

# Mitanshu Goel

Software Engineer | IoT & Web Systems Developer

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## WORK EXPERIENCE

### ROS Developer Intern

July 2024 - September 2024

#### Nextup Robotics

- Worked on controlling a robotic arm using MoveIt and ROS
- Wrote motion planning and control algorithms for robotic arm.
- Tested and fine-tuned robotic movements for smooth and accurate performance

### Project Intern

June 2025 - Present

#### SarthakAI

Deployed and integrated three intelligent workstations:

- Integrated an Agentic AI using NVIDIA NEMO locally (for TTS and STT) with wake-word detection.
- Developed a fully scalable sensor system using Raspberry Pi and multiple ESP32 via client-server architecture to collect particular and precise data and send it on to a platform for analysis.
- Implemented robotic motion planning and vision-based package detection to support automated sorting and other tasks.

## SKILLS

- **Languages:** JavaScript, Python, C++
- **Development:** React, Node.js, Express, Firebase, REST APIs, WebSockets
- **Tools & Platforms:** Git, Docker, Linux
- **Additional Technologies:** Arduino, ESP32, Raspberry Pi, ROS

## PROJECTS

### CHESS [🔗 LIVE DEMO](#)

- Built an online chess game using React with real-time move validation.
- Integrated Stockfish engine for computer play.
- Enabled multiplayer with a Node.js backend and Firebase database.
- **Tech Stack:** React, JavaScript, Node.js, Firebase, HTML, CSS

### 6 DOF ROBOTIC ARM

- Built a custom web interface with live video streaming for remote control using ROS and WebSockets.
- Implemented C++ scripts for real-time inverse kinematics, position tracking, and smooth operation.
- **Tech Stack:** Python, C++, Node.js, WebSockets, ROS, OpenCV

### HEXAPOD [🔗 GITHUB](#)

- Simulated 6 legged robot in Gazebo using ROS2, Rviz, and inverse kinematics for stable gait control.
- Deploying control algorithms to physical hardware using Raspberry Pi and Docker.
- **Tech Stack:** ROS2, Gazebo, Rviz, Raspberry Pi, Docker, Python

## EDUCATION

### B. Tech (ECE) at Maharaja Agrasen Institute of Technology, Delhi

November 2022 - Current

- Pursuing minor specialization in AI/ML.

### Schooling at Vikas Bharati Public School, India

April 2007 - June 2022

- Scored 85 percent in 10<sup>th</sup> Class and 80 percent in 12<sup>th</sup> Class

## POSITION OF RESPONSIBILITY

### Core Member A.T.O.M (Robotics Society MAIT)

November 2023 - Present

- Worked on robotics projects and represented the college in national and international competitions like Robocon and International Rover Design Challenge.
- Helped organize workshops, tech events, and project demonstrations on campus