ABHIJEET KULKARNI

Mechanical Engineering Undergraduate

abhijeetkulkarni2006@gmail.com | +91 9421139779 | abhijeet-kulkarni-43016b326 |
github.com/abhijeetkulkarni21

EDUCATION

B.Tech in Mechanical Engineering

Shri Guru Gobind Singhji Institute of Engineering and Technology (SGGS),Nanded

Aug 2024 – Ongoing | Nanded, Maharashtra

- Pursuing second-year B.Tech in Mechanical Engineering with a strong interest in computer science and related fields.
- Engaged in academic projects and college-level activities such as robotics club and technical events

EXPERIENCE

Member, RNXG

Official Robotics Club

Sep 2024 – Ongoing | Nanded, Maharashtra

- Collaborated with peers to design, build, and program robots for academic and competitive projects, applying principles of electronics, mechanics, and programming.
- Worked in a multidisciplinary team to develop project documentation, presentations, and demonstrations for showcasing outcomes at college-level and national-level events.

PROJECTS

Line Follower

Oct 2024 – Nov 2024

- Designed and programmed a robot using IR sensors and Arduino Nano to autonomously follow paths with **±2 cm accuracy**.
- Team secured **3rd place in intra-college competition**, demonstrating effective design and collaboration.

Object-Detecting Grass-Cutting Robot

Oct 2024–Nov 2024

- Developed a semi-autonomous robot with ultrasonic sensors for obstacle detection and avoidance, reducing collision rate by **40%**
- Integrated automated grass-cutting mechanism; project **showcased in college exhibition** for practical robotics application.

Maze-Solver Robot

Jan 2025 – Feb 2025

- Programmed a robot with sensor-based navigation to detect paths and autonomously solve mazes.
- Applied shortest-path algorithms to optimize traversal speed and improve efficiency in complex layouts.

Hexapod Robot

Feb 2025 – Mar 2025

- Designed and assembled a six-legged robotic platform capable of simulating insect-like walking patterns.
- Programmed servo motor coordination to achieve stable multi-directional movement and balance control.

Stirling Engine

Aug 2025– Ongoing

- Currently designing and fabricating a Stirling engine prototype to study external combustion and closed-cycle thermodynamics.
- Mapped efficiency improvements against potential applications, targeting up to **15–20% thermal efficiency** and evaluating relevance in alternative energy systems through impact analysis.
- Enhanced understanding of thermodynamics principles and potential alternative energy applications.

TECHNICAL SKILLS

Programming

C | C++ | Python | Java | Arduino IDE

Robotics

Microcontrollers | Sensors (IR, Ultrasonic) | Motor Control

Mechanical

Fusion 360 | SolidWorks | CAD Design Basics | Assembly

ACHIEVEMENTS

- Organized national-level robotics event **"Rmageddon"** with 300+ participants.
- **Secured 1st rank** out of 200+ students in SPARK aptitude test.(Computer Science Club)
- **Conducted robotics workshop** attended by 50+ peers about fundamentals of sensors, microcontrollers, and automation.