KARTAVYA KAMBLE

Robotics & AI | Autonomous Robots | Embedded Systems | Computer Vision | ROS2
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SUMMARY

Pursuing B.Tech in Robotics & AI, equipped with hands on experience in embedded systems, robotics software and computer vision. Prefer learning through experience. Hence, looking forward to working on emerging tools and explore further in the field of robotics.

WORK EXPERIENCE

Embedded Systems Intern — ***July 2026 - August 2026***

SOUL 3

- Startup building exoskeleton prototype.

Computer Vision Intern — ***May 2026 - July 2026***

GrayMatter Robotics

- Worked with ROS 2 nodes and Gazebo for simulating test environment representing robotics in modern kitchen.
- Trained YOLOv11 model for liquid identification paired with SAM2 pipeline for accuracy in cluttered real-life workspace.

Autonomous System Department — ***Mar 2026 - Present***

Team ETA

- Working on simulations and testing using CARLA and Gazebo.

Embedded Coding Department — ***Oct 2024 - Jan 2026***

Team KJSSE Robocon

- Official robotics megaproject team of K. J. Somaiya School of Engineering.
- Worked with microcontrollers, sensors, control systems and ROS2 communication.
- Participated in DD Robocon 2025 at IIT Delhi.

EDUCATION

B.Tech Robotics & Artificial Intelligence — ***2024 - 2028***

K. J. Somaiya School of Engineering, Vidyavihar

(Aggregate till 4th sem : 8.95 CGPA)

SKILLS

Programming	Python | C/C++ | HTML | CSS | Javascript | SQL
Microcontrollers & Processors	Arduino | ESP32 | STM32 | Jetson Nano
Control Systems	PID Control | Q-learning (RL) | Kinematics | Odometry | ROS2
Tools	Solidworks | Fusion 360 | Gazebo | RViz2 | CoppeliaSim | EasyEDA | LTSpice
Computer Vision	OpenCV | Mediapipe | YOLO | SAM2
IoT & Communication	Sensor Fusion | UART | I2C | SPI | BLE | CAN | WiFi

PROJECTS

CropDrop Robot | E-yantra Robotics Competition 2025

- Designed and developed a STM32 based autonomous line follower with pick-and-place and color sorting mechanism using multiple sensors, PID, Q-learning (Reinforcement Learning) and CoppeliaSim for simulation.

TerraBot | Agri-Tech Hackathon 2026

- Worked on buidling TerraBot for plant disease detection using CNN model and real-time field monitoring using sensor integration.
- Built an user interface for easy control interface, establishing wireless communication.

Sumo Bot | RoboRift

- Contributed in power management system and electronics of the robot along with controlling aspects.

Hand Gesture Controlled Car

- Developed a hand gesture recognition model using openCV and mediapipe and mapped the detection outputs with motor control commands through WiFi communication between Python and Arduino IDE.

Swarm based Marine Robotics System | MechTech Ideation 2026

- Designed a bio-robotics inspired fish-like structure according to each level of depth in the water bodies for surveillance and waste detection. Suggested acoustic communication between swarms and a combination to 2 algorithms - Boids/Flocking Algorithm and Partical Swarm Optimization to ensure navigation and formation of the swarms.

Smart Safari System | Unplugged 3.0

- Developed animal detection model using YOLO, software UI using Python and line follower mechanism using PID and sensor fusion, aiming towards elevating the experience of existing Safari System.