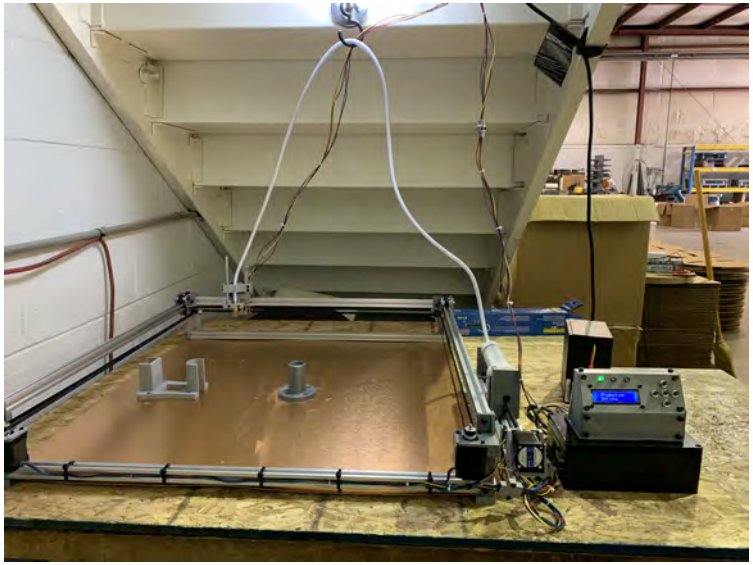
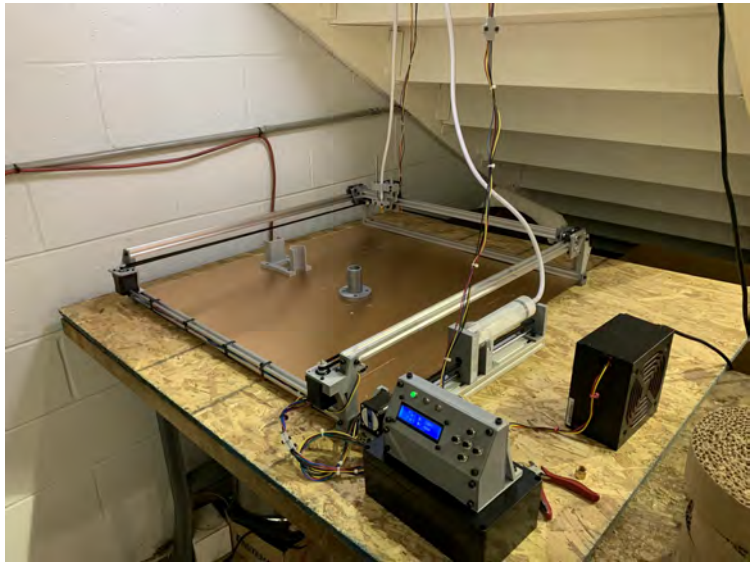
Figure 1: Overview of Semi-Automated Glue Applicator for cardboard spools for use in overseas shipping of stamped metal terminals.



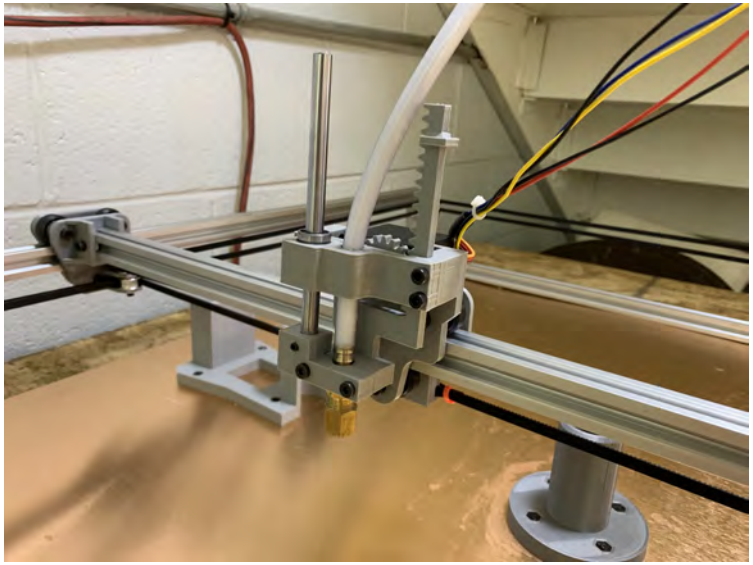
(a) A front view of the system where all major components are visible. These components include the XY gantry with servo controlled extruder, the electronics enclosure with operator control system, and glue syringe subsystem, and 5/12 volt dual power supply.



