WWW.IJRPR.COM

International Journal of Research Publication and Reviews

Journal homepage: www.ijrpr.com ISSN 2582-7421

Automated Writing Machine

Prof. P. P. Belagali[1], Jayesh Sunil Jathar[2], Sudhir Darayappa Sale[3]

[1,2,3]Dept. of Electronics & Tele-communication, Engineering
Dr. J. J. Magdum College of Engineering, Jaysingpur, Maharashtra, India

ABSTRACT:

In an Era of Atomization nowadays more and more individuals are turning to robots to do their work, because robots are more versatile, accurate, and reliable and also reduce human efforts.

Aim of our project is to develop a robotic arm (Computer Numerical Control (CNC) plotter) compact and economical machine which plays significant role in our society by its engineering capabilities to helps the physically handicapped person to write. / Doctors to write their prescription in neat and clean writing/ make labeling of items in grocery stores/ shopping malls/medical store / warehouses / storages etc

The mechanism is programmed with speech recognition system and makes the user to write what he speaks. Bluetooth module is used for hands free and wireless operations. The robotic arm is programmed to write down the words that individual pronounces to the microphone. Or type and text through mobile phone. To perform the writing operations, the robotic arm will be fitted with a pen. It can also make you draw sketches. Write label directly on masking tape. It will be a low cost device.

After learning through the various websites, the utilization of ATmega328P microcontroller over PLC for implementation of CNC plotter machine. This CNC plotter is fabricated using two stepper motor, one servomotor and free open source processing software. used to generate the G code file for the given data and the GRBL Controller processing software is used for feeding generated G-CODE. Files are feed into the ATmega328p controller which controls the output devices.

INTRODUCTION:

Nowadays more and more individuals are turning to robots to do their work, because robots are more versatile, accurate, reliable and also reduce human efforts. Writing Machine is an Open Hardware CNC pen plotter, capable of writing or drawing on almost any flat surface. It can write with pens, permanent markers, pencils, and other writing equipment's to handle an endless variety of applications. Its unique design features a writing head that extends beyond the machine, making it possible to draw on objects bigger than the machine itself.

The biggest advantage of the machine is that it can be placed over the desk because of the core X-Y extending design of the machine. It is powered by 12V/10A SMPS, An ATmega328P controller interfaced with a CNC Shield, and GRBL firmware, Controlling Applications available on Android/IOS.The proposed system is an auto composing machine through which one can make their work simpler by programming the venture.

LITERATURE SURVEY:

[1].Thiyagarajan, "Modern Design and Implementation of XY Plotter," 2018 Second International Conference on Inventive Communication and Computational Technologies (ICICCT). 2018, pp. 1651-1654, doi: 10.1109/ICICCT.2018.8473093

XY Plotter is entirely different from the older CNC Machines. It is capable to write and draw the critical structures with the exact output.

[2] S. Chamraz and R. Balogh, "Control of the mechatronic systems using an integer arithmetics," 2014 23rd International Conference on Robotics in Alpe-AdriaDanube Region (RAAD), 2014, pp. 1-6, doi: 10.1109/RAAD.2014.7002269.

Plotters are simple mechatronic systems with two degrees of freedom in the XY plane. Not only the pen plotters, but also cutting plotters, die-cut machines, welding machines or 3D printers use the same basic architecture

[3] M. S. Osman, N. Z. Alabwaini, T. B. Jaber and T. Alrawashdeh, "Generate use case from the requirements written in a natural language using machine learning," 2019 IEEE Jordan International Joint Conference on Electrical Engineering and Information Technology (JEEIT), 2019, pp. 748- 751, doi: 10.1109/JEEIT.2019.8717428 .

Recently it has become important to focus on the requirements of the system and how to take them and analyze them to determine the system infrastructure through which they will be relied upon in the rest of the system building.

[4] U. Munir and M. Öztürk, "Automatic Character Extraction from Handwritten Scanned Documents to Build Large Scale Database," 2019 Scientific Meeting on Electrical Electronics & Biomedical Engineering and Computer Science (EBBT) 2019, pp. 1-4, doi: 10.1109/EBBT.2019.8741984.

Text extraction is an important phase in document recognition systems. In order to differentiate text from non-text objects, it is necessary to detect all possible text regions in the document.

