Shweta Dundappa Masali

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CAREER OBJECTIVE

Enthusiastic Electronics and Communication Engineering graduate with hands-on experience in embedded systems, communication protocols, and automation technologies. Seeking opportunities to apply my technical skills and contribute to innovative projects while growing professionally in a dynamic organization.

TECHNICAL SKILLS

Languages: Embedded C
MCUs: ESP32, Renesas RA6M3, ARM Cortex-M3 (LPC1768), 8051, Arduino
Communication Protocols: UART, I2C, SPI, Modbus, MQTT
Embedded Concepts: MCU peripherals, Interrupts, FreeRTOS, State Machines, Register-level programming, Debugging, UI Framework
Tools: Keil u Vision, Renesas e² studio, Proteus, Vivado, MATLAB, Arduino IDE, ESP-IDF

EDUCATION	BOARD/UNIVERSITY	INSTITUTION	YEAR OF PASSING	MARKS
Electronics and Communication Bachelors	KLE Technological University	KLE Technological University, Belagavi	2025	8.02 CGPA
Pre-University	Department of Pre-University Education	Chaitanya PU Science College, Vijayapura	2021	87.83%
Secondary School	KSEEB Board	Akkamahadevi Girls High School, Bijjaragi	2019	83.84%

INTERNSHIP

Automotive Software Development Intern

Sophon Technologies LLP, Belagavi | Feb 2025 – May 2025

Project: OBD (On-Board Diagnostics) Software Stack

- **Technologies & Tools:** Embedded C, LPC1768 (ARM Cortex-M3), UART, CAN, ISO-TP, OBD-II (Mode 09), Keil u Vision, PyQt, Qt Designer, WaveShare USB-to-CAN Module
- Developed a custom OBD-II stack (Mode 09) on LPC1768 (ARM Cortex-M3).
- Implemented UART driver at register level and integrated CAN communication using interrupts.
- Worked with ISO-TP and CAN protocols for automotive diagnostics.
- Designed a PyQt-based GUI to send diagnostic requests and display vehicle information (VIN, Calibration ID).

- Validated system functionality using WaveShare USB-to-CAN module following SAE/ISO

INTERNSHIP

Embedded System Intern

Rabban Control Solutions, Bengaluru | Aug 2025 – Present

Project: Modbus RTU Communication Hub with IoT Integration

- **Technologies & Tools:** Renesas RA6M3, ESP32, Embedded C, Modbus RTU, RS485, UART, SPI, I2C, MQTT, Anedya Cloud, SD Card, FreeRTOS, MikroBUS, ESP-IDF, e² Studio
- Designed a multi-channel Modbus RTU hub over RS485 with FreeRTOS-based queue synchronization, timeout handling, and data collision avoidance.
- Implemented UART bridge between Renesas RA6M3 and ESP32 for inter-MCU data exchange; Renesas processes sensor/Modbus data and transmits to ESP32 for cloud publishing.
- Integrated MQTT client on ESP32 to publish BME688 sensor telemetry (temperature, humidity, gas) to Anedya IoT cloud with QoS configuration.
- Developed an embedded HTTP web server on ESP32 serving live sensor data as a local Wi-Fi dashboard.
- Implemented SD card raw read/write over SPI — handled initialization sequence, CS control, and block-level sector access without a file system layer.

PROJECTS

1. Smart Toy-Collecting Bot

- **Technologies Used:** Arduino, Servo Motor, Robotic Arm, DC motor
- Designed a toys-collecting bot using Arduino, servo motor, and a robotic arm to demonstrate mechanical automation skills.
- Programmed the bot to autonomously collect toys and store in Container, showcasing expertise in robotics, control systems, and mechanical engineering.

2. Bi-Directional Communication with ESP-NOW protocol with Sensor Data Exchange

- **Technologies Used:** ESP32 board, Arduino IDE, BME280, OLED
- Developed a Bi-Directional communication system using the ESP-NOW protocol for real-time sensor data exchange between ESP32 devices.
- Integrated sensors like temperature, humidity to collect and transmit data wirelessly, while receiving control signals for device management.