**KOTTE ANJALI**

# Embedded Software Engineer

**Mobile:** +91 8328162460  **Email:** kotteanjali6@gmail.com

# Summary

Experienced Embedded Software Design Engineer with over 2 years of experience in designing, developing, and testing high performance embedded systems. Specialized in controlling stepper motors, and memory modules in medical and industrial domains. I am skilled in hardware design understanding, verification, debugging, and testing from prototyping to final product level. collaborating across teams and ensuring comprehensive project execution.

# Professional Experience

**Embedded Software Engineer, *Allied Medical Pvt Limited, Rajasthan (Tapukara)***

**(Sep 2024 Present)**

## 

* **Embedded Controllers:** Worked extensively with **STM32, ATXMEGA,** and Arduino Controllers (both 8bit and

32bit).

* **Tools & Debugging:** Proficient in **Microchip Studio**, KEIL, Arduino **IDE**, (**basic**) **STM32CUBE IDE**, **LCD** Vision and debugging tools like **YAT**, X-CTU, **Logic 2**, and Serial Plotter.
* **Display Technologies:** Hands-on experience with **LCD.**
* **Communication Protocols:** Expertise in **USART, SPI, and I2C** communication.
* **Bootloader Programming:** Developed bootloaders for STM32 microcontrollers for **firmware updates**.
* **Stepper Motors:** Controlled **stepper motor** drivers (DRV8825, HW-354) and worked with shaft encoders.
* **ADC & DAC Expertise:** Used 12-bit **ADC** and **DAC** for precision measurement and performance.
* **Documentation: Worked** on Software Requirement Specifications (**SRS**), Software Architecture Details (**SAD**).
* **Hardware & Testing:** Extensive experience with **oscilloscopes**, **logic analyzers**, **TTL**, **Fluke analyzers**, flow analyzers, and digital multi meters.
* Worked with 32, 16, 8-bit Timers, External interrupts, PWM, DMA.

# Key Projects

**Syringe Pump 200 (*Sep 2024 – Jan 2025)***

## Client: Allied Medical Limited

* **Utilized a dual microcontroller architecture:** 
  + ATXMEGA (Slave Controller): Managed stepper motor control for syringe actuation, ADC-for potentiometer to detect the syringe, and UART communication with the master controller.

**Baby-Warmer (Data Logger) (*April 2025 – July 2025)***

## Client: Allied Medical Limited

* Designed and implemented a temperature data logging system using a PT100 (via ADC), RTD sensor (DS18B20) for precise analog temperature measurement. The system records time-stamped data on an SD Card using an RTC module and provides user control via a push-button interface.

**Key Responsibilities & Features:**

* **PT100 Temperature Sensing**:
* Used **PT100 RTD sensor** interfaced through **signal conditioning (amplifier + filter)** and connected to the MCU's **ADC input**.
* Implemented temperature calculation based on voltage-to-resistance conversion and RTD characteristics.

**DS18B20 Interface**:

* Interfaced **DS18B20 digital temperature sensor** using **1-Wire protocol** via **GPIO pin**.
* Implemented or integrated library to read precise digital temperature values.

**RTC Integration**:

* Used **RTC module (DS3231)** via **I2C** for real-time timestamping of each temperature entry.

**Data Logging System**:

* Connected an **SD card module** via **SPI** to store data in **CSV format**.
* Implemented robust file handling and periodic data writing to ensure reliability.

**Button Interface**:

* Added **push-button control** for start/stop logging or mode selection.
* Included **software debouncing** for stable input recognition.

**Error Handling & Reliability**:

* Added checks for sensor disconnection, SD card presence, and file I/O errors.
* Designed power-efficient code structure and modular firmware.

**Outcome:**

* Successfully deployed a dual-sensor temperature logger combining analog and digital data acquisition.
* Enabled long-term environmental monitoring with time-stamped logs accessible via SD card.
* Gained hands-on experience in sensor integration, embedded programming, and data management.

# Education

Bachelors in Process Engineering SSN College of Engineering | Electronics and Communication Engineering Final Grade: 7.6 GPA

Intermediate Narayana Junior College Final Grade: 8.0

Secondary School Certification KGBV Chinna Orampadu | Final Grade: 9.0 CGPA

**Technical Skills:**

* **Programming:** C Language, Embedded C.
* Knowledge of RTOS, Linux.
* **Embedded Controllers:** STM32, ATXMEGA, Arduino
* **Development Tools:** STM32Cube IDE, KEIL, Arduino IDE
* **Communication Protocols:** USART, SPI, I2C
* **Debugging Tools:** YAT, X-CTU, Logic 2, Serial Plotter
* **Lab Equipment:** Oscilloscopes, Logic Analyzers, TTL, Function Generators, Digital Multi meters

**Languages**

Telugu | English | Hindi