Shivam Chaturvedi

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EDUCATION

- **Rajiv Gandhi Institute of Petroleum Technology (RGIPT), Jais** — Amethi, India
  B.Tech – Electrical Engineering (Major: Electric Vehicle Technology) CPI: 7.89/10.00 — *August 2023 - July 2027*
- **Guidance Public Higher Secondary School** — Datia, India
  Class 12 – Grade: 88.4% & Class 10 – Grade: 97% — *July 2020 - June 2022*

SKILLS SUMMARY

- **Languages**: C, C++, Python, MATLAB (Simulink), ROS2.
- **Specialized**: Robotics & Automation, Embedded Systems, Machine Learning, Antenna & PCB Design.
- **Tools**: KiCad, Ansys HFSS, Custom Design (Synopsys), Jetson Nano, STM32, AutoCAD.
- **Platforms**: Robot Operating System , RViz, SLAM, Gazebo, Linux (Ubuntu), Windows.
- **Protocols**: UART, I2C, SPI, CAN Bus, Wi-Fi, LoRa, Ethernet, USB.
- **Soft Skills**: Technical Writing, Public Speaking, Project Planning, Problem Solving, Cross-functional Collaboration

EXPERIENCE

- **AlphaDroid** — Noida, India
  Robotics Engineer Intern — *May 2025 – July 2025*
  - **PCB Design and Testing**: Designed and tested PCBs to ensure reliable hardware performance for robotics projects.
  - **Sensor Integration**: Tested and integrated various sensors for robotics applications, enhancing system accuracy and responsiveness.
  - **ROS Framework Practice**: Practiced core ROS packages, gaining hands-on experience with robotics software frameworks for navigation and control.

PROJECTS

- **Autonomous Hospital Delivery Robot - ROS2 Navigation System** — Link
  Tools: ROS2 Humble, Nav2, Gazebo, SLAM Toolbox, RViz — *Dec 2024 - Jan 2024*
  - **Designed a Robot Navigation System**: Using the ROS2 and Nav2 stack, an autonomous mobile robot was created for hospital logistics, allowing the delivery of supplies and medications between various locations, such as the pharmacy, laboratory, and patient rooms (101, 102, 103).
  - **SLAM-Based Mapping**: Using the Cartographer SLAM algorithm and Nav2, real-time environment maps were produced, covering the entire hospital floor at a resolution of 0.05 meters for accurate localization and route planning Also a 20 x 15 m hospital world was designed in Gazebo.
- **Industrial Biogas Plant Automation and Safety Control System** — Link
  Patentable Innovation: Currently under review by the college for patent filing — *Sep 2025 - Nov 2025*
  - **Designed a robust relay-based control system**: Created a strong control system without a microcontroller, using industrial relay logic for dependable operation in tough environments.
  - **Automated Gas Production Cycle (Phase 1)**: Automated the biogas production cycle, activating solenoid valves and a compressor when the dome fills up for hands-free operation.
  - **Implemented a Multi-Layer Safety Protocol (Phase 2)**: Developed a 2-light visual and audible alarm safety system with hardware interlocks that automatically lock the main circuit to prevent over-pressurization and uphold safety protocols.
- **IoT - Enhanced Portable Gas Detection System for Mines** — Link
  Tools: ESP32 WROOM, LoRa RFM95W Module, MQ Series Gas Sensors — *Dec 2024 - Jan 2025*
  - **Discussion Forum Upgrades**: Developed a portable gas detection system with an RGB LED alert interface for real-time hazard recognition, integrated with 10+ sensors for visual safety indicators.
  - **Integrated Wi-Fi (100m) and LoRa (10km)**: Enabled extensive area monitoring by integrating both Wi-Fi and LoRa protocols for seamless local and remote real-time data transmission.

PUBLICATIONS

Shivam Chaturvedi, Vaibhav Mishra, Mazin Hussain, Mohammad Hannan and Dr. Saptarshi Ghosh. Design and Analysis of C, X, and Ku Band Antenna Integration for Enhanced V2V and V2I Communication. In 11th IEEE Uttar Pradesh Section International Conference on Electrical, Electronics and Computer Engineering (UPCON), Lucknow , India, 2024.(DOI: 10.1109/UPCON62832.2024.10982986)

HONORS AND AWARDS

- Top 20 in National Analog Design Hackathon at CDAC Bangalore — March 2025
- First Place at IIT Kanpur Aeromodelling Workshop by Boeing — January 2025
- Meshmerize Finalist at Techfest, IIT Bombay — December 2024
- JEE Advanced Qualified — June 2023

VOLUNTEER EXPERIENCE

- **Secretary, Communication Society** — October 2025 – Present
- **Head, Robotics and Automation Society** — October 2024 – September 2025
- **Teaching Volunteer** — November 2024 – March 2025