ABSTRACT

PT Buana Intan Gemilang is a textile company that sells half-finished fabric. During 2016, fabric demand for each month showed an increasing trend. Therefore, an effective and efficient production process is needed. One of the process is to punch a pattern card that later would be used at weaving process as the feed yarn manipulator to produce a pattern on the fabric. This process is using a punching machine with the operator doing the input and output of the card manually and one by one. While the target is to produce 300 cards daily, current process can only produce 283 cards averagely. Hence, a design of auto-feeder in order to decrease the input time average of 6,59 seconds and to change the input method from piece-per-piece to batch-per-batch was made. The scheme for this auto-feeder is to pile up 150 pattern cards. The upper card will be pushed forward by a solenoid before being pulled by a roll until the card reached the initial position before the punching process begins. The auto-feeder then will lift up the card pile until the solenoid can push another card. From several mechanisms, chain-sprocket was selected over rack-gear and scissor lift because of its design stability and easiness for maintainance. With Solidworks motion study, a time-based simulation showed a 2,86 seconds result. This should means that the productivity has been increased because overall cycle time has been reduced.

Keywords: Product Design, Punching Machine, Textile Pattern Card, Cycle Time, Auto-feeder, Time-Based Simulation