Manav Patel

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Education

Middle Tennessee State University Murfreesboro, TN

Bachelor of Science in Mechatronics Engineering Dec 2025

- Minor: Mathematics
- GPA: 3.905

Experience

Engineering Department at MTSU Murfreesboro, TN

Mechanical / Controls Engineer Jan 2025 – Dec 2025

- Designed and built an automated dual-conveyor system that separates cans from boxes using a Cognex vision sensor and pneumatic diverter, achieving single-file flow and ~95%+ sorting accuracy during testing.
- Programmed a Rockwell CompactLogix PLC and Ignition HMI for photoeye-triggered inspection, bin-full alerts, part counters, and safe manual jog modes, making the system easy for non-technical operators to run.
- Led I/O mapping, wiring checkout, and E-stop/safety relay integration, and wrote step-by-step test procedures that reduced troubleshooting time and enabled repeatable run-offs for lab demonstrations.

Engineering Department at MTSU Murfreesboro, TN

Lab Instructor Aug 2024 – Dec 2025

- Author and maintain lab manuals for Electrical Circuits I & II and Pneumatics/Hydraulics—including objectives, procedures, data tables, and rubrics—now used in 4+ lab sections per semester to keep expectations and grading consistent.
- Teach hands-on use of Keysight oscilloscopes, waveform generators, and digital multi-meters and coach bread boarding and fault isolation, enabling most students to complete labs on time with minimal rework.
- Instruct pneumatic and hydraulic circuit design (ISO symbols, valve/actuator selection, basic sizing) using real manufacturing scenarios.

Engineering Department at MTSU Murfreesboro, TN

Programmer Aug 2024 – Dec 2025

- Built a Tic-Tac-Toe game on a modified Ender-3D printer, using MatLab to convert game moves into G-code so the printer could pen plot against a human player.
- Calibrated steps/mm, homing, and soft limits to produce smooth, repeatable toolpaths, keeping lines aligned across the 3x3 grid with minimal rework.

Smart Sensing and Automation lab at MTSU Murfreesboro, TN

Automation Engineer May 2024 – Jul 2025

- Built an herbicide-free laser weed-removal cart, integrating motion control, sensing and safety interlocks for field use.
- Led SolidWorks design (assemblies, drawings, BOM) and machined aluminum parts on manual/CNC mill and lathe applying basic GD&T.
- Designed the chassis and wiring for motors and laser. Successfully brought up driving and laser firing.

Skills

- **Technical**: PLC/HMI programming, MatLab, LabView, Python, SolidWorks, Machine Vision and sensors
- **Laboratory**: Mill, Lathe, Pneumatics, Hydraulics
- **Languages:** English, Hindi, Gujarati