Project Title: Automated Frame Spacer/Pin Removal

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Area: **Multidisciplinary**

Sponsored by: **General Motors Fort Wayne Assembly**

General Motors Fort Wayne Assembly is a light duty truck assembly plant which manufactures ½ ton - 1 ton trucks at a rate of about one truck per minute. Frame spacers are installed between the chassis to allow the chassis to be transported in a stacked configuration and protect the frames during movement. The current manufacturing process begins as these frames are removed from the rail car. These stacked chassis are then separated and introduced into the assembly line using an incoming buffer conveyor. It is at this point where four frame spacers are removed manually by an employee, who is working independently in an isolated area.

General Motors is looking for our engineering team to develop an automated concept-of-design prototype of this current process. The process will require the system to find the spacers, operate the spacer removal mechanism, and transport the spacers to a collection system. If the system fails to remove a spacer, an alert must be sent to an operator for manual spacer removal. The automated system will be evaluated on the success rate of removing the spacers and its reaction to failure. With these specifications in mind, our engineering team will focus on a spacer removal mechanism and a control system in order to achieve a working prototype.