SHUBHANG MISHRA

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Summary

Embedded Systems and IoT Engineer with experience in circuit/PCB design (Altium, KiCad), sensor integration, and firmware bring-up across STM32, ESP32, Arduino, Raspberry Pi, and nRF52840. Skilled in Embedded C/C++ and Python for device configuration tools, data logging, and monitoring dashboards. Hands-on with UART, SPI, I2C, BLE GATT, MQTT, and Modbus for telemetry, configuration, and device control; exposure to sensor time-series ML workflows (dataset prep, training/validation) for NDA-bound prototypes.

Technical Skills

Programming: Python, C, C++, Embedded C
Embedded Platforms: STM32, ESP32, Arduino, Raspberry Pi, nRF52840
RTOS: Zephyr RTOS
Protocols/Connectivity: UART, SPI, I2C, BLE (GATT), MQTT, Modbus
Hardware: Circuit Design, Schematic Capture, PCB Layout (Altium, KiCad), Sensor Integration, Signal Conditioning, Debugging/Bring-up, BMS
Tools: Git/GitHub, VS Code, Arduino IDE, Linux, Windows, Streamlit, PySide (Qt)

Experience

Morphedo Technologies Pvt. Ltd. Noida, India
Graduate Engineer Trainee, R&D (New Product Development) *Jun 2025 - Present*

- Executed embedded prototyping work across sensor integration, circuit/PCB support, and firmware bring-up on STM32/ESP32/Arduino platforms.
- Implemented and validated UART, SPI, and I2C peripheral interfaces; improved bring-up stability during integration and bench testing.
- Built and tested BLE GATT and MQTT telemetry/configuration flows to support device configuration, monitoring, and control in internal test setups.
- Prepared sensor datasets and supported model training/validation; integrated outputs into lightweight internal dashboards/tools for characterization (NDA-safe).

Satyam Software Solution Pvt. Ltd. Noida, India
Trainee Engineer *Dec 2024 - Feb 2025*

- Designed 10+ circuits and 5+ PCBs in Altium (schematics + layout); improved prototyping iteration time by 20% through faster validation cycles.
- Debugged 2+ R&D projects and resolved 10+ hardware issues (bring-up, connectivity, power integrity); reduced schedule delays by 20%.

NewGen IEDC Greater Noida, India
Project Intern *Jan 2024 - Nov 2024*

- Led 3+ teams and coordinated with 5+ industry experts to deliver electronics/IoT prototypes; closed 5+ integration challenges.
- Built 3+ IoT systems using Raspberry Pi/Arduino with sensor telemetry and tuning; achieved 20% performance improvements on targeted benchmarks.

Projects

Wearable Optical + HRV Prototype (NDA) 2025 - Present
nRF52840, Zephyr RTOS, BLE GATT, Python, ML, Streamlit

- Built a BLE data pipeline (custom GATT notify/write) for real-time streaming and logging to support internal characterization.
- Trained and evaluated an ML model on sensor time-series data; delivered a Streamlit dashboard for visualization and inference monitoring.

Device Configuration Console (NDA) 2025 - Present
Python, Desktop App, YAML/JSON, Serial Communication, Validation

- Built a configuration console with YAML/JSON presets, import/export, and validation rules to standardize device setup.
- Integrated serial apply and read-back verification to improve repeatability and reduce configuration errors during testing.

Medical Monitoring Prototype (NDA) 2025 - Present
Embedded Systems, Sensors, Signal Conditioning, IoT Telemetry

- Implemented a firmware acquisition pipeline with filtering and packetization to improve reliability of real-time telemetry to a dashboard.

PromptGen (Personal Project, Part-time) 2025 - Present
Next.js, TypeScript, Prompt Templates, LLM API Integration
GitHub: github.com/Shubhangmishra5/promptgen

- Built a prompt workspace to create structured, reusable prompts using templates and configurable fields (persona, context, format, tone, constraints).
- Implemented prompt history/favorites and one-click copy to speed prompt iteration and reuse across common LLM workflows.
- Added an API route for generation with input validation and request timeouts for stable demo behavior.

Accelerator Enhancer System Nov 2024
STM32, Raspberry Pi, Python, Motor Control, UART
GitHub: github.com/Shubhangmishra5/accelerator_enhancer

- Built a 6-motor control system with a real-time Python GUI; interfaced with STM32 over UART serial communication.
- Implemented Sports/Normal/Eco modes; improved torque response by 35% through tuning and control logic iterations.
- Added live monitoring of current (up to 50A) and RPM (up to 100 RPM) for tuning, validation, and reliability testing.

Smart Treadmill Jun 2024
Raspberry Pi, Python, VFD, Modbus (MinimalModbus), MQTT
GitHub: github.com/Shubhangmishra5/vfd_modbus

- Implemented Raspberry Pi based VFD motor control over Modbus (register read/write) for speed and start/stop; enabled IoT telemetry for monitoring.

Education

ITS Engineering College, Greater Noida Jul 2022 - Aug 2025
B.Tech. in Artificial Intelligence and Machine Learning

Priyadarshini Polytechnic, Nagpur May 2019 - Jun 2022
Diploma in Electrical Engineering

Achievements

- Finalist, Electrothon 6.0 (NIT Hamirpur); winner of Orkes Challenge and Scavenger Hunt.
- Top 15, Hackaccino (Bennett University).
- Represented BigBlare Innovation at UP International Trade Show 2024.

Leadership / Volunteering

IDEATHON 2024 (NewGen IEDC) Jul 2023 - Aug 2023
Organizer