Implementation and Manufacturing of a 3-Axes Plotter Machine by Arduino and CNC Shield

 ***Abstract***— **This paper shows how to design and building low cost Arduino plotter machine based on the open source hardware and software. The Arduino plotter machine has been dependent on the principle of Computer Numerical Control with limited area depends on the motion X, Y and Z axes. The objectives of this paper are to design the Plotter and to develop open source software for control the machine. Basically, the system of this plotter machine is modeling by solidwork software to work with three axes stepper motors (as X, Y and Z axes), this three stepper motors are controlled by shield for movement (X, Y and Z axes). This machine’s movement on the X axis is 215 mm and Y axis is 235 mm. Length of travel means the linear movement of stepper motors that control for X, Y and Z axes from point to another point. The left and right movement controlled by X axis stepper motor, front-back movement controlled by Y axis stepper motor and the pen is up-down that is controlled by Z axis stepper motor**