

AUTOMATIC WRITING MACHINE

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Abstract

Time is the most essential aspect in anyone's life. We can get back anything that we have lost but nevertime. But in our everyday busy lives, time is something no one has. Every second costs us something sovaluable. In these circumstances, if anyone want to have handwritten notes, it's going to take up lot oftheir time. Be it people toiling up and down in packed offices, or lawyers trying to document tons ofinformation, everyone today has the necessity of an automated machine that can write down things forthem. For example Departments like Administration, Judicial, Municipal, Police, etc. having clerks forwriting the matter manually. Hence, our team came up with a great alternative for all the people whohave the necessity but no real means for writing.The "Automatic Writing Machine" can be built using two different motors to carry it in two differentdirections, namely stepper motors, arduino uno expansion board, and a software called Benbox. Thisdevice takes input through the software and writes down everything in the input using a pen.Everything in this era is right now automated. Right from toasting our bread at the early start of the dayto automatically turning off the air conditioners at the very night end, everything is automated. Withchanging times, it is an absolutely waste to spend so much time and energy to get written notes. ThisHandwriting machine can be of great use to elderly people, employed people and in some cases evendisabled people. This Writing machine costs very less and is really efficient in terms of use.

1. INTRODUCTION

Times are changing real quick. Everything around us is getting updated in the speed of light.

Automation is happening in a fast pace. The evolution in and around technology is supposed to makepeople's life a lot easier than before. Every complex thing in the society can be broken down into simpler

activities using little engineering. Though, everything have