Saurabh Suman

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Summary

Engineering undergraduate with a strong focus on electronics, embedded systems, and hardware-level design. Experienced in FPGA development, communication protocols, and IoT systems through hands-on projects and research internships. Currently exploring quantum computing as an emerging area of interest. Driven by curiosity and a passion for building efficient, low-level technology solutions. Committed to turning deep technical understanding into real-world innovation that bridges academic insight with practical impact.

Education

- **B.Tech. in Electronics and Telecommunication Engineering** (2023–2027)
  Jabalpur Engineering College
  Relevant coursework: Embedded Systems, Communication Networks, Signal Processing, Circuit Design, Semiconductors

- **12th (Science Stream) & 10th**
  Kendriya Vidyalaya Singrauli (2021, 2019)

Technical Skills

- **Software:** Python, C, MATLAB, KiCad, Verilog, SPICE, Qiskit, Cirq, experience with circuit simulation, signal processing, and basic quantum algorithms.

- **Hardware:** FPGA, PCB design, Microcontrollers, IoT, embedded programming, control systems, robotics, 3D printing.

Experience

- **Research Intern at SWAN Lab, IIT Kharagpur** (May 2025–August 2025): Worked on LoRa+FPGA technology and dataset preparation for ML applications in electronics, under the supervision of **Prof. Sudip Misra**.

- **Advisor, Qubisafe Pvt. Ltd.** (Nov 2025–present): Leading development in electronics, quantum computing, and IoT-based solutions with a focus on embedded systems.

- **Student Coordinator at IoT & Robotics Lab, JEC** (December 2024–present): Working on electronics, circuit design, robotics, and embedded systems under the supervision of the faculty.

- **Student Ambassador at Atal Tinkering Lab, KV Singrauli** (2019–2021): Developed and mentored electronics and robotics projects, represented the school in competitions.

Projects

- **LoRa+FPGA Gateway System:** Designed and implemented a communication gateway using the Tang Nano 20K FPGA and the RFM96W LoRa module. Developed a SystemVerilog library for SPI protocol communication, simulated the system in ModelSim to verify functionality. Focused on low-level hardware interfacing, protocol timing, and modular HDL design for wireless data exchange.

- **TeleQ:** Demonstration of a secure communication application based on quantum teleportation. Information is broken into binary bits, and each bit is sent one-by-one using teleportation protocol, enabling fully secure end-to-end communication.

- **Stair-Climbing Wheelchair:** Designed for improved accessibility for disabled people using Arduino, sensors, and actuators. Can be used in places without ramps to safely climb stairs. The stability of the system is maintained in real-time using sensors like gyroscope.

- **Traffic Control System:** Automated traffic rule enforcement system using Arduino and sensors. The vehicles are tracked in real-time and whenever they try to go against the rules, like crossing a red light, they are not allowed to do that.

Achievements & Recognitions

- **MIT iQuHACK 2025:** Developed a Gaussian distribution-based quantum computing project.

- **Smart India Hackathon (College Level):** Proposed an open research platform leveraging crowd-sourced data classification.

- **Jawaharlal Nehru National Science, Mathematics and Environment Exhibition (Regional Level, *2nd Place*):** Built a campus-wide community network using web technologies.

- **Recipient of** *Chief Minister's Meritorious Students' Scholarship* (full tuition support for undergraduate studies based on academic merit).

Citizen Science & Volunteering

- **QBronze Mentor, QWorld (Sep 2025–Present):** Helping quantum enthusiasts around the globe to learn the fundamentals of quantum computing.

- **International Astronomical Search Collaboration (IASC & NASA):** Assisted in asteroid discovery using land-based telescope images, with a *potential asteroid candidate identified.*.

Certifications & Courses

- **Semiconductor Technology (IISc Bangalore):** Learned various semiconductor fabrication techniques and processes, along with new research in the field.

- **Introduction to IoT (IIT Kharagpur, NPTEL):** Sensors, networks, and Arduino applications (*Top 2% nationwide*).

- **System Design through Verilog (IIT Guwahati, NPTEL):** Digital system design using Verilog and simulation tools.

- **QCourse 501-2 (QWorld & University of Latvia) [Online]:** Quantum computing, cryptography, QKD, and Qiskit.

- **Introduction to Quantum Computing (Qubit by Qubit):** Fundamentals of quantum computing, error correction, and communication, supported by a Google Quantum AI scholarship.

Additional Information

- Completed the **eLSI: Basics of Embedded Systems and Robotics** course by IIT Bombay with a score of 97%.

- Conducted a workshop on "**Electronics and Quantum Technology**" at the college.

- Passionate about complex applications of electronics and embedded systems, especially in areas of research like fundamental physics and quantum technology.