



SHOBANA GUNASEKARAN

EMBEDDED ENGINEER

CONTACT

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EDUCATION

Bachelor of Engineering -
Electronics and
Communication

Anna University |
2003 - 2007

LANGUAGES

- English
- Tamil

PROFILE

Results-driven Embedded Systems Engineer and Technical Trainer with experience in embedded software development, firmware testing, sensor interfacing, Linux basics, Raspberry Pi, LoRaWAN gateway setup, and hardware debugging. Skilled in Embedded C, ARM Cortex-M, AVR, ESP32, communication protocols, and real-time embedded testing. Experienced in writing test cases, hardware validation, UART debugging, and training students in embedded systems concepts.

WORK EXPERIENCE

□ **Innovatrons, Bengaluru Karnataka**

Return Back Intern | Jan 2026 - Apr 2026

- Setup Raspberry Pi and remotely accessed it using Ubuntu Server
- Created SSH IDs and configured password-less login
- Worked with Linux commands and basic Linux administration
- Worked on WM1302 LoRaWAN Gateway Module
- Used Raspberry Pi and WM1302 at receiver side
- • Written functional and regression test cases for Kids Wearable Device project

UTL Technologies, Chennai Tamil Nadu

Technical Consultant - Embedded Systems | Jul 2009 - Jul 2011

- Conducted embedded systems training programs
- Developed course materials and lab manuals
- Guided students in hardware interfacing and debugging
- Conducted evaluations and mentoring

Accent E Technology Pvt Ltd, Chennai Tamil Nadu

Software Engineer - Embedded Systems | Sep 2007 - Jun 2009

- Developed embedded firmware using Embedded C
- Worked on microcontroller-based applications
- Performed debugging and protocol integration

KEY SKILLS

- **Programming Languages:** C, Embedded C, C++, Python (Basics)
- **Microcontrollers:** ARM Cortex-M (STM32), AVR (ATmega16/32, Arduino), PIC, 8051
- **Protocols & Interfaces:** UART, I2C, SPI, CAN, USB, Bluetooth (HC-05), Wi-Fi (ESP8266/32)
- **Tools & IDEs:** Keil µVision, Arduino IDE,
- **VS Code Systems & Concepts:** Real-Time Operating Systems (FreeRTOS), Device Drivers, Sensors & Actuators, Interrupts, Timers, ADC/DAC
- **Hardware Skills:** PCB Design, Soldering, Circuit Debugging, Oscilloscope, Logic Analyzer
- **Training & Soft Skills:** Curriculum Development, Lecture Delivery, Lab Supervision, Student Assessment, Mentoring, Problem-Solving, Excellent Communication

TESTING & VALIDATION

- Sensor validation and functional testing
- UART log analysis and debugging
- ADC resolution testing (12-bit / 16-bit)
- Bluetooth connectivity testing
- Embedded firmware regression testing
- HR and GSR sensor validation
- Hardware-software integration testing

PROJECTS

Kids Wearable Device

Prepared functional and regression test cases for a real-time wearable project using nRF52840 DK BLE development board. Sensors used include MAX30102 for heart rate, GSR for stress detection, and BMA456 accelerometer for motion detection.

Smart Irrigation System

Built an automated irrigation system using soil moisture sensor, relay module, Bluetooth HC-05 and ATmega328P microcontroller.