ABSTRACT

Based on data from the Ministry of Environment and Forestry (KLHK), Indonesia produced 67.8 million tons of waste in 2020. According to the National Plastic Action Partnership (NPAP), there are around 4.8 million tons per year of unmanaged plastic waste in Indonesia.

From these problems, recycling plastic waste is an important role in reducing environmental pollution. In order to recycle plastic waste, a Massive 3D Printer Design was made using materials from plastic waste. Making products with a 3D Printer machine can use a variety of materials, one of which is Polyethylene (PE) plastic.

In this study, the value of M307 H1 R1.140 K0.582:0.000 D11.11 E1.35 S1.00 B0 V23.7 was done by auto-tuning which was ordered directly through Duet Web Control. The use of the PID control system to control the temperature of the hot end on the Massive 3D Printer is able to control the temperature at the hot end properly (does not fluctuate) and has an impact on the extrusion process, so that it can produce ink output that is not hollow and the printing results have good density, also supported with the appropriate temperature on the heater, which is 200°C and the proper stepper motor feedrate, which is 0.5 mm/s.

***Keywords**: Massive 3D Printer, Delta 3D Printer, Extruder.*