

## Personal Information



## Farogh Iftekhhar

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## About Me

I'm a technology enthusiast and a polymath. I love solving problems by using knowledge from every corner. I have an insight into a product life-cycle ranging from designing a prototype to testing and deployment of an embedded IoT product. I'm working towards making a meaningful contribution in the field of technology that can help the greater good.

I am presently working in a Delhi-based start-up called Smart Joules. I have joined this start-up as one of the first developers in the product team and we have designed an energy monitoring platform from scratch, called **DeJoule™**, which uses cutting-edge technology such as IoT, AI, machine learning, and distributed computing leads to optimum utilization of energy. With the help of DeJoule, we can reduce electricity consumption by 30% to 40%. It helps in minimizing wastages in energy processes in industrial buildings across India which leads to the electrification of more than 90+ households every day.

## work Experience

01-04-2021 - Present

### Product/Program Manager- Smart Joules Pvt Ltd, New Delhi (India)

- Leading a product team of 20 developers and reports directly to the CEO.
- Responsible for the product strategy, product vision & product usability.
- Bringing clarity into the product and bridging the gap between the product team & the stakeholders.
- Understanding the features from the stakeholders, defining product requirements, and execute the sprint planning exercises.
- Defining short-term & Long-term roadmap, translating it into manageable product backlogs.
- Maintaining & prioritizing backlogs, defining user story, features, and definition of done.
- Managing sprints, daily stand-up, sprint review, retrospective & product releases.
- Sharing Newsletters, Sprint status to the management and the stakeholders.
- Helping UX team in getting a better understanding of user's requirements and design approvals.
- Helping Hr team in defining hiring processes, conducting interviews, and providing JD's.
- Responsible for making technical decisions related to IoT architecture and hardware.
- Manages the embedded firmware & hardware team, manages the hardware manufacturing and vendor relations.
- Mentoring undergraduate students of the Joule Lab program.

02-01-2017 - 31-03-2021

### Embedded Product Designer- Team lead- Smart Joules Pvt Ltd, New Delhi (India)

- Led a team of 5 embedded developers, responsible for designing, developing reliable, affordable hardware, and maintaining the production and quality of products.
- Engineered, deployed, and managing 600+ different BMS controllers across 20 sites in India.
- Engineered and rolled out 3 versions of **DeJoule™** -Smart building energy management controllers which have standard BMS capabilities offering 7+ different customized product portfolios. The device can execute complex time

series algorithm in real-time, runs decentralized PID software which observes and control valves and actuators to optimize operations of the HVAC system.

- The controllers are designed to self-diagnose the faults and send logs to the server. Introduced hardware watchdog features to increase the DQI by 30%.
- Designed a NAS (Network Storage) device which stores the data points from different controllers which process millions of data point per hours.
- Increased the reliability of data by improving the analog circuits and eliminated the harmonics interferences occurring due to VFDs. Reduced the command execution time from 3 seconds to 1 second by optimizing the hardware architecture.
- Setup the production pipeline for the controllers and reduced the cost by 15-20% by better component selection and vendor management and relations.
- Formulated a process for better design review and documentation & Inventory management.
- Drafted different policies for the company with the CEO and other colleagues. Conducted the placement drives in different colleges of India, interviewed 1000+ students, and hired the best minds.
- Smart Joules has raised \$ 4.1 million Series A from multiple investors in 2021, and I have been part of many document works.
- contributed to the documentation work for energy management auditing, Smart Joules have recently got ISO 50001:2018 & ISO 9001:2015 certifications.

15-12-2015 - 15-07-2016

**Research fellow-** Indian Council of Agriculture Research, CSSRI, Lucknow (India)

- Worked under the guidance of Prof. Dr. C.L. Verma (CSSRI,) & Dr. R.K. Singh (NEFORD) to develop automation solutions for affordable precision farming tools for farmers & researchers alike.
- Designed hardware to solve the problem of saline land reclamation by automating the optimum gypsum dosage. Developed hardware to measure the groundwater level. Performed a pilot experiment on 2 scientifically regulated farms in Patwakheda, UP-India.

01-12-2012 - 29-08-2016

**Electrical Design Team-** Team Audacious, Dehradun (India)

- Designed an all-terrain vehicle (ATV) for BAJA India & BSI, 2015.
- A team of 30 engineers, we had designed and manufactured an ATV for Mahindra BAJA and BSI completion and secured 6th position in endurance from 150 teams.
- Contributed to the designing of an entire electrical system for the vehicle with a dashboard along with the designing and calibration of the braking system.

01-01-2014 - 01-10-2015

**Technical Lead-** IEEE Student Chapter, Dehradun (India)

- Delivered several workshops on PCB designing, Microcontrollers, and circuit designs.
- Mentored many college students in their minor and major projects. Organized several workshops on designing Quadcopter's, Line followers, Mechanical Robo-fight Bots.
- I have been invited as the guest speaker by the Ramanujan college of engineering, Delhi University.

## Education

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01-11-2018 - 29-03-2019

**Advance High-Speed PCB design**

**Fedlevel Academy** – Learned to design high-speed PCB design, Schematics, and BOM using Altium CAD tool. ([View Certificate](#))

16-08-2012 - 15-06-2016

**B-Tech in Applied Electronics and Instrumentations**

Dehradun Institute of technology, Dehradun (India)

## Personal Skills

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### Language

- Hindi, English, Urdu, German-A2

### Technical

- Embedded Architecture Design, Language (Python, Embedded C), CAD Tools (Altium, Eagle), Analog, Digital, and Mix circuit design, 8/16/32 Microcontrollers and Microprocessors, Power Supply Design DC/DC, Power Budgeting, EMI/EMC, Schematics, High-Speed PCB design, Low-level communications protocols (ADC, DAC, I2C, I2S, SPI, USART, CAN, SATA, Ethernet, USB, RS485, RS482), Wireless Network Protocols (WIFI, BLE, LoRa WAN, GSM), MODBUS, Lab Equipment, Testing and debugging, Expert in SMD hand Soldering, Product Documentation.
- Know about Backend (Node Js, AWS Cloud services, Greengrass, Lambda), IoT-Stack (Socket, MQTT, HTTP), Front-End (HTML, CSS, React JS), Open-CV, PYQT, SQLite3, Git, and Linux.

### Technical Interests

- Designing embedded architecture, Real-time systems, Medical Devices, High-Speed PCB design using Altium, IoT, Low power devices, Embedded Security, and Application of blockchain in hardware.

### Commercial Projects

- **Medical Health Device**- Designed a wearable device to monitor SPO2, Heart Rate, and body temperature. Used the Nordic BLE chip, designed the antenna, and other optical sensors from Maxim.
- **LoRa-RS485 bridge**- Designed a LoRa bridge hardware to read data from an electricity meter through RS485 and send the data to the open LoRa gateway.
- **IoT gateway**- Designed a gateway using ESP32 & Nordic BLE chip.

### Personal Projects

- **Kitchen Garden**- Made a Kitchen garden on the terrace using large HDPE grow bags, Automated the watering system with 0.5 Hp motor and valves. Designed hardware for running automation and scheduling watering timings.
- **Touchless Sanitizer Dispenser**- Made a hand sanitizer dispenser and designed an IR kit for touchless application.
- **N.F.T Hydroponics system**- Working on hydroponics systems to study growing the leafy vegetable. Designing systems for automating nutrient dosing and creating the recipe for different crops.

### Achievements

- One of the Winners of a Hackathon organized by EESL, Developed and pitched the solution for the EV charge station.