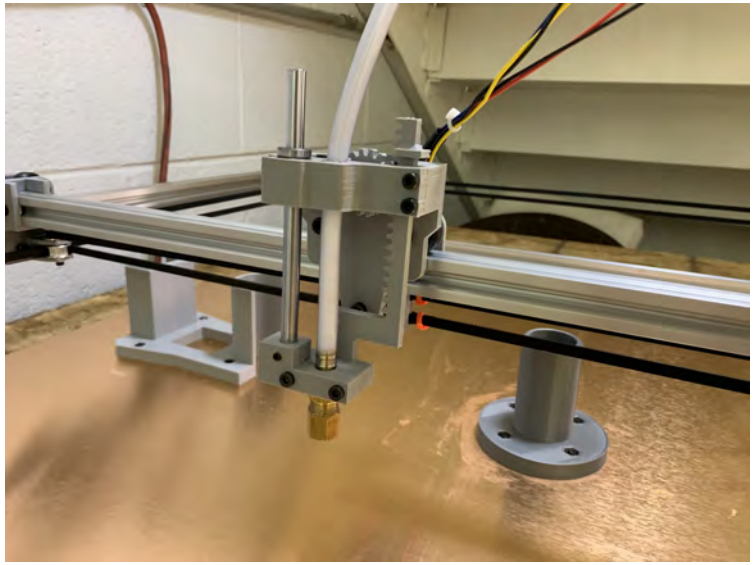
(b) An isometric view of the system.

(c) A front view of the operator control system placed on top of the housing of the main controller board. The control system allows the user to run production, refill/purge the glue syringe, and run diagnostics on the glue applicator system.

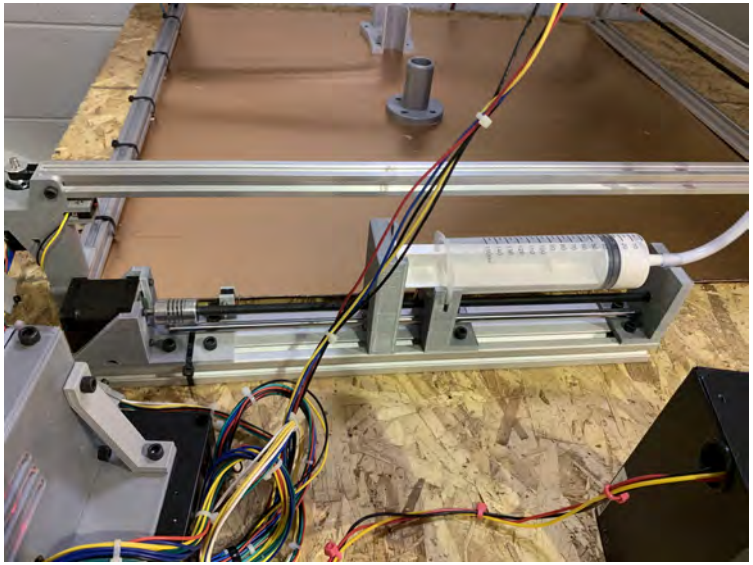
Figure 2: Overview of the glue extruder and syringe system on the Semi-Automated Glue Applicator.



(a) An isometric view of the glue extruder capable of vertical motion through the use of a MG996R servo converted to linear movement through a custom rack and pinion mechanism. The above photo shows the extruder in the up-most position.

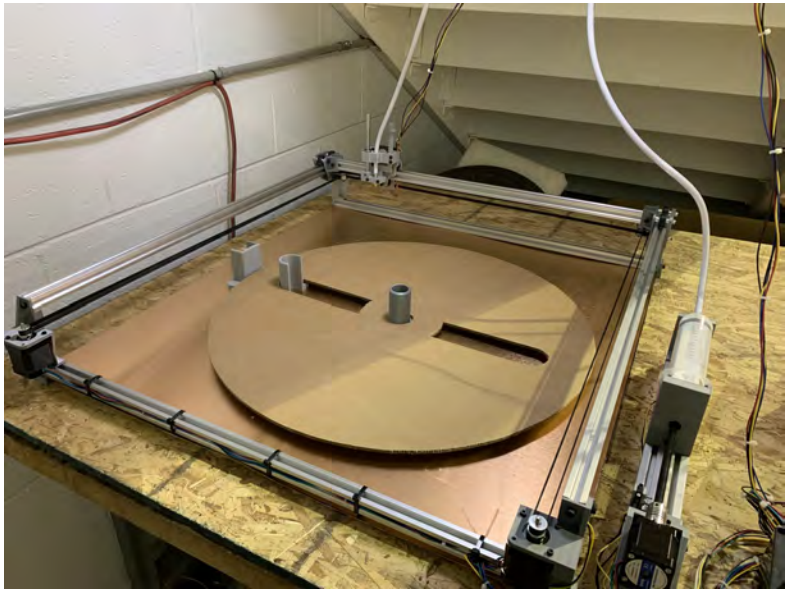


(b) An isometric view of the glue extruder in the down-most position.

