Automated Writing and Drawing Machine

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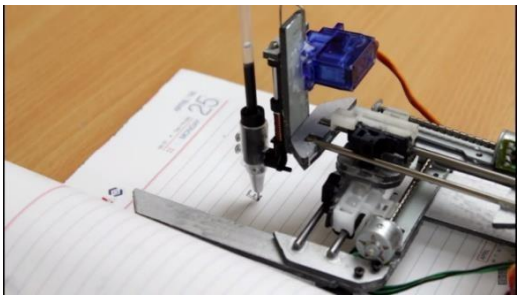
***Abstract*-Nowadays more and more individuals are turning to robots to do their work, because robots are more versatile, accurate, reliable and also reducehuman efforts. Robotic arms are programmed robot with similar function of a human arm. Aim of our project is to develop a robotic arm which helps the physically handicapped person to write. The mechanism is programmed with speech recognition system and makes the user to write what he speaks. The robotic arm is programmed to write down the words that patient or individual pronounces to the microphone. To perform the writing operations, the robotic arm will be fitted with a pen. It can also make you draw small sketches. It will be a low cost device that can be programmed to enable the people who are physically challenged to write. This paper describes the basic design of automated writing arm.**

Keywords: Arduino Uno , Servo motor.

I. INTRODUCTION

General Description-

We have the technologies like automatic speech writing machine, TTS, speech to text output, printers, scanners, etc. But the basic problem is it only writes only those fonts which the computer already has. That is Roman, Calibri, Arial, Impact, Georgia, etc. We want a machine which can write the full matter on a page by the ink of pen in our own personal hand writing. By using the concepts like CNC machines, wooden CNCs which make the design on wood by giving accurate feed to the driller . Similarly, we can use this Technology to make a machine for writing purpose also.



View of dives

II. LITERATURE SURVEY

Basically, some of the physically challenged people who are able to think but unable to write due their inability. In order to over come this difficulty the auto writing machine is designed to sense their thinking using a brain sensor and there by converted to voice by signal using the transducer. This voice signal will be set as input to auto writing machine which has the ability to access the voice and process it. GAKKEN a Japanese company which was started in the year 1946, developed the large mechanical hand. The GAKKEN auto writing machine consist of a hand when you stick a pen to its holder will write the characters. A research is to use an autopen for writing in easiest way. The auto writer works by having a hard disk for storing a large amount of data and three plates that rotate and caught by two sliders that then pull the spring loaded hand to draw the desire shape. The main advantage

Goals-

The Goal of this project are:

- This Automated writing and drawing device is used to save the wastage of time.
- There are a lot of automated drawing machines are there. But this is useful among all.
- By this we can make the notes in our own handwriting just by giving the input to the machine. We don't need to waste lots of time by sitting in front of the work
- This machine will be able to draw and write the assignments and other hand written notes in our own handwriting
- By this we can save our time.
- This machine can be used very easily for writing we just need to give the input text and for drawing we need to give the measurement as the input.

III. EXISTING SYSTEM

In the present scenario education systemis handled through blackboard presentation or by power point presentation Blackboard presentation is the process held from the ancient days which is defined as boring by the children .In order to improve power point presentation is used which is more interesting and easy to understand than black board teaching.1.2 DRAWBACKSThe major drawback of this paper is same process of teaching leads to boring environment for neither teacher nor student. This system leads to reduce the interest of astudent'sobserving capacity.

IV. PROPOSED SYSTEM

We know there are many areas in human life which require t write the matter by ink on a paper in their own handwriting. For example Departments like

Administration, Judicial, Municipal, Police, etc. having clerks for writing the matter manually. For eliminating this heavy work we are going to introduce an automatic writing machine.

CNC Machines are Computerized Numerical Control Machines which are used to draw anything or design any mechanical part according to the design program fed into their controller unit. Controller unit can be either computer or microcontroller. CNC machines have stepper and servo motors to draw the design as per the fed program.
After researching on CNC machines, I decided to **build my own CNC machine** using locally available materials. There are so a many CNC machines in the world, some of which are much technical and complex to make or even operate them properly. For this reason, I decided to make a **CNC Plotter Machine based on Arduino** which is by far the simplest to make.

This **DIY Arduino CNC Machine** can draw most of the basic shapes, texts and even cartoons. It's operation is similar to the way a human hand writes. It's faster and more accurate compared to the way a human being can write or draw.