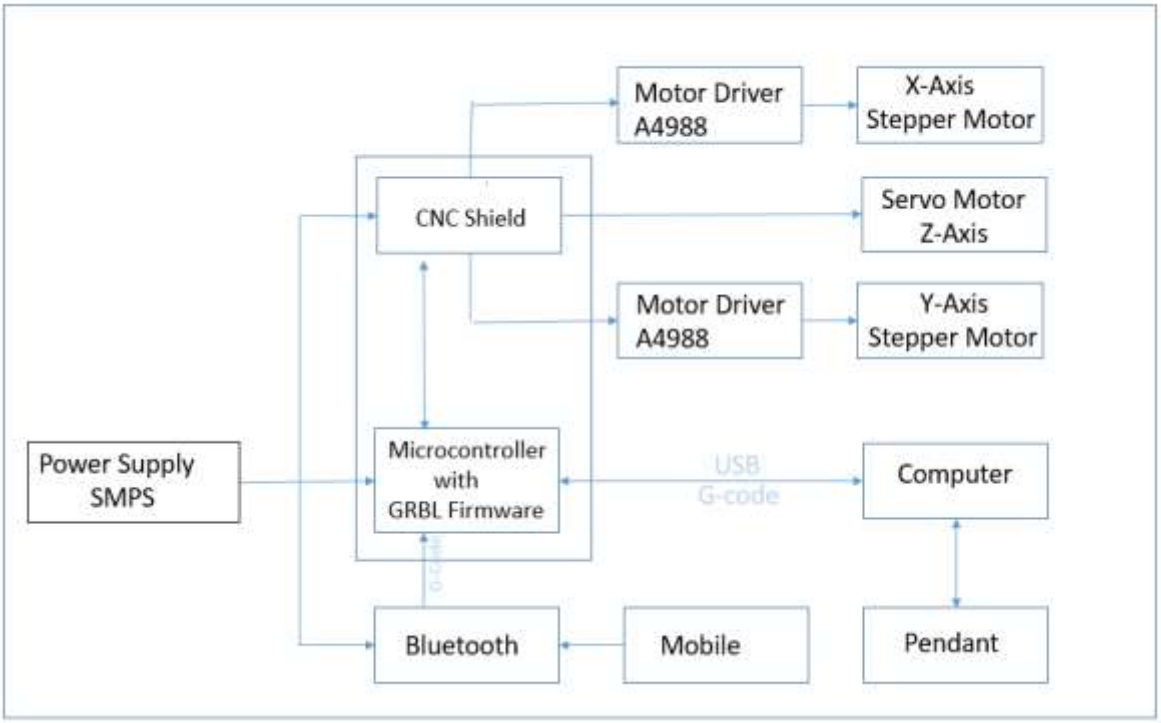
[5] Rajesh Kannan Megalingam, Shreerajesh Raagul, Sonu Dileep, Sarveswara Reddy Sathi, Bhanu Teja Pula, Suraj Vishnu "Design, Implementation and Analysis of Low Cost Drawing Bot for Educational Purpose" ISSN: 13118080 (printed version); ISSN: 1314-3395 (on-line version), January 9, 2018.

This low cost drawing bot is an embedded system which Works on the basis of Computer Numerical control. This paper deals with the design, implementation and analysis of a low cost drawing robot for educational purposes.

[6]. Apoorv Chaudhary, Ankit Mhatre, Anantkumar Sharma, Amey Tiwramkar, "Design and Development of CNC Writing and Drawing Machine" VIVA-Tech International Journal for Research and Innovation Volume 1, Issue 4 (2021) ISSN(Online): 2581-7280 .

The paper presents an approach to design user friendly and fluid movements of a CNC machine to perform writing tasks

BLOCK DIAGRAM:



CONCLUSION:

It has been a great pleasure for me to work on this exciting and challenging project. As a Electronics and tele-communication Engineering Students this project provides us knowledge about how Computerized Numerical Control (CNC) Machine works in industry to understand the vast application and use of CNC machines in various finished Products Manufacturing according to the application and scale of CNC technology used. we tried to customize CNC Technology with Implementation on small scale prototype of CNC machine as a finished product to employ in Automatic Writing Machine. During this process we learn Practical hands-on experience of designing mechanical assembly, Drafting design architecture and movement of synchronized timing belts and pulleys with precision control of motors over firmware interfaced. A wireless creative writing machine which can be plot the desired text & images through which we can reduce the human effort. in terms of drawing and writing etc.

After integrating the software with hardware, the resultant electro-mechanical setup makes up an user friendly and cost effective automated writing machine with minimum human interruption, reducing the requirement of manual effort and time. To summarize, the automated writing machine will be able to contribute to our daily life challenges and hence improve the quality of life.

FUTURE SCOPE:

- A small Engineering finished product to understand/analysis the design and working of industrial CNC Machines to those who interested in Atomization .
- With a Unique Customization in Mechanical Design/Assembly according to the requirement of user this machine can be utilized anywhere where automation required on the basis of CNC this machine gives an idea to user to implement the CNC technology to their respected innovations .

REFERENCES:

[1].Thiyagarajan, "Modern Design and Implementation of XY Plotter," 2018 Second International Conference on Inventive Communication and Computational Technologies (ICICCT). 2018, pp. 1651-1654, doi: 10.1109/ICICCT.2018.8473093

[2] Š. Chamraz and R. Balogh, "Control of the mechatronic systems using an integer arithmetics," 2014 23rd International Conference on Robotics in Alpe-AdriaDanube Region (RAAD), 2014, pp. 1-6, doi: 10.1109/RAAD.2014.7002269.

[3] M. S. Osman, N. Z. Alabwaini, T. B. Jaber and T. Alrawashdeh, "Generate use case from the requirements written in a natural language using machine learning," 2019 IEEE Jordan International Joint Conference on Electrical Engineering and Information Technology (JEEIT), 2019, pp. 748- 751, doi: 10.1109/JEEIT.2019.8717428

[4] U. Munir and M. Öztürk, "Automatic Character Extraction from Handwritten Scanned Documents to Build Large Scale Database," 2019 Scientific Meeting on Electrical Electronics & Biomedical Engineering and Computer Science (EBBT) 2019, pp. 1-4, doi: 10.1109/EBBT.2019.8741984.

[5] Rajesh Kannan Megalingam, Shreerajesh Raagul, Sonu Dileep, Sarveswara Reddy Sathi, Bhanu Teja Pula, Suraj Vishnu "Design, Implementation and Analysis of Low Cost Drawing Bot for Educational Purpose" ISSN: 13118080 (printed version); ISSN: 1314-3395 (on-line version), January 9, 2018.

[6]. Apoorv Chaudhary, Ankit Mhatre, Anantkumar Sharma, Amey Tiwramkar, "Design and Development of CNC Writing and Drawing Machine" VIVA-Tech International Journal for Research and Innovation Volume 1, Issue 4 (2021) ISSN(Online): 2581-7280