Aarav Garg

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Education

Purdue University West Lafayette, IN

Bachelor of Science in Robotics Engineering (GPA 3.91) *Expected Graduation - 2026*

- **Relevant Coursework**: C, Siemens NX, Electrical Systems, Industrial Robot Programming, Statics, Dynamics

Experience

Founding President March 2024 – Present

Humanoid Robot Club Purdue *West Lafayette, IN*

- First group of students building a walking bipedal humanoid robot capable of space exploration.
- Raised $150,000+ and 800+ members within 6 months of launch; now one of the largest Purdue tech orgs.
- Innovating bipedal motion by integrating a prosthetic ankle to improve adaptability on uneven terrains.
- Leading the integration of electrical systems and embedded software, including power distribution, IMU-based balance control, and actuator-driven movement, utilizing Jetson Nano.

Undergraduate Research Assistant August 2024 – Present

MARS Lab [NSF-funded project under Dr. Yu She] *West Lafayette, IN*

- Engineered underwater gliding robot for exploring cavities in icebergs–using Siemens NX.
- Integrated Arduino Mega with actuators and sensors; programmed the robot in C++.
- Designed and manufactured a custom Printed Circuit Board (PCB) to make the electrical system compact and streamline the overall assembly process.

Technical Project Manager September 2023 – August 2024

Sphero Swarm (Purdue Robotics Club) *West Lafayette, IN*

- Launched NSF-funded ($30k) project to develop framework for controlling Sphero robots to simulate polymers.
- Led 30 team members across 5 technical subteams. Developed control algorithms for swarm control using ESP32.
- Optimized computer vision feedback loops to achieve precise movement with a layer of collision avoidance.

Founder & CEO January 2021 – December 2023

Tech Nuttiez *Hyderabad, India*

- Ed-tech startup for robotics education. Led team of 30+ people. Built mobile app in Flutter + Firebase.
- 1.2 Million+ students impacted and 15,000+ active users from 185+ countries.

Projects

Robotic Arm That Learns | *Arduino Mega 2560, C++, KiCad, Siemens NX*

- Programmed the arm with Arduino Mega 2560 using inverse kinematics for smooth movement.
- Designed custom PCB in KiCad that integrates potentiometers and servo motors for precise control and feedback.
- Engineered the arm and control panel in NX, incorporating the EEZYbotARM framework for stability.

Smart Spice Box | *Arduino Uno, C++, KiCad, Siemens NX*

- Developed a state-machine algorithm to control 999 unique states with 3 tactile buttons using an Arduino Uno.
- Utilized Siemens NX to design the enclosure, enhancing user ergonomics and compatibility with the electronics.
- Awarded #1 prize in an international Autodesk Innovation Challenge.

Pocket Weather Station | *Arduino Nano, C++, KiCad, Siemens NX*

- Designed compact handheld device to measure real-time weather conditions using DHT11 and Arduino Nano.
- Modified design to use DHT22 sensor to increase meteorological reading accuracy from 97% to 99.67%.

Technical Skills

Programming: Java, Python, C/C++, Flutter, Firebase, SQL, MATLAB, Arduino, ROS, Verilog
Platforms: Solidworks, Siemens NX, Mechanical CAD/CAM, Altium, KiCad, GitHub, Agile, Computer Architecture
Hardware: System/Board (PCB) Design, Analog Circuit Design, Schematic Design, CAN, SPI, UART, I2C, Ultrasound, LiDAR, ECU Design, Structural Analysis, Testing, Power Systems, RF Circuit Design, ASIC, Camera Sensor, Thermal
Algorithms: Motion Planning, Pathfinding, Collision Avoidance, Feedback Control Systems, SLAM, PID