Chirag Shah

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Profile

Electronics engineer with a track record of building and delivering technology from the ground up.

Developed India's first patented Drone-in-a-Box solution, led the development of a 720-kWh BESS project, and owned full-stack electronics development across multiple deep-tech startups. Currently developing UAV avionics at Aereo.

Co-inventor on 6 patents filed at Log9 Materials across fuel cell management, power management, and system design. **Named inventor on the SkyDock patent, granted across the US, European Patent Office, Australia, Denmark, and Finland (**US-11772819-B2**).**

Visit my website chiragrshah.com for my portfolio.

Work Experience

Hardware Design Engineer - Aereo (Oct/25 – Present)

- Owned full-cycle development of battery management systems (BMS), DC-DC converters, power distribution and autopilot boards
- Led end-to-end architecture design, driving PCB design and review across all systems
- Averted multiple hardware failures by identifying critical design flaws in schematic design during reviews

Log9 Materials Scientific/Jupiter Electric Mobility (Aug/22 – Oct/25)

Deputy Engineer - Jupiter Electric Mobility (Oct/24 – Oct/25)

Log9 was acquired by Jupiter Electric Mobility (JEM). JEM designs and manufactures battery energy storage system (BESS), commercial 4W EVs and battery packs for railway applications.

- Drove specification, architecture definition and complete systems integration (BMS, EMS, HVAC, Switchgear) for a 720kWh BESS project
- Managed cross-functional vendor coordination and integration testing across BMS, EMS, PCS, and switchgear
- Evaluated Energy Management Systems (EMS) & BESS topologies across multiple use cases and tender specifications
- Led development and integration for a 20kWh BESS system for Indian Railways

Associate Electronics Engineer - Log9 Materials (Aug/22 – Oct/24)

Log9 was a nanotechnology company pioneering li-ion chemistry and battery pack manufacturing.
R&D member in the **Aluminum Fuel Cell (AFC)** and **Battery Management System (BMS)** teams.

BMS team: Firmware Development (Jan/24-Oct/24)

- BMS deployment for two 3W-OEMs
- Firmware development for new features
- Integration and testing the BMS and battery pack for two 3W-OEMs
- Thermal management system prototype

AFC team: Electronics System Development (Aug/22 – Dec/23)

- Led electronics system development with a team of 3 engineers
- Specification definition and PCB design reviews for fuel cell management system (FMS), power management system (PMS) and slave FMS
- Firmware development on STM32 for the FMS, PMS, slave FMS
- Electronics and power electronics integration and testing
- **Filed six patents in the areas of fuel-cell management, power management and fuel-cell system design**

Embedded Design Engineer - Sagar Defense Engineering (May/19 – Jul/22) – Pune

SkyDock: Electronics and System Development (May/19 – Jun/21)
SkyDock is a launching and charging station which keeps the UAV in ready-to-fly condition 24/7. After landing it automatically starts charging the UAV. Our work was **granted a patent** by US, Denmark, European Patent Office, Australia and Finland (US-11772819-B2)

My responsibilities as a core R&D team member included

- Conceptualized the prototype, designed, and built hardware/firmware for all electrical/electronic systems
- Designed the complete PCB set (switching DC-DC converter, battery management system, charging management system)
- End-to-end assembly of the PCBs, BOM generation, vendor negotiations for procurement
- Led a team of 4 people to produce SkyDock

Other Projects: Assembly & PCB Design

- Set up the SMT assembly process – pick and place machine programming, solder paste handling and printing, reflow profiling, cleaning and inspection
- Assembled PCBs for UAV subsystems such as flight controllers, power distribution, gimbal control
- Designed and assembled various PCBs for power conversion, communication interfaces, and control modules

Internships – (2015 – 2019)

ideaForge: Design & Build of Engineering Validation Prototype (10/Dec/2018 – 18/Jan/2019)

- Designed the CAD model on Fusion 360, fabricated the parts (3D printing/CNC) and assembled the prototype
- Designed and built the electronics setup and firmware to drive the mechanical assembly

Fractal Analytics: Implementation of Room Occupancy System (11/Jun/2018 - 13/Jul/2018)

- Occupancy monitoring system across 9 meeting rooms running 24x7
- Designed to consume a low standby current (88µA) for battery operation. The devices connect to each other via a network of RF trans-receivers. Data was sent to AWS IOT core and then pulled into DynamoDB

e-Yantra IIT Bombay: Formation Control of Multiple Swarm Robots (22/May/2017 - 7/Jul/2017)

- 7 weeks residential internship at the Embedded and Real-Time Systems Lab advised by **Dr Kavi Arya, IIT Bombay** under the e-Yantra Summer Internship 2017 program
- Developed algorithms and embedded-C firmware to control swarm robots

Projects/Achievements

Coursera: Algorithms for Battery Management Systems Specialization: Oct 2020

5-Course Specialization dealing with batteries, battery management systems (BMS) and algorithms for BMS

Constant Current Load PCB: 2018

A microcontroller-based load which draws a programmable constant value of current to test power sources.

e-Yantra Robotics Competition IIT Bombay 2016: 1st Place (Out of 167 teams)

Designed and built the robotic arms; programmed the Firebird-V robot in embedded-C (ATmega-2560)

Technical Skills

- Embedded systems design & development
- Schematic design and circuit design
- PCB and flex PCB designing and assembly
- Embedded-C programming (AVR, STM32)
- Communication protocols: CAN, UART, SPI, USB
- Switching and linear power supply design
- BOM generation and procurement
- Analog & digital circuit design (ADC, Op-amps, MOSFETs)
- CAD (Fusion 360) and 3D printing

Education

2015 – 2019	Electronics Engineering - Sardar Patel Institute of Technology	8.37 CGPA
2013 / 2015	SSC / HSC	87.5% / 82.31%

Other Interests

- Certified PADI advanced open water scuba diver
- Sailing and windsurfing