Proposed Mechanism:

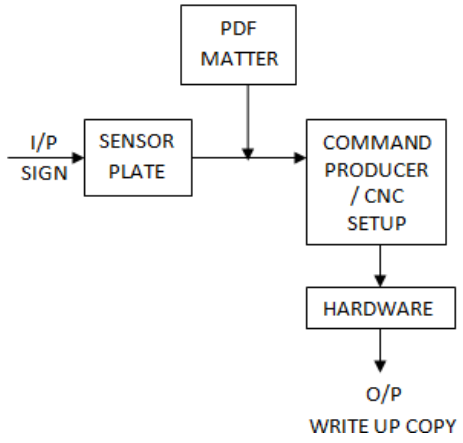


Fig2: Mechanism of Proposed System

V. MODULES DESCRIPTION

Gcode Generator:
Programming is a fundamental skill for all types of CNC machining, even as automation and new technology seem to be replacing programming tasks. Every machinist still needs to understand how their programs and tools work. Whether you're new to CNC programming and its most common language, g-code, or you've been writing code by scratch for years, CNC codes can still feel like a foreign language. And to make things worse, every machine speaks a different dialect you have to understand. Do you understand what they're saying? Here are the g-code basics you need to know to efficiently understand and write programs that produce high quality products.

Arduino uno implementation
Arduino Board:The Arduino Uno is a microcontroller board based on the ATmega328. It achieves throughputs close to 1MIPS per MHZ. The ultimate aim of the arduino is to increase the processing speed. It has 14 digital input/output pins (of which 6 can be used as PWM outputs), 6 analog inputs, a 16 MHz crystal oscillator, a USB connection, a power jack, an ICSP header, and a reset button. . It has an operating voltage of 1.8 to 5.5 volt. It contains everything needed to support the microcontroller; simply connect it to a computer with a USB cable or power it with a AC-to-DC adapter or battery to get started. The Uno differs from other preceding arduino boards in that it does not use the FTDI USB-to-serial driver chip. Instead, it features the Atmega8U2 programmed as a USB-to-serial converter.

VI. ALGORITHM

The implementation of automatic pen writer are discussed below:

- Installation of arduino software in system.
- The programming code will be uploaded in the arduino uno board once the devices is fixed .
- The sensors used recognizes the user and fetch user input with stored documents and returns result and start writing on paper.
- The sensor is more efficient than speech in dependent system. Speaker-independent speech recognition has been proven to be very difficult ,because pattern matching would fail to handle ,include accents and varying speed of delivery, pitch, volume and inflection
- One more use of this invention if the user wants a fresh document which doesn't exist in the hard disk or plates then automatic pen allows this by sensing our mind signals and then write
- It stores the new document in the hard disk for later use.

Hence in this way the automatic pen writer with sensor works to automate writing system for physically challenged people unable to write .Hence it makes a new and better way of communication for them.

VII. CONCLUSION

It has been a great pleasure for me to work on this exciting and challenging project. This project proved good for me as it provided practical knowledge of not only programming in java to some extent Web Application and firebase Server, but also about all handling procedure related with **"AUTOMATIC WRITING AND DRAWING MACHINE".** It also provides knowledge about the latest technology used

in developing web enabled application technology that will be great demand in future. This will provide better opportunities and guidance in future in developing projects independently.

The project is fully fledged and user friendly, End users will be lightened in using this software because it is easy to have bills and reports and mostly all contents to be entered are to selected from combo box.

It can be used for the student of engineering and school student to make their science fair project. Any Artist can draw an outline diagram for their work. The principal can use as a sign the certificate. Write anything in Smartphone case cover. A student can draw their outline of a sketch. also, they fill up a colour in it. The student does their homework with this machine at home.

VIII. REFERENCES

- M. Adithan & B.S. Pabla, CNC Machins, 3rded, New Age International Publishers
- Kushdeep Goyal, CNC Machines &Automation.
- Wikipedia–Wooden CNCs.
- Wikipedia–Speech recognition system
- Wikipedia–Text to speech output
- Fundamentals of Speech Recognition; Lawrence Rabiner & Biing -Hwang Juang Englewood Cliffs NJ: PTR Prentice Hall (Signal Processing series).
- Programming Arduino by Simon Monk, McGraw hill publications.