

Kowshik Gajula

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Education

MLR Institute of technology

Electrical and Electronics Engineering :CGPA 6.2

Sri Chaitanya Jnr College :CGPA 8.9

Hyderabad,India

August 2019-September 2023

2017 June- April 2019

SKILLS SUMMARY

- **Embedded Systems & Firmware Development:**

- Embedded C, Linux Driver Development (LDD).
- **RTOS Concepts:** Preemptive scheduling, context switching, inter-task communication
- Real-Time Frameworks: QP/C, QP/C++ (Quantum Leaps), Event-driven architectures
- UML State Machines: Hierarchical state machine design using QM (Quantum Modeler)
- Character Device Drivers (file_operations, cdev, ioctl)
- User-Kernel Communication (copy_to_user, copy_from_user)
- Device Tree & Platform Drivers (Basics)
- Interrupt Handling (Kernel-level: request_irq, free_irq; MCU-level: ISRs)
- Sysfs/Procfs Interfaces, Kernel Debugging (dmesg, printk)
- GPIO, I2C, SPI Linux Driver Implementation

- **Data Structure & Algorithms.**

- **Microcontrollers:**PIC, Holtek.

- **Communication Protocols:**UART, SPI, I2C,USB to UART,RS485.

- **Peripherals & Interfaces:**ADC, PWM, Timers, Interrupts, GPIO, EEPROM

- **Tools & Software:**Quantum Modeler (QM), MPLAB X IDE, Keil, KiCad, EasyEDA, HT-IDE, Arduino

- **Debugging & Testing:** Oscilloscopes, Multimeter, Serial communication tools

Application & Customer Support Skills:

- **Technical Consultation:** Understanding customer requirements and providing tailored solutions.
- **Product Demonstration:** Presenting technical solutions and training customers on products.
- **Pre-Sales & Post-Sales Support:** Assisting customers with design, testing, and troubleshooting.
- **Customer Handling:** Building relationships, providing on-site support, and resolving technical issues.
- **Project Management:** Coordinating between R&D, sales, and customers .

Product Validation and Testing

- Validated product features by designing test cases and running manual and automated tests.
 - Collaborated with QA to conduct functional, performance, and regression testing.
 - Identified bugs and usability issues, improving product quality pre-launch.
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WORK EXPERIENCE

GMVR Hi-Tech Pvt Ltd – Embedded Systems Engineer

2023 (NOVEMBER) – present

Roles & Responsibilities:

- Designed and developed embedded firmware for microcontrollers including PIC, Holtek series.
- Interfaced peripherals such as UART, SPI, I2C, ADC, PWM, GPIOs for custom hardware platforms.
- Created PCB schematics and layouts using tools like KiCad and EasyEDA..
- Developed applications such as weigh scales, mosquito repellents, count beepers, RF remote, and

BLDC fan controllers.

- Performed debugging using oscilloscopes and serial communication tools.
 - Collaborated with cross-functional teams for testing, validation, and product release.
 - Engaged in customer support, field deployment, and troubleshooting.
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Projects

Weigh Scale System

- Designed a microcontroller-based digital weighing scale using load cell and ADC interface.
- Implemented calibration logic and display control to show accurate weight on 7-segment displays.
- Enabled real-time updates and overload warnings.
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Personal Weigh Scale System

- Designed a microcontroller-based digital weighing scale using load cell and ADC interface.
- Implemented calibration logic and display control to show accurate weight on LCD displays.
- Enabled real-time updates and overload warnings with buzzer alerts.
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Count Beeper System

- Developed a counter system that triggers a buzzer/beep at specific count values.
- Utilized push-button interface and microcontroller timers for precise counting.
- System used in process monitoring applications for alerting based on production units.
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BLDC Fan Controller

- Developed a BLDC (Brushless DC) motor control system using microcontroller and Hall sensor feedback.
- Implemented speed control via PWM based on user input from IR remote or touch interface.
- Ensured smooth start-up, direction control, and thermal protection features.
- Tested under varying load conditions with stable performance and minimal noise/vibration.
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Electronic Mosquito Repellent

- Built a sound-based mosquito repellent using a microcontroller to generate ultrasonic frequencies.
- Designed to operate in energy-efficient cycles using sleep modes and low-power peripherals.
- Successfully tested in controlled environments with effective insect repulsion results.

VI Meter with ADC Offset Error Correction

- Developed a VI (Voltage-Current) meter using a microcontroller with precise ADC calibration.
- Identified and resolved ADC offset error causing incorrect voltage readings reported by the customer.
- Implemented software-based offset correction and signal conditioning to ensure accurate real-time measurements.

Declaration

I hereby declare that the above information is true to the best of my knowledge and belief.

Place: Bangalore

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