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## Semi-Automatic System for Setup Process of Forging Machine

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**Abstract.** Forging is one of the important techniques for bulk metal deformation processes for producing high-strength parts. Metal workpieces are inserted into the cavity between die pieces to form particular shape. The workpiece can be produced with a short cycle time with a hydraulic press. However, the setup process for forging machines takes time due to numerous complicated steps. In this research, a semi-automatic system is developed to improve the machine setup process in regard to positioning of large dies and components. Toyota Production System (TPS) is used to improve the process. The system consists of movable carts integrated with sensors and actuators in order to facilitate the operation. In this case, the prototype system can reduce the setup time by 65% and the operators can work more safely and effectively.

**Keywords:** Machine setup, Forging, Semi-automatic, Toyota Production System