FINAL YEAR PROJECT REPORT

CNC WOOD ENGRAVING AND CUTTING MACHINE

In fulfillment of the requirement
For degree of
BEE (Electronics)

By

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ABSTRACT

The objective of the project is to design and fabricate a computer controlled wood engraving and cutting machine for optimized wood cutting to achieve cost effectiveness and maintain the required accuracy and reliability for complex shapes.

Wood routing and cutting is an electromechanical process in which a drill is used to cut or engrave the wood and its directions are controlled by the computer. Such cutting machines are generally classified into two categories, namely, large scale (fixed) and small scale (portable) machines. The target is to develop a small scale setup with limited cutting size.

The drawings shall be generated on standard platforms with fixed limits. The application software analyses the drawing, which then extracts the coordinates and sends in the form of specific command to the embedded system through the serial/USB port.

The system then controls the stepper motors to achieve the required movement and the desired position. Gantry type arrangement is used to assist motors for movement in X,Y and Z direction (3-Dimensional).

The backbone of the system is a cleverly designed but equally simple mechanical assembly, resulting in great accuracy.

The project includes significant study of design principles and technical details of the CNC machine aimed for best performance.

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