Ashish Sukumar

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Education

Worcester Polytechnic Institute — **Massachusetts, USA**
M.S. Robotics Engineering — *2025–Present*
(Relevant Coursework: Foundations of Robotics, Motion Planning, Deep Learning for Robotics

SRM Institute of Science and Technology — **Chennai, India**
B.Tech, Computer Science and Engineering, CGPA: 9.54/10 — *2021–2025*
(Data Structures and Algorithms,Robotics Engineering and Applications, Artificial Intelligence,Embedded System Design)

Skills

Robotics: ROS, ROS2, Gazebo, SLAM, Path Planning

Hardware: Arduino (Uno, Nano, Nano 33 BLE Sense Rev2), ESP32, ESP8266, Raspberry Pi, Sensors (Gas, PIR, Accelerometer, APDS-9960, Proximity, DHT, IR, Ultrasonic, RFID), BLE modules, DC/N20 Motors

Programming: C, C++, Python, SQL, JavaScript, HTML, CSS

Frameworks/Tools: React, Linux System Administration, Tableau

Core: Data Structures, Algorithms, Object-Oriented Programming

Certificates

- Red Hat Certified System Administrator (RHCSA)
- Oracle Cloud Infrastructure (OCI) Certified

Experience

e-Yantra (IIT Bombay, Ministry of Education Initiative) — **Chennai, India**
Junior Project Technical Assistant — *Jun 2024 – Feb 2025*
Worked on the *Intrepid Explorer* robotics theme, contributing to design, development, and task execution while conducting workshops on embedded systems and robotics for school students. Gained hands-on experience with Webots simulation, embedded systems, image processing, and content development (mdBook).

RigBetel Labs — **Remote**
ROS Mentorship Program — *Jun 2023 – Aug 2023*
Built and executed basic ROS nodes, followed by an end-to-end project designing differential drive and skid-steer robots with obstacle avoidance and mapping using SLAM and Gmapping.

Academic Projects

Fire Aware Smart-Bot: Designed and integrated fire detection with robotic response. Used Arduino Nano 33 BLE Sense + ESP32 for fire localization, shortest path navigation, live video streaming, and mobile app control. Presented at ICIoT 2025.

Fire Prediction using Color: Trained a neural network on fire/non-fire datasets using color sensor patterns for early hazard prediction. Showcased integration of ML with IoT.

ROS Autonomous Navigation Stack: Implemented autonomous navigation of a skid-steer robot in Gazebo using SLAM, Gmapping, and ROS publisher–subscriber models with lidar + odometry.

Air Quality Analyzer: Built IoT system with ESP8266 + MQ135 sensor and cloud visualization (ThingSpeak) for air quality monitoring.

Publications

Fire Detection and Risk Prediction: Ashish Sukumar, Dr R Jeya, Rithish R, Ramuji Donipart,Ganesh K. (2025, March 15). Fire detection and risk prediction for smart safety: A neural network-driven IoT approach. *International Journal of Engineering Research in Computer Science and Engineering (IJERCSE), 12*(3). Retrieved from `https://ijercse.com/fire-detection.php`

Fire Aware Smart-Bot with AI Responsive System: Ashish Sukumar, Dr R Jeya, Rithish R, Ramuji Donipart,Ganesh K. (2025). Fire aware smart-bot with AI responsive system. In *Proceedings of the 5th International Conference on IoT (ICIoT 2025)*. Accepted for publication.

Achievements

- Excellence Award for outstanding student and best class representative, SRMIST (2025)
- 2nd place, Project Expo 2025, SRMIST