RISHABH ARVIND KARPE

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OBJECTIVE

Aspiring software/IoT engineer with hands-on experience through internships and hackathons. Seeking a full-time role where I can leverage skills in embedded systems, computer vision, and cloud-integrated applications to build impactful solutions.

EDUCATION

Bachelor of Technology, Electronics & Computer Engineering   2022 - Present
KJ Somaiya College of Engineering, Mumbai, India
Relevant Coursework: Embedded Systems, Computer Vision, Data Structures & Algorithms, Networks, IoT Architectures

SKILLS

Technical Skills	Python, C, C++, Java, JavaScript; OpenCV, YOLOv4; Unity; MongoDB; Firebase; Raspberry Pi; Arduino; MQTT/HTTP; PLC, HMI; Git & GitHub; Linux command line; sensor interfacing (DHT11, soil moisture, motor driver control)
Soft Skills	Problem-solving, critical thinking, creativity, teamwork, verbal & written communication, self-directed learning, attention to detail, documentation practices, adaptability
Tools & Platforms	Visual Studio Code, RealVNC (for Raspberry Pi), TIA portal, AutoCAD 360, VMware MS Office 365 (reports & presentations)

EXPERIENCE

Intern   May 2024 – June 2024
Improsys   *Pune, India*

- Learnt industrial automation fundamentals and best practices.
- Built an energy-saving prototype by integrating sensor data and control logic to automate electrical devices.
- Integrated sensors and Raspberry Pi to monitor usage and optimize power consumption.
- Documented technical findings and presented outcomes to the team.

Intern   Jan 2024
KJ Somaiya College of Engineering   *Mumbai, India*

- Developed a basic communication system for paralyzed patients using Raspberry Pi and OpenCV.
- Used YOLO-based eye-movement tracking to interpret gaze directions mapped to predefined commands.
- Mapped each eye movement to voice outputs (e.g., "Need help," "Bring me water") via a speaker module.
- Tested prototype with sample scenarios and documented setup and user guidelines.

Creative Head   Jun 2024 – Present
Ecesa Council   *Mumbai, India*

- Led a small team to design and produce promotional reels, posters, and digital content for technical events.
- Enhanced event outreach by coordinating campaigns across social media and college channels.
- Collaborated with event organizers to understand requirements and delivered assets on schedule.
- Maintained logs of design iterations, feedback, and finalized materials, ensuring consistency and quality.

PROJECTS

V.I.S.T.A AI – Vision Integrated Smart Assistant   Jun 2025 - Ongoing
Created a multimodal AI assistant with speech recognition (Vosk), wake word detection (Porcupine), object detection (YOLOv4), and hand gesture recognition (MediaPipe). Integrated with FastAPI, Streamlit, and SocketIO for real-time interaction and modular control.
Tech: Python, FastAPI, Streamlit, SocketIO, Vosk, MediaPipe, Porcupine, YOLOv4
Transferable Skills: Multimodal AI, real-time interaction, system integration, open-source fluency

TaskPlanner-AI   Jun 2025
Developed a LangGraph-based AI system using Mistral 7B (via Ollama) that plans, executes, and evaluates user-defined goals using agent-based task breakdown. Deployed with a clean Streamlit UI and integrated FAISS for persistent memory.
Tech: LangGraph, Streamlit, Ollama, Mistral 7B, FAISS
Transferable Skills: Systems thinking, modular design, prompt engineering, orchestration

Semantic PDF Q&A Bot   Jun 2025
Built a semantic search–powered assistant that allows users to ask natural-language questions from PDFs. Used sentence-transformer embeddings with FAISS to support fast and accurate contextual retrieval from large documents.
Tech: Python, FAISS, SentenceTransformers, Streamlit
Transferable Skills: Semantic search, NLP, user-centric design, data preprocessing

Smart Healthcare System   Jan 2025
Built a web-based DNA sequencing visualization platform by designing an intuitive UI and integrating real-time data analysis using Firebase and JavaScript. Improved user engagement metrics by ~70% during hackathon testing.
Tech: HTML5, CSS3, JavaScript, Firebase
Transferable Skills: Problem-solving, creativity, teamwork, attention to detail

IoT-Based Farm Automation System   Jan 2025 – Feb 2025
Automated irrigation control by integrating DHT11 and soil moisture sensors with Raspberry Pi and Firebase for real-time monitoring and control. Optimized water usage through threshold-based triggers and scheduled reports.
Tech: Raspberry Pi, Arduino, Python, Firebase, DHT11, Soil Moisture Sensor, Motor Driver
Transferable Skills: Critical thinking, time management, problem-solving, innovation

Basic Communication for Paralyzed Patients   Jan 2024
Built an assistive communication prototype by tracking eye movements with YOLOv4 on Raspberry Pi and mapping gaze to voice commands via a speaker. Enabled hands-free requests like "Need help" or "Bring water."
Tech: Raspberry Pi, Python, OpenCV, YOLOv4
Transferable Skills: Innovation, empathy-driven design, IT/Design fluency, verbal communication

Home Electricity Saving System   May 2024 – Jun 2024
Built a power-saving solution by detecting room occupancy with YOLOv4 and OpenCV on Raspberry Pi, automatically toggling lights/fans. Demonstrated potential to reduce wasteful energy use.
Tech: Python, OpenCV, YOLOv4, Raspberry Pi
Transferable Skills: Numeracy, attention to detail, problem-solving, commercial awareness

ACHIEVEMENTS

- Won PAN IIT Hackathon 2025: Out of 17,000+ registrations, we made it to the top 72 finalist teams and emerged as winners

EXTRA-CURRICULAR ACTIVITIES

- Designed and shared promotional content for college technical events, boosting awareness and participation.
- Regularly explore tech blogs, tutorials, and hands-on experiments; occasionally help peers troubleshoot IoT/CV issues.
- Actively participating in hackathons and coding challenges has honed problem-solving and rapid prototyping skills, with a track record of competing in 5+ hackathons—securing finalist positions in all and consistently ranking in the top five.