AYUSH KUMAR

📞 **(+91) 7376110737**   ✉ **ayushkumarpes@gmail.com**   in **LinkedIn**   ⏺ **Github**

Skilled in Full-Stack Development, Data Analytics, Autonomous Robotics, and Embedded Systems, with experience in hackathons, real-world problem-solving, and developing innovative, automated solutions.

E X P E R I E N C E

Autonomous Mapping of an Environment Using a Robot
Project Intern, IEEE RAS, PESU - 2024   [Report]

- Conducted literature review on robotic design and integration with Webots for simulation.
- Developed object detection algorithms and tested navigation accuracy and dynamic obstacle avoidance.
- Implemented validation experiments to ensure reliability of autonomous mapping under varying conditions.

P R O J E C T S

CheatGuard - IoT and ML-Powered Smart Exam Surveillance System   [Ongoing Final Year Project]

- Developing real-time proctoring system using **YOLOv8 + MediaPipe** for object detection and gaze tracking.
- Building a Python backend with a live React dashboard, integrating dual-camera input.
- Designing testing pipeline to validate accuracy and reduce false positives.

Speedy Shopper Website | MERN Stack   [Github]
- Built a product price-comparison website across Instamart and Blinkit.
- Ranked in **Top 10 out of 350 hackathon submissions**.
- Wrote test cases for **API integration and UI validation** to ensure reliable results.

Lambda Serverless Function Platform | FastAPI, Streamlit, Docker, gVisor, Python   [Github]
- Built a serverless platform using **FastAPI** and **Streamlit** with Docker and gVisor virtualization for secure, isolated Python and JavaScript code execution.
- Designed a **REST API** for function management with metrics to analyze security-performance trade-offs between virtualization technologies.

BMTC Bus Finder App | Figma and Flutter   [Github]
- Designed and developed a bus finder app with live tracking, fare charts, and route maps.
- Ensured usability and consistency through **UI/UX testing in Figma prototypes**.

Bank Management System | C and Data Structures   [Github]
- Built application with secure authentication, deposits, withdrawals, and account management.
- Validated correctness with structured test cases for boundary values and error handling.

Space Exploration Rover   [Github]
- Created modular rover with kinematics, sensor integration, and automated launch in Gazebo.
- Designed **system integration tests** for multi-sensor coordination and navigation accuracy.

EDUCATION

PES University, Bengaluru**,** Karnataka
B.Tech in Computer Science & Engineering (2022 - 2026)

Baluni Public School, Dehradun
Class XII (CBSE) - 2021

TECHNICAL SKILLS

C/C++
Python
ROS (Robot Operating System)
Git
Figma
MERN Stack
PostgreSQL
MySQL
MongoDB
Docker
YOLOv8
Autodesk Fusion360
WordPress
HTML
MATLAB
Arduino

ENTREPRENEURSHIP

Founder | PosterGenie India

- Leading an e-commerce venture offering premium posters and stickers.
- Managing digital growth, technical operations, and brand visibility strategies.

EXTRA – CURRICULAR

Team Member, Avions
Aero-Design Club, PES University

Team Security Member at "MAAYA 23" College Fest

Team Concert Member at "MAAYA 24" & "MAAYA 25" College Fest