

SHIVANI AREKAR

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SUMMARY

Embedded Software Engineer with hands-on experience in industrial embedded systems, robotics, and IoT-based applications. Skilled in firmware development, hardware-software integration, and communication protocols such as Modbus, UART, SPI, and I2C. Experienced in working with ESP32, Arduino, and Raspberry Pi for real-time monitoring, control, and data acquisition systems.

SKILLS

- Programming: Embedded C
- Microcontrollers: ESP32, Atmega1284, Raspberry Pi, Arduino, ARM, 8051
- Communication Protocols: UART, SPI, I2C, RS-232, RS-485, Modbus
- Hardware: Sensor Integration, TFT Display, Circuit Design
- Tools: Arduino IDE, VS Code, Keil, KiCad
- Wireless communication: LoRa, BLE, Wi-Fi
- Concepts: Debugging, Testing, Hardware-Software Integration
- Technical documentation

EXPERIENCE

1.6 YEARS

Embedded Software Engineer

Plexon Devices LLP, Pune

Nov 2025 - Present

- Developed embedded firmware for industrial measurement and monitoring systems, improving system reliability and performance
- Implemented Modbus slave communication for real-time data exchange with external systems
- Integrated weighing machine data via RS-232 and RS-485, mapping values to Modbus registers
- Enabled transmission of industrial data to cloud-connected systems
- Worked on IPC health monitoring system using TFT display, switches, and LEDs
- Currently developing chlorine testing instrument with ESP32, focusing on sensor interfacing and data acquisition
- Performed debugging, testing, and validation of hardware-software integration for reliability

Jr Embedded Engineer

Taypro Private Limited, Pune

Sep 2024 - Oct 2025

- Optimized embedded firmware for autonomous robotic systems, enhancing movement control and decision logic
- Integrated multiple sensors to provide real-time feedback and control in robotic applications
- Interfaced thermal camera module with Raspberry Pi for solar panel temperature monitoring and fault detection
- Designed line-following robot using Arduino and IR sensors for path detection and navigation
- Implemented ESP32 and LoRa-based mesh networking for long-range, low-power wireless communication
- Facilitated device-to-device communication for reliable command and data exchange

EDUCATION

B.Tech in Electronics and Telecommunications

SVERI's College of Engineering, Pandharpur | 2023

Projects:

Sign Language Recognition System: Vision-based system for recognizing hand gestures using palm and finger feature extraction

Password-Based Smart Door Lock System: Arduino-based security system using a 4×4 keypad for access control

IoT-Based Weather Reporting System: Online weather monitoring system using temperature and humidity sensors for live data reporting

CERTIFICATION

Advanced Embedded System

Vector India, Hyderabad

- Embedded C programming for 8051, ARM microcontrollers
- Peripheral interfacing using UART, SPI, I2C, GPIO
- Code development and simulation using Keil and Proteus