Chirag Shah

Bengaluru | 97691 68825 | chirags1998@gmail.com | 📼 chiragrshah.com 🗗 🔟 in/chirags98/🗗

Profile

I am a core member of the Research and Development team at Log9 Materials - Jupiter Electric Mobility.

At Sagar Defense Engineering, I was a part of the core team which developed "SkyDock" – India's first Drone in a Box solution. **Patents granted by US, Denmark, European Patent Office, Australia and Finland (<u>US-11772819-B2</u>).**

I have done internships at ideaForge, IIT Bombay and Fractal.

I am a water sports enthusiast who has self-learnt windsurfing and am a PADI advanced open water scuba diver.

All my work is collated on my website chiragrshah.com 🛃

Work Experience

Associate Electronics Engineer – Log9 Materials; Jupiter Electric Mobility (Aug/2022 – Present)

Log9 Materials is a nanotechnology company pioneering advancements in li-ion cell chemistry and battery pack manufacturing for 2W and 3W. Jupiter Electric Mobility specializes in 4W vehicle and battery manufacturing and battery pack manufacturing for railway applications.

I have been a core R&D team member in the **Aluminum Fuel Cell** team and **Battery Management System** (BMS) team. I am responsible for the development of electronics and firmware of the fuel cell management system, power management system and battery management system.

Overall, my responsibilities include

- Leading electronics system development and PCB design
- PCB and hardware design reviews
- Firmware development on STM32
- Prototype development & testing
- IOT using AWS Timestream database and Grafana for dashboard
- Translated client requirements into software solutions
- Troubleshoot and resolved system bugs to improve system reliability

We have filed **six patents** in the areas of fuel-cell management, power management and fuel-cell system design.

Log 9 materials was acquired by Jupiter Mobility in October 2024. As part of the acquisition, I was transferred to Jupiter Electric Mobility.

Embedded Design Engineer - Sagar Defense Engineering (May/2019 – July/2022) - Pune

I was a core team member in the R&D Electronics department at SDE and have worked extensively on the entire SkyDock product life cycle.

SkyDock is an environmentally protected launching and charging station which keeps the UAV in ready-to-fly condition 24/7 and launches the UAV at the push of a button and thereafter aids in precision landing after completing its mission. After landing it automatically starts charging the UAV and is then ready for its next mission. SkyDock is aimed at automating the complete process of flying a UAV and minimizing the response time. **Our work was granted a patent by US, Denmark, European Patent Office, Australia and Finland (US-11772819-B2).**

- Conceptualizing the initial prototype, designing, and building the hardware for all the electrical and electronic components of SkyDock and developing the firmware.
- Designed switching DC-DC converter, li-ion battery management system, electrical panel, and other electronic circuits for SkyDock.
- End-to-end production of the PCBs, BOM generation, vendor negotiations/management for procurement for the production of SkyDock.
- Set up the SMT assembly process configuring the pick and place machine, hand assembly, solder paste handling and printing, reflow, cleaning, inspection, and testing.

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 to drive the mechanical assembly and wrote its embedded code.

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

Implementation of a room occupancy monitoring system across 9 meeting rooms running 24x7.

Devices were designed to consume a low standby current (88 uA) 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 to control groups of robots and make different swarm formations.
- Developed the embedded-C program for the swarm robots (ATmega-16).

Projects/Achievements

Coursera: Algorithms for Battery Management Systems Specialization: Oct 2020 🖉

5-Course Specialization on Coursera dealing with batteries, battery management systems, and algorithms for battery management systems.

Constant Current Load: 2018 🚰

Used to test the ratings and specifications of power sources. By dialing in a current value, the circuit adjusts the load to draw that current from the supply, regardless of the supply voltage. This provided me with experience in developing a complete end-to-end system.

e-Yantra Robotics Competition IIT Bombay 2016: 1st Place 🗗

- We secured first place among 167 teams.
- Designed and built the robotic arms; programmed the Firebird-V robot in embedded-C (ATmega 2560).

Technical Skills

 Prototype to minimum viable product Schematic design and circuit design PCB and flex PCB designing and assembly Embedded-C programming Peripherals such as SD Card, RTC, Displays Communication protocols: CAN, UART, SPI, USB Switching and linear power supply design BOM generation and procurement MOSFETS, instrumentation amplifiers) Lab equipment (Oscilloscopes, Electronic Loads, DMMs) Electrical systems development and troubleshooting AWS technologies – IOT core, Timestream database, Grafana (for visualization) CAD (Fusion 360) and 3D printing TouchGFX using STM32N6570-DK

Education

2015 – 2019	Electronics Engineering - Sardar Patel Institute of Technology	8.37 CGPA	
2015	HSC - Maharashtra State Board, PACE, Dadar	82.31%	
2013	SSC - Maharashtra State Board St Xavier's High School, Fort	87.5%	

Co-curricular activities

- Conducted electronics troubleshooting competition for 75 students.
- Conducted hands-on workshops on
 - o PCB designing, soldering, embedded system design and embedded-C programming
 - $\circ \quad \mbox{Microcontrollers, sensors and embedded-C programming}$

Other Interests

Certified PADI advanced open water scuba diver
 Sailing and windsurfing