



PROTOTYPE DEVELOPMENT OF FPGA BASED PS/2 MOUSE CONTROLLED PCB DRILL MACHINE

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Abstract

The research work presents a prototype development of an electromechanical setup to perform the mouse controlled Printed Circuit Board (PCB) drilling. The Soft Intellectual Proprietary (IP) Core was developed to drive two stepper motors; simultaneously, to reach the drill point. The Personal System, PS/2 mouse was used to generate serial data and clock signals. The serial data packets emerging from PS/2 mouse indicates the exact location of the mouse device. The mouse was moving on a white paper; with PCB pads printed thereon. The horizontal and vertical location data was sent to the Field Programmable Gate Array (FPGA); driving two stepper motors. The shafts of motors were coupled with separate conveyer belts. The drill-assembly consisting of a 12 V Direct Current (DC) motor was fixed on a belt. This entire arrangement was placed on one more conveyer belt; coupled to the shaft of an additional stepper motor. The motors were driven by FPGA logic core in such a way that, the drill machine was pulled towards the drill point (pad) on the actual PCB.

Keywords: Conveyer Belt; FPGA; PCB Drilling; PS/2 Mouse; Stepper Motor

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