

# Farzin Rezaei

## Electronic & Embedded Engineer

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🌐 [www.Farzin-rb70.ir](http://www.Farzin-rb70.ir)

I am a Creative and enthusiastic embedded engineer with 9 years of experience in the electronic and IoT industry. I have experience designing, producing, debugging, researching, and developing electronic instruments. I am always looking for a challenging opportunity within the design and production unit.

### Skills

- Embedded C/C++ (ARM Cortex-M, AVR, ESP32, STM8)
- middleware (Free-RTOS)
- object-oriented programming
- Design patterns
- Embedded Linux Integration
- Circuit & PCB design (Altium Designer / KiCad)
- EMC/EMI
- DFMA, DFT, Reliability
- I2C, SPI, Serial, ADC , ...
- Wi-Fi, BLE, RS232, RS485, RS422, Modbus,...
- Git, Jira

### Experience

#### ● Co-Founder /Embedded Engineer . Hexabits . Tehran . Iran

September 2021 until now (3 years)

- Designed an **inverter** system that **converts single-phase to three-phase power**, supporting up to 2HP. Implemented advanced power electronics and microcontroller programming with **RS485 and Modbus protocol** for precise control and robust protection mechanisms.
- Developed a real-time **industrial gas monitoring** and logging system with integrated sensors and user-friendly data visualization. Ensured continuous monitoring and immediate alerts through reliable embedded systems.
- Created a **methane gas detector for fire alarm integration**, offering quick response and robust calibration. Enhanced safety in industrial and residential settings with sensitive detection technology.
- Developed a **tea maker board** automating temperature and brewing time control, with an integrated user interface. Enhanced user experience through notifications and customizable settings.
- Engineered a **soil resistivity measurement system** incorporating a graphical LCD for detailed visual data logging and an innovative battery management technology, extending battery life by approximately 40%. Implemented Wi-Fi for data transmission, supplanting the traditional serial port, to facilitate efficient real-time processing and remote monitoring.
- Ultrasonic Power Board
- Kinetic Clock
- BLE in ESP32 for IoT Project

#### ● Team Lead . Ara Electronic Afzar . Tehran . Iran

September 2021- August 2023 (2 years)

- Redesign the code of the **Customer Info Panel (POS)** to achieve fast OTA on the GPRS network, testing confirmed a 50% reduction in OTA time.
- Engineered a sophisticated control system for a **combi oven** utilizing STM32F4XX, integrating a PID controller and the Mateo system; achieved precise humidity control at high-temperature situations, enhancing cooking efficiency for over 20 recipes.
- Designed a modular **Car Side Mirror** system that integrates with existing mirrors, eliminating the need for replacements. Utilized current sampling from mirror motors for precise position detection, reducing product line change costs and enhancing system efficiency.

- **Embedded Engineer NOVE(Sharif Uni. ) • Tehran • Iran** *December 2020 - July 2021 (8 months)*
  - Developed a **Dust Purifier-Lamp** using ESP32 with TCP/IP protocol for smartphone connectivity. Addressed and resolved debugging issues, and redesigned the PCB to meet CE standards, ensuring enhanced reliability and regulatory compliance.
  - Designed a **data-logger** utilizing DMA and ring buffer techniques to simultaneously save data from five serial ports to an SD card, effectively minimizing data loss and ensuring reliable data acquisition.
- **Embedded Engineer Parto-Pajooch • Tehran • Iran** *March 2018 until October 2020 (3 years)*
  - Develop a modular board for a **plastic injection machine**, enhancing repairability and maintenance efficiency. The modular design allows for easier component replacement and system upgrades, improving overall serviceability.
  - Upgrade the **Smart Electronic Tourniquet** by replacing the 7-inch LCD and implementing PWM DC motor control with a PID system. These enhancements improved the system's speed and reliability.
  - Enhanced the **N-Type Autoclave** by using an I2C temperature IC for higher precision temperature measurement, replacing the traditional NTC thermistor. Switched from SSR to on-board TRIAC for temperature control, effectively reducing overall costs while maintaining accuracy and reliability.
  - No-frost and defrost Thermostat and motor control for Philver refrigerator (circuit & PCB design/ c code)
  - Use ESP8266 for IoT project with web app and web server mode (circuit & PCB design/ c code)
  - Remote and receiver board for IRAN-KHODRO Pegout-405 company (circuit & PCB design/ c code)
  - Automatic tester for remote and receiver board for IRAN KHODRO Pegout-405 company
  - Glass lifting board for Saipa company (circuit & PCB design/ c code)
  - Analog Welding machine
- **Electronic Engineer Telsa-co • Tehran • Iran** *July 2015 until July 2017 (2 years)*
  - Smart power for IVR system
  - Motion detector for air conditioner
  - USB hub and development boards for thin-client

## Education

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- **Tafresh University of technology** *2010 - 2015*
  - Bachelor of Engineering - BE, Electronics Engineering

## Certifications

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- **Embedded Linux System from Scratch** *August 24.2023*
  - Fanavaran Anisa (Iran Linux House)
    - VERIFICATION CODE: ILH3002415915911