

NITHIN MATHEW JOJI

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Profile

Passionate electronics engineer with expertise in embedded systems, PCB design, and hardware development. Adept at designing custom Arduino-based solutions, wireless communication systems. Skilled in KiCad, circuit debugging, and IoT solutions. Certified Drone Service Technician under NSQF, with hands-on experience in FPV and surveillance drones. Open-source contributor and mentor, committed to innovation and knowledge sharing.

Experience

INDEPENDENT ELECTRONICS ENGINEER & EMBEDDED SYSTEMS DEVELOPER (FREELANCE & OPEN-SOURCE CONTRIBUTOR)

- Designed and developed **Schrödinger Watch**, a compact ESP32-S3-based PCB smartwatch with RTC, buzzer, I2C display, and battery management, open-sourced on GitHub. 100% complete
- Created an inverter that can convert 12v dc to 220v ac. (mini project 100% complete)
- Developed **MiniVieNO**, a custom Arduino board featuring multiple power breakouts and a USB-C connector. (DIY project)
- Built **HydroSense**, a water level indicator with OLED display and animated water representation.
- Designed an **NFC-enabled PCB business card** with an LED status indicator.

Mentor & Instructor | PCB Design & Embedded Systems

(College of Engineering Chengannur – IEEE PES Workshop, Aug 2024)

- Conducted a **hands-on 18-hour workshop** on PCB design, circuit debugging, and fabrication.
- Guided students through **circuit etching and troubleshooting** with real-world applications.

IEEE SIGHT PROJECT LEAD | WATER SURFACE CLEANING ROBOT

(College of Engineering Chengannur 2023-January - Present)

- Lead a team of 6 and involved volunteers to build an autonomous robot to clean water bodies.

Drone Service Technician | NSQF Certified

(Government of India – Skill Development Centre, 2025)

- Trained in **FPV, surveillance, and special category drones** for various applications.
- Skilled in **board-level repair, assembly, and flight operations** of nano to medium-sized drones.

Education

- B. TECH in electronics and communication
(college of engineering chengannur)
(2020-2024)
- ADVANCED PG/DIPLOMA IN EMBEDDED SYSTEM AND HARDWARE DESIGN (SMEC, ERNAKULAM) (08-2024 – 04-2025)
- Drone Service Technician
Skill Development Center, GVHSS Aranmula (02/02/2024 – 08/03/2025)

PROJECTS

- **Schrödinger Watch** – A custom **ESP32-S3-based PCB smartwatch** with RTC, buzzer, OLED display, battery management, and open-source firmware.
- **MiniVieNO** – A custom **Arduino-compatible development board** with a USB-C connector, multiple power breakouts, and optimized for prototyping.
- **HydroSense** – A **smart water level indicator** with an OLED display, animated water level visualization, and real-time percentage tracking.
- **NFC-Enabled PCB Business Card** – A custom **PCB business card** with an LED status indicator and an integrated **NFC antenna** for digital interactions.
- **ESP32 Desktop Pet – Kilo-Byte (*In Progress*)** – A **portable AI-driven robotic pet** that interacts with users and runs on an ESP32.
- **12V to 220V DC-AC Inverter** – A **400W compact inverter** using an NE555 and dual integrator for sine wave conversion.
- **Magnetic Levitator (*in progress*)** – A **contactless levitation system** using electromagnetic fields for floating objects in mid-air.
- **Wireless Communication Demo using Coherer Effect** – A **historical experiment-based project** demonstrating early wireless signal reception for educational purposes.

Skills & Abilities

TECHNICAL SKILLS

- **Embedded Systems & Microcontrollers** – ESP32, Arduino, ATmega, STM32.
- **Problem-Solving & Debugging** – Efficient troubleshooting of circuits & embedded systems
- **PCB Design & Circuit Debugging** – KiCad, EasyEDA (previously), Altium (familiar).
- **IoT & Wireless Communication** – Wi-Fi, NFC, GPS, RF modules, Coherer effect experiments.
- **Hardware Development** – SMD soldering, circuit prototyping, power electronics.
- **Drone Technology** – NSQF-certified; FPV, surveillance, and special-category drones.
- **Power Electronics** – DC-AC inverters, battery management systems, MOSFET switching.
- **3D Printing & Enclosure Design** – CAD modelling for electronic enclosures.

SOFT SKILLS

- **Technical Documentation** – Creating open-source documentation & project repositories
- **Public Speaking & Mentoring** – Conducted IEEE PES workshops on PCB design & wireless communication
- **Project Management** – Designing, planning, and executing hardware & embedded projects
- **Creativity & Innovation** – Passionate about assistive tech & experimental engineering

Achievements

- Mini project got selected as a hardware project exhibit for Keraleeyam 2023 for KTU university stall among 15 other colleges
- Secured silver prize under best hardware project in IIT PALAKKAD, Techfest organized by KSCSTE among 60 college projects all over Kerala
- Selected to the core team of IHRD THARANG 2023 TECHFEST as media and live stream coordinator.

Languages Known

- Malayalam (native)
- English (Professional Proficiency)
- Hindi(beginner)

Links

LinkedIn: <https://www.linkedin.com/in/nithin-mathew-joji-591a86202/>

GitHub: [nithinmathewjoji \(Nithin Mathew Joji\)](#)

Portfolio: <https://nithinmathewjoji.github.io/portfolio-new/>