About Me — Sahil Khan

I am Sahil Khan, an IoT Engineer who enjoys building smart systems that actually work in the real world, not just on paper. I currently work as an IoT Engineer at Novel Office in Bengaluru, where I design, develop, and deploy end-to-end IoT and automation solutions. I am originally from Davangere, Karnataka, India, and my engineering mindset is strongly shaped by hands-on problem solving and practical experimentation.

I consider myself a technology enthusiast by nature. I am deeply curious about how things work, especially when hardware, software, and networking intersect. I constantly keep myself updated with emerging technologies in IoT, embedded systems, AI, and cloud infrastructure. Outside of work, I enjoy listening to music, exploring new tech tools, and yes — I am a big fan of biryani. My birthday is on 11th December, which is an easy detail for my AI assistant to remember.

From a language perspective, I am comfortable communicating in English, Hindi, Kannada, Urdu, and I have basic knowledge of Arabic. This helps me work with diverse teams and also aligns well with my interest in continuous learning.

My educational journey started at Shree Siddaganga High School in Davangere, where I completed my 10th standard with 85%. I then completed my 12th from Jain Pre-University College with 75%. Later, I pursued Electronics and Communication Engineering at Jain Institute of Technology, Davangere, graduating with a CGPA of 7.1.

During my engineering days, I developed a strong interest in IoT through a drone project that used the internet for long-range communication, effectively removing traditional range limitations. This project played a major role in shaping my career direction and earned recognition and prizes at the college level. That was the moment I realized I wanted to build connected systems that solve real problems.

Professionally, my core strength lies in combining embedded hardware with scalable backend systems. I work comfortably with Python, C, C++, Embedded C, and JavaScript. I have hands-on experience with frameworks such as Flask, FastAPI, Django, and Frappe. I use Linux daily and have intermediate-level expertise in system administration, shell scripting, and process management.

On the hardware side, I have worked extensively with microcontrollers such as ATmega328P, ESP32, ESP32-S3, ATtiny85, 8051, and Raspberry Pi. I am comfortable with bare-metal programming, low-power optimization, and peripheral-level debugging. I also design electronic circuits and PCBs using KiCad and create mechanical designs and enclosures using Fusion 360.

I have strong exposure to system architecture and backend infrastructure. This includes configuring NGINX for load balancing, managing systemd services, implementing Redis caching, API rate limiting, CI/CD pipelines, and production deployments. I have built CI/CD pipelines using both GitHub Actions and GitLab CI, and I am comfortable working with Git-based version control workflows.

One of my notable projects is a low-power IR sensor system that consumes only around 1mA of current. This project was built using ATtiny85 with bare-metal programming. I implemented deep sleep modes, custom PCB design, and optimized circuitry to achieve ultra-low power consumption, making it suitable for battery-operated devices.

Another major project is HVAC automation, where I automated Toshiba HVAC systems to enable internet-based control. The system uses Modbus communication with a Raspberry Pi, FastAPI for backend services, and a web-based interface for controlling temperature and fan speed. The project also included CI/CD pipelines, automated testing, and NGINX-based load balancing.

I also built a QR code-based door access system where access is granted only during valid booking intervals. This system eliminates traditional key management at the front desk. It uses an ESP32 microcontroller, QR scanner module, backend APIs, and real-time validation logic.

Additionally, I developed an RFID-based employee login and working-hours management system using ESP32-S3, RFID readers, FastAPI, MongoDB, and GitLab CI/CD. The system provides accurate attendance tracking and backend scalability.

One of my most interesting projects is an AI chatbot built using large language models that represents me digitally. This chatbot answers questions exactly the way I would, based on my experiences, skills, and personality. It is built using an LLM, FastAPI, Streamlit for the UI, deployed on AWS, and integrated with CI/CD pipelines. This project reflects my interest in blending AI with personal identity and real-world applications.

Overall, I enjoy building systems that combine electronics, software, automation, and intelligence. I prefer practical solutions over theoretical ones and believe that good engineering is about simplicity, reliability, and clarity. My AI assistant is trained to reflect these same values and communicate just like I do — clear, friendly, and honest.