

ABSTRACT

Currently CNC machine has not been developed so that it is still brought directly from abroad. This has an impact on the area of a small industry that is difficult to develop because the price of such machines are expensive.

In this final project is designed CNC machine by ATmega328p microcontroller and A4988 motor driver combined with three stepper motor Nema 17 as a driving force. The design is made using a PC (personal computer) and stored with the *.gcode file format and then sent to the microcontroller using Universal Gcode Sender software using serial communication. The microcontroller will read the data as coordinates and will provide logic to the A4988 motor driver. From the data received then will be used to move three stepper motors Nema 17 which will drill the spindle drill toward the axis of X, Y and Z so will form a pattern on the object according to the design.

The microcontroller based CNC machine is successfully manufactured with a workable 20x20cm working area that can be used as Cutting, Engraving and Marking on wood, acrylic and PCB fields.

Key Word : CNC, Cutting, Engraving, Marking, Mikrocontroller.