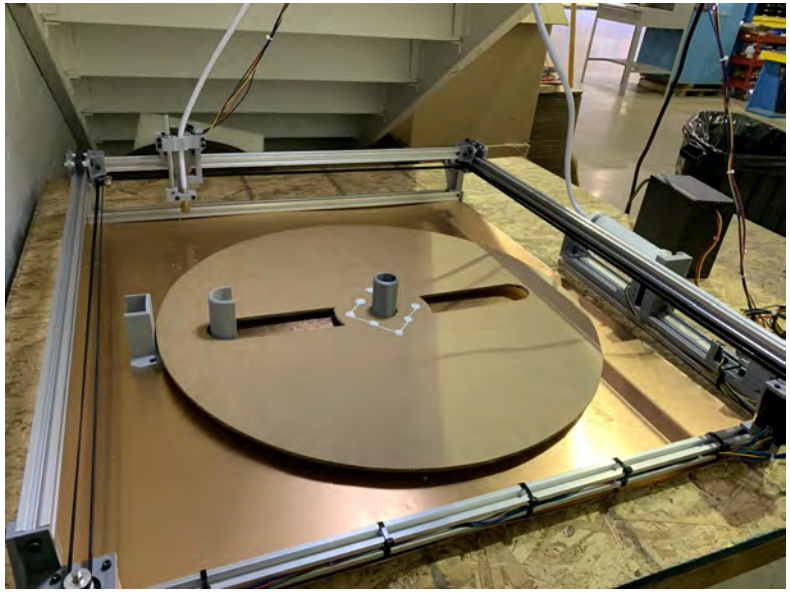


(c) A side view of the syringe filled with adhesive for curragated cardboard. The syringe is driven by a stepper motor that can be moved forward and backward to push glue to the previously mentioned glue extruder, while also being able to create a vacuum in the hose in order to prevent oozing from the nozzle.

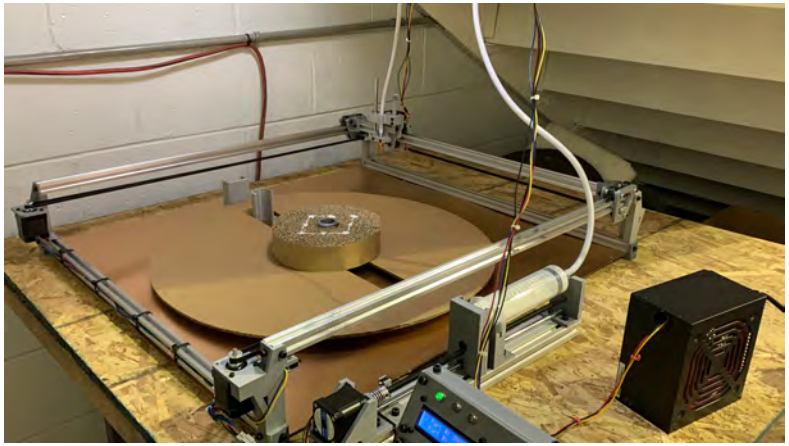
Figure 3: Overview of the construction process of a cardboard spool using the Semi-Automated Glue Applicator.



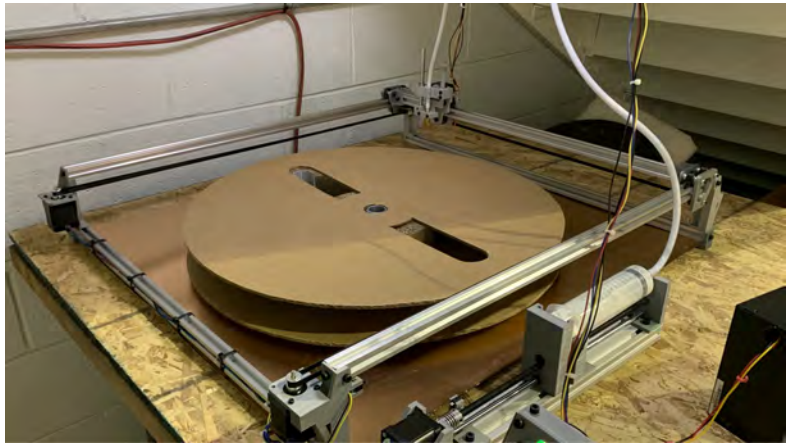
(a) Initial placing of cardboard flange into system.



(b) First stage of glue is applied to flange.



(c) A cardboard core is placed and a second stage of glue is applied.



(d) A second flange is pressed on top of the core and second stage of glue to complete assembly of cardboard spool.