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Hopper temperature control for 3D printing extruder using hysteresis method to optimize the flowing of plastic pellets

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3D Printing is one of the technologies that supports industry 4.0. In this research, 3D Printing system technology uses plastic extrusion. The machine of plastic extrusion is called an extruder. The plastic pellets are fed through the hopper and will be processed in an extruder machine to produce melted plastic from a nozzle. This research aims, to make temperature control using the hysteresis method on the hopper of the extruder by applying dc fans so the pellets can flow to the heater to melt and the plastic melted comes out from the nozzle continuously with a maximum speed of melted plastic. The research results showed that the heater of extruder is capable to melt plastic pellets at 200°C with hopper temperature between 100°C−120°C and a maximum speed of melted plastic is 10 mm/s with a diameter of the nozzle is 2 mm.

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