

Jordan Love

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SUMMARY

Senior B.S. Mechanical Engineer with internship experience, as well as numerous and diverse hands-on, team-based project experience. Leadership experience as MSOE First Mentor, with skills in PTC Creo, SOLIDWORKS, and MATLAB.

EDUCATION

B.S. Mechanical Engineering | Milwaukee School of Engineering | GPA: 3.73 | Expected May 20XX

INTERNSHIP EXPERIENCE

Engineering Intern | Generac Power Systems | Waukesha, WI | June 20XX – Sept. 20XX & June 20XX – Sept. 20XX

Problem: Microswitch assembly was not meeting spatial & tolerance constraints. It needs to be easily removable for repair.

Project: Design an assembly to locate microswitches so they meet spatial and tolerance constraints. Design part of microswitch assembly to be easily removable from transfer switch for repair. Purpose of microswitches is to interface with a control to give information about when to stop driving motors of gear train of transfer switch. Without feedback from microswitches, system could over drive motors and cause mechanisms to fail by breaking a pin.

- Designed and modeled assembly in PTC Creo to meet all spatial constraints.
- Created a bracket that properly located microswitches and, using a single fastener and a keyed slot, simplified removal from transfer switch for repair.
- Designed a pin that acted as both a guide and a spacer to help eliminate tolerance concerns.
- Collected and analyzed point of failure data from 3D printed prototypes of the microswitch assembly using air cylinders to mimic the motion of the system for 10,000 operation or until failure.

Result: A metal prototype prepared for testing on a full transfer switch and ready to be integrated into the wire harness.

Problem: A circuit board needed a housing that the customer was not able to take apart and could be easily replaced.

Project: Design 2-part housing to be produced by injection molded with snap features simplified assembly & replacement.

- Modeled circuit board and designed possible housing solutions in PTC Creo.
- 3D printed, tested, analyzed, and prototyped different types of snap features both for non-removable connection between the two housing pieces, and the removable connection between the housing and the mounting holes.
- Optimized design for manufacturability in PTC Creo specifically to make with a single pull injection molding process.

Result: Housing that can hold circuit board enclosed without being able to be taken apart by customer that is also able to be easily swapped. Planned production of 100,000 units per year.

Problem: Mechanical indicator is needed to indicate if transfer switch is transferring utility or generator power and if transfer switch is ready to switch from type of power being transferred.

Project: Design mechanical indicator to indicate if transfer switch is transferring utility or generator power and if transfer switch is ready to switch from type of power being transferred.

- Modeled different prototypes using PTC Creo.
- Created two different designs. One used less parts with a cantilever pin only allowing support in one location while another used an additional bracket to support the indicator in two places.
- 3D printed and prototyped indicator with less parts, but this was unsuccessful due to high friction.
- Printed and tested second design that used more parts but failed due to strength of plastic part.

Result: Created mechanical indicator ready to be prototyped with metal parts to solve strength issues.

ROBOTICS RESEARCH EXPERIENCE

Robotics Researcher | MSOE ME Department | Milwaukee, WI | Sept. 20XX – May 20XX

Project: Develop and test equations of motion for new robotic arm with specialized joint that allows both prismatic and rotational motion. This allows arm to be lighter and use less power than robot that would need more joints to perform same type of motion. This would be applicable in any industry that would need lighter weight, or lower power used robotic arm specifically space exploration and industrial automation.

- Analyzed robot's range of motion and compared it to similar robots.
- Developed forward kinematic equations to find endpoint position using geometry and trigonometry.
- Created inverse kinematic equations to output the angles and link lengths required.
- Simulated motion of robot in MATLAB and verified equations by comparing test values to values obtained from forward and inverse kinematic equations.

Result: Co-authored paper with two other authors titled "KINEMATIC MODELING OF A NOVEL RR-RP HYBRID SERIAL-PARALLEL MECHANISM WITH VARIABLE TOPOLOGY". which was presented at IDTEC 2021 conference.

TECHNICAL SKILLS

SOLIDWORKS | MATLAB | MS Office, Excel | PRC Creo | 3D Printing | Arduino

WORK HISTORY

FIRST Mentor | MSOE FIRST Mentorship Program | Sept. 20XX – May 20XX