

Manas Reddy Arumalla

UG Fourth Year | Robotics Engineer

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EDUCATION

Amrita Vishwa Vidyapeetham, B.Tech Automation and Robotics **Coimbatore**

Major: Automation and Robotics: 2021 – 2025

Grade: 8.84/10.0 (First Class with Distinction)

Intermediate, Telangana Board of Education **Hyderabad**

Subject: MPC: 2019 – 2021

Marks: 962

Xth, Telangana Board of Education **Hyderabad**

Subject: MPC: 2018 – 2019

Grade: 9.2

SKILLS

Programming Languages: Python, MATLAB, C++

Tools and Software: Inventor/Fusion 360, Adams Simulation, Jupyter Notebook, Arduino, CoppeliaSim, Gazebo

Technical Proficiencies: ROS, Computer Vision, Control Systems, Machine Learning, Mobile Robotics, Industrial Automation

Embedded Systems Knowledge: Basic Embedded C, Microcontroller Programming

Operating Systems: Linux, Windows

Soft Skills: Teamwork, Communication, Adaptability

PROFESSIONAL EXPERIENCE

Research Assistant – Under Dr. Rammohan Sriramdas. September 2025 – January 2026

- Developed a DST-funded self-balancing hopping robot, focusing on dynamic stability and control.
- Enhanced control architecture and navigation performance of a quadruped mobile robot.
- Authored three research papers; one published and two under review for publication.

Anvi Robotics – Robotics Intern June 2024 – July 2024

- Developed a water-cleaning unmanned surface vehicle (USV)
- Selected components, designed, and performed ROS simulations integrating MAVLink with PX4.
- Integrated image processing for trash detection and navigation using ROS

Sony SSUP Project – Robotics Intern October 2023 – December 2024

- Developed a mechanism for a 4-legged mobile robot for farm assistance and cattle health care
- Enhanced robotic system functionality by programming and integrating various sensors.
- Collaborated with team members on implementing advanced algorithms for robot's control.
- Provided support for troubleshooting hardware issues, ensuring minimal downtime during experiments.

7s Technologies – Robotics Intern March 2024 – April 2024

- Designed and developed an AR/VR motion simulation chair
- Optimized design, selected electrical components, and performed calculations for enhanced performance

My Equation – Technical Content Curator December 2023 – March 2024

- Curated content for AI/ML projects
- Created and managed technical content for AI/ML topics, gaining hands-on experience

PROJECTS

Two-Wheeled Hopping Robot (Control Systems, CAD modelling, Teensey, Simscape, Raspberry Pi, ROS)

- Designed and developed a self-balancing hopping robot using novel techniques (DST-funded)
- Involved in all stages, from simulation to physical testing

AR/VR Motion Simulation Chair (CAD modelling, iterative design, Real-Time control systems)

- Developed a motion simulation chair with real-time control systems for VR/AR applications

Control Strategies for Two-Wheeled Inverted Pendulum (Dynamics, Control Systems, MATLAB, MuJoCo)

- Derived the dynamics of a two-wheeled inverted pendulum

- Implemented multiple control strategies in MATLAB, followed by testing in MuJoCo

Quadcopter Control (Dynamics, Control Systems, MATLAB)

- Developed a quadcopter simulation implementing advanced control strategies including PID, LQR, Backstepping, and MPC

Robotic Wrist Control Using Hand Tracking (OpenCV, MuJoCo)

- Built a real-time hand tracking system with OpenCV, replicating human hand motions on a robotic wrist

Self-Balancing Robot (Control Systems, Arduino)

- Built a robot capable of balancing itself, employing multiple control systems for enhanced stability

Drone Project (ESP Simulations, Control Systems, CAD Modeling, Flight Control Systems)

- Engineered a quadcopter with robust control systems, fine-tuning ESP simulations to ensure precise control

Mobile Robot Path Planning Algorithms (Path planning algorithms, mobile robot)

- Implemented and evaluated multiple path planning algorithms to determine performance for mobile robotics.

Pharma Bot (Image Processing, RaspberryPi, Path planning algorithms, Control Systems, CoppeliaSim)

- Created a medicine delivery system using Raspberry Pi and path-planning strategies for autonomous delivery

6-DOF Robotic Arm Trajectory Planning (DH parameters, Trajectory planning, Control Systems)

- Python-based 6-DOF UR5 arm simulator with DH kinematics, trajectory planning, and controls.

Optoelectronic Robo-Soccer Bot (Arduino, CAD modelling, Optoelectronics)

- Developed a soccer bot controlled via flashlight for a robotics competition

TurtleBot3 Task Planning (Turtlebot3, Gazebo, Plansys, ROS2, Nav2, PDDL)

- A ROS 2-based autonomous task planning project using PlanSys2 and PDDL to generate optimal navigation and cleaning action sequences for TurtleBot3 in a washroom scenario.

LEADERSHIP & VOLUNTEER EXPERIENCE

NSS Volunteer

- Participated in NSS camps, contributing to social initiatives and team events

Active Member of Robotics Club

- Led the projects team in various robotics projects
- Conducted and gave a talk in ROS workshop

RESEARCH PAPERS

- **Manas Reddy Arumalla**, Rammohan Sriramdas, Vybhav Raghavendra Devarakonda and Anugraha Vincent. *"Mapping the Dynamics of Robotic Jumps in Hopping Robots."* *International Conference on Robotics and Mechatronics (ICRM 2025)*, 2025. [Paper](#)

CERTIFICATES

- Internship at Anvi Robotics: [Link](#)
- Sony SSUP Internship: [Link](#)
- NSS Special Camp Volunteering: [Link](#)
- e-Yantra 22-23 Robotics Competition: [Link](#)
- Internship at My Equation: [Completion](#), [LOR](#)
- Internship at 7s Technologies: [Link](#)
- ROBO-AI Industrial Training Program on Robotics Automation and AI: [Completion](#), [Appreciation](#)

ACHIEVEMENTS

- Awarded Level 3 in the **e-Yantra 22-23 Robotics Competition** by IIT Bombay for developing a pharma bot

PERSONAL DOSSIER

Languages

- English, Hindi, Telugu

Extracurriculars:

- Active member of robotics club
- Active member of **NSS** camps and events