have experience in application development, customizing Board Support Packages (BSP) with Yocto, and configuring and compiling the Kernel and Yocto Root File System (RFS). My goal is to support the integration and performance of Embedded Systems within the Yocto framework.

EXPERIENCE:

Company : SBCS India Private.Ltd

Client : Phytex Embedded Pvt. Ltd
(June 2023 –Present)

TECHNICAL SKILLS:

- C Programming Language
- Knowledge of board bring up (Uboot, Kernel, DTB and Root File System)
- Linux internals
- Able to understand dts and other configuration files
- Working experience in Application Development and Sensor Interfacing
- Familiar with Linux development environment such as Ubuntu
- Knowledge on STM32 Microcontroller
- Knowledge of Communication Protocols – UART, SPI, I2C, and CAN
- Ability to understanding schematics, Hardware architecture and data sheets
- Good analytical, logical, and debugging skills

EDUCATION:

BE : Electronics and Communication
Rao Bahadur Y.Mahabaleshwarappa Engineering college, Bellari

PUC : Sri Chaitanya Pre-university College, Bellari

SSLC : Ashirvad High School, Bellari

PROJECTS:

Project:1	IoT-based Temperature and Humidity Monitoring System using STM32F411RE
Company	PHYTEC Embedded Pvt Ltd

Description	The project aimed to design and implement an IoT-based solution for monitoring environmental parameters such as temperature and humidity using the AHT25 sensor . The acquired data is transmitted to an MQTT cloud server via the WE10 Wi-Fi module using the UART interface. The system employs a state machine for modular and scalable operation, allowing for accurate and real-time monitoring.
Platform (H/W & S/W)	<p><u>Hardware:</u></p> <ul style="list-style-type: none"> • Microcontroller: STM32F411RE (ARM Cortex-M4 core) • Sensors: AHT25 Temperature and Humidity Sensor • Communication Module: WE10 Wi-Fi Module • Interfaces: UART, I2C, Timer <p><u>Software:</u></p> <ul style="list-style-type: none"> • IDE: STM32CubeIDE • Firmware: STM32 HAL Drivers, Custom Libraries for AHT25 and WE10 • Protocol: MQTT for cloud communication
Roles & Responsibilities	<ul style="list-style-type: none"> • Designed the overall architecture of the IoT-based system. • Configured peripherals including I2C for sensor data acquisition and UART for Wi-Fi communication. • Developed firmware using STM32 HAL drivers for: <ul style="list-style-type: none"> • Sensor initialization and data reading. • Timer interrupts for periodic tasks. • MQTT client implementation for data publishing. • Debugged hardware connections and software to ensure accurate data acquisition. • Documented the project, including hardware connections, software flow, and troubleshooting steps.
Skills	<p>Programming: Proficient in C for embedded systems.</p> <ul style="list-style-type: none"> • Interfaces: UART, I2C, Timer configuration. • IoT: MQTT protocol for cloud communication. • Tools: STM32CubeIDE, STM32 HAL Drivers. • Debugging: Hardware and firmware troubleshooting. • Design: State machine-based system development.

Project:2	FLEDGE
Company	PHYTEC Embedded Pvt Ltd
Description	I worked on integrating IoT data with Fledge by installing the necessary packages, prerequisites, and configuring both south and north plugins for data collection and export. Additionally, I developed a custom server.js application to enable real-time monitoring through a web-based dashboard, accessed via IP address. I also wrote an application that successfully transmitted data to the dashboard, allowing for seamless visualization of sensor data.

Platform (H/W & S/W)	<ul style="list-style-type: none"> • H/W: Ruggedboard-a5d2x • S/W: Fledge GUI dashboard, MQTT Protocol
Roles &	<ul style="list-style-type: none"> • Installed and configured Fledge, including required packages, prerequisites
Responsibilities	<ul style="list-style-type: none"> • Set up and managed south plugins for data collection from sensors and north plugins for data export to external systems or cloud services. • Developed a server.js application for real-time data visualization and dashboard access via IP. • Implemented MQTTcommunication protocols to transmit data to Fledge GUI dashboard • Conducted comprehensive testing and debugging to ensure seamless interaction between hardware components and the cloud platform • Collaborated with the team to optimize system performance and reliability
Skills	Fledge Platform Configuration, South and North Plugin Management, Real-time Data Monitoring, Dashboard Development and Deployment

Project:3	Yocto BSP Upgrading for Ruggedboard-a5d2x
Company	PHYTEC Embedded Pvt Ltd
Description	<p>The RuggedBoard is an open-source industrial single-board computer powered by an ARM Cortex-A5 SoC running at 500 MHz. It supports multiple industrial interfaces, making it ideal for developing low-power industrial gateways, low-end HMIs, and a variety of Industry 4.0 applications. Recently, the Yocto BSP for RuggedBoard was upgraded from Yocto 3.3.x (Sumo-rba5d2x) to Yocto 4.0.13 (Kirkstone), along with an update to the Linux kernel version 6.1.55.</p>
Platform (H/W & S/W)	<ul style="list-style-type: none"> • SOM – phyCORE-A5D2xProcessor • Yocto 4.0.13 (kirkstone) • AT91Bootstrap v4.0.5 • U-Boot vlinux microchip-2023.10 • Linux Kernel version v6.1.55
Roles & Responsibilities	<ul style="list-style-type: none"> • Complete Yocto BSP Layer development • AT91Bootstrap Is upgraded from v3.0.2 To v4.0.5 • U-Boot is upgraded from linux microchip-2018.07 to 2023.10 • Linux Kernel version from v4.9 to v6.1.55 • Adding mqtt , bluez , python pip3 Packages • Performing pin muxing for hardware configurations in dts file
Skills	Board Bring-up , Git control version, Creating Layers, Writing Recipes, Creating Images, Adding Packages and Libraries. Yocto-BSP Development, Kernel Porting & Upgradation.