ABSTRACT

Batik is an art that came from Indonesia. It is the colourful textiles from Indonesia that produced originally by the covering the wax before the textile gets dipped into the ink for the colouring aspect. This method of production is called “Batik Tulis”. There is an opportunity of innovation toward the authentic production technique of “Batik Tulis” through the capability of 3-Dimensional Printing.

3-Dimensional Printing is a process of manufacturing objects through applying the material onto the working area layer by layer from the direction bottom upward. There are many methods of 3-Dimensional Printing that could achieve the final product of the previously designed object in Computer Aided Design to the realization of it through 3-Dimensional Printing.

Fused Depositional Modelling is the method that will be applied in this thesis. Fused Depositional Modelling is a 3-Dimensional Printing method that uses filaments as the material and extrude it to the working area. Before it gets extruded onto the working area, the filament gets melted first. Common material for the filament is thermoplastics. There is some similarity between Fused Depositional Modelling technique and “Batik Tulis” production technique, where Fused Depositional Modelling deposited the material layer by layer onto the working area while “Batik Tulis” technique applied the wax first before the textile dipped into the ink.

The utilization of Fused Depositional Modelling 3-D Printers is applicable to extend the production of batik. However, there is modification toward the extruder system of the 3-D Printers to be able to handle wax, viscous material. The approach of this thesis research is using Gear Pump to control the flow of the Paraffin Wax and the nozzle will concentrate the dischargement of Paraffin Wax onto the working area.

Keyword: Fused Depositional Modelling, Gear Pump, 3-D Printer Extruder