

ANKIT DHITAL

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EDUCATION

Brigham Young University–Idaho
Bachelor of Science, Mechanical Engineering

Rexburg, ID
Expected December 2026

TECHNICAL SKILLS

CAD & Design: SolidWorks (CSWA), GD&T, DFM, FEA, Engineering Drawings, Tolerance Analysis

Fabrication: CNC Mill/Lathe, Manual Machining, 3D Printing, Laser Cutting, Plasma Cutting, Sheet Metal, Welding (basic)

Programming & Analysis: Python, MATLAB, Arduino/C++

Systems: Mechatronics, Closed-Loop Control, Sensor Integration, Embedded Systems

AI & Productivity: LLMs (ChatGPT, Claude) for engineering research, design calculations, and idea generation; proficient in prompt engineering for technical workflows

PROJECTS

Briefcase Rat Trap

Product Design

- Identified failure modes of commercial traps (exposed kills, forced user contact) and designed a fully enclosed, battery-powered electric rat trap with a trigger-actuated disposal door and kill indicator — eliminating user-to-rodent contact entirely.
- Led full product design cycle: Pugh matrix for concept selection, 15-part SolidWorks assembly with interlocking disposal mechanism, and physical prototype build that achieved all 4 design targets.
- Delivered working prototype within a \$200 budget constraint, driving material selection and manufacturing method decisions throughout the design process.

Thermo-Gate Climate Control

Mechatronics

- Achieved $\pm 2^{\circ}\text{C}$ setpoint accuracy across 3 prototype iterations of a closed-loop temperature control system — thermistor reads ambient temp, microcontroller compares to user-defined value (keypad + LCD), and drives a servo-actuated vent to modulate airflow.
- Designed full enclosure in SolidWorks, 3D-printed and iterated across prototypes; integrated mechanical actuation, embedded firmware, and HMI in a single compact housing.
- Owned full build cycle from hand sketch to working device, integrating 5 subsystems (mechanical, electrical, firmware, sensing, HMI) as a solo project.

Planetary Gear Assembly

Mechanical Design

- Hand-calculated all three gear configurations for a 3-planet system (sun: 12T, planet: 12T, ring: 36T); primary ring-fixed configuration yields 4:1 torque reduction; modeled full assembly in SolidWorks.
- Manufactured via 3D-printed gears and laser-cut acrylic planet carrier; validated physical output speed against calculated ratio.

EXPERIENCE

Technical Writer Intern — Basic American Foods

Blackfoot, ID | April 2026 – September 2026

- Documented operational procedures for heavy manufacturing equipment across the plant floor — working directly with engineers and operators to capture machine-level process knowledge using Lean and A3 frameworks.

CAD Tutor, ME 372 Advanced Design — BYU–Idaho

Rexburg, ID | January 2026 – Present

- Mentor 40+ students per semester in advanced SolidWorks modeling, multi-part assemblies, and engineering drawings to ASME Y14.5 standards.
- Diagnose modeling failures and guide students through DFM principles, mating strategies, and iterative design improvements.

COMPETITIONS & ACTIVITIES

- ASME Pumpkin Launch Competition | Logan, UT** — Placed 2nd out of 22 teams as part of ASME BYU–Idaho; co-designed launch mechanism achieving 163-yard total flight distance.
- Formula SAE** — Former team member, San José State University; contributed to chassis fabrication, suspension geometry, and race car build cycles.