

Saroj Chaudhary


IoT and Firmware Engineer

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PROFILE

Innovative IoT and Firmware Engineer with expertise in embedded systems, automation, and IoT integration. Passionate about developing data-driven solutions for smart systems, with a strong background in firmware development, prototyping, and electronics engineering.

PROFESSIONAL EXPERIENCE

IoT Engineer , Muktinath Krishi Company Limited. 	10/2024 – present Kathmandu, Nepal
<ul style="list-style-type: none">- Project Ideation & Development- Automation & Control Systems- Data-Driven Decision Making- Firmware & Embedded Systems- IoT Integration- Prototyping & Deployment- Sustainability & Efficiency	
IoT & Electronics Engineer , Nepatronix Engineering Solutions Pvt. Ltd. 	09/2022 – 10/2024 Kathmandu, Nepal
<ul style="list-style-type: none">- Industry-Oriented Prototyping- Firmware & Embedded Systems Development- Smart Product Development- Mentorship & Curriculum Development- Led training programs for 1000+ students in IoT and Robotics.	

PROJECTS

Smart Farming

- Developed an IoT-based smart farming solution integrating greenhouse automation, smart irrigation, and aquaculture systems. Designed and deployed an HTTPS-based WebApp and Mobile App for real-time monitoring and control.

Wireless Alarm System

- Designed and developed a LoRa-based alarm system using ATmega328P and SX1278 (433MHz). Integrated ultrasonic sensors for real-time water level monitoring and AC sirens for alerts.

Gold/Silver Price Display Board

- Built a real-time price display system using 7-segment displays and WebSocket-based WebApp integration. Ensured secure data transmission and fast updates for financial institutions.

RFID Attendance System

- Engineered an RFID-based attendance tracking system using 125kHz/13.56MHz RFID cards, OLED displays, and actuators. Incorporated HTTPS-based WebApp for secure attendance logging and power backup for uninterrupted operation.

Token Caller

- Developed a queue management system using an OLED display with power backup. Integrated an HTTPS-based WebApp for token tracking and automated call announcements. Designed for hospitals, banks, and service centers.

Sanitary Pad Vending Machine

- Developed an RFID-based sanitary pad vending machine that automates dispensing using 125kHz/13.56MHz RFID cards. Designed a database system to record user usage and integrated a notification system to alert maintenance teams when stock is low. Ensured secure transactions and real-time monitoring via an HTTPS-based WebApp.

SKILLS

Firmware Development

- Languages:
 - C/C++,
 - Python
- Protocols:
 - UART, I2C, SPI, FreeRTOS, MODBUS, RS485/RS232, Bluetooth/BLE, HTTP/HTTPS, WebSocket, MQTT, LoRa, GSM/GPRS
- Controllers:
 - Arduino Family, ESP32/8266
- Development Environments:
 - Arduino IDE
 - ESP-IDF
- RTOS:
 - freeRTOS

Circuit Designing

- PCB Designing Tools:
 - Proteus
 - Altium Designer
 - KiCad
- Simulation Tools:
 - TinkerCad
 - Wokwi Simulation

Version Control

- Github

Web Development

- Backend:
 - Python with Django(DRF)
- Frontend(Basic)
 - HTML, CSS, JS
- Database:
 - SQLite, MySQL, postgresSQL

EDUCATION

Bachelor in Electronics & Communication Engineering,
Nepal Engineering College

2017 – 2022
Bhaktapur, Nepal

+2 Science, *Koshi St. James College*

2015 – 2017
Itahari, Nepal

AWARDS

Karmalaya IX, *Center for Applied Research and Rural Development, NEC*
In the project "The Pad Vending Machine".

2021

Avigna-Best Project Award, *Everest Engineering College*

2019

An inter-college project competition organized by Everest Engineering College for the project titled "Sonar Monitoring System".

INTERESTS

- Machine Learning, Data Science & Robotics
- Cyber Security
- Reading books and conducting experiments

OTHERS

Workshop

- Trained 1000+ IoT & Robotics Enthusiasts
- Help students in their Final year Projects
- Former member of the Robotics Association of Nepal [RAN]
- Freelance Product Development

Strength & Soft Skill

- Flexibility & Adaptability
- Team Work
- Time management & Leadership Quality