FINAL YEAR PROJECT REPORT

COMPUTER AIDED MANUFACTURING-CNC ROUTER FOR WOOD WORKING

Submitted by

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SEPTEMBER 2014

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Submitted by

USAMA SHAFQAT MINHAS
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in partial fulfillment of the requirements for the award of degree of

BACHELOR OF SCIENCE
IN
ELECTRICAL ENGINEERING

APPROVED

Project Advisor_____ Director Projects _____

DEPARTMENT OF ELECTRICAL ENGINEERING

SCHOOL OF ENGINEERING

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DECLARATION

It is declared that the work on the project "Computer Aided Manufacturing CNC-Router For Wood Working" is our own work, except where otherwise acknowledged in text and references. This work is not submitted in any form for another degree at any university or institution for tertiary education and shall not be submitted by us in future for obtaining any degree from this or any other University or Institution.

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Alhamdulillah, Thanks to Allah, whom His willing giving me the opportunity to complete this Final Year Project which is title "Computer Aided Manufacturing CNC-Router for Wood Working"

Firstly, I would like to express my deepest thanks to our supervisor Khan. M. Nazir who had guided us a lot throughout our final year project session 2013/2014. I also want to thanks the lecturers and staffs of Electrical Engineering department at UMT for their cooperation during the completion of the final year project for their valuable information, suggestions and guidance in the completion of final year project and preparation of this final year project report.

Deepest thanks and appreciation to my parents, family, special mate of mine, and others for their cooperation, encouragement, constructive suggestion and full of support in FYP and report completion, from the beginning till the end. Also thanks to all of my friends and everyone that contributed by supporting and helping during the final year project progress till it is fully completed.

ABSTRACT

Computer Aided Manufacturing CNC-Router for wood working is the kind of CNC (Computer Numerical Control) machine that is capable of drilling the holes, etching and making different designs on wood. The machine is built on the base of cartesian coordinates system which has three principal axes (X, Y and Z) that are at right angles to each other. So for this purpose we have x-y-z axis attached with stepper motors to move the axis in required position and the wood or plastic sheet is mounted on this bed. A drill machine is attached with the stepper motor to move up and down (Z-direction). The project is divided into three parts, Hardware, Electrical and Software. The machine is three axes and has the capability of moving in the 3D domain. It can be used in wood working industries to perform various operations like routing (similar to milling) and drilling.

The most important role of this machine would be in helping Pakistan shift from a capitalist consumerist mode of economy to the KNOWLEDGE BASED RESOURCE ECONOMY (KBRE) as if this machine is installed in homes then people will be able to make beads design on garments and also produce plastic items they need and also design electrical circuits on PCB. This machine will in effect allow a full transition into a closed loop production economy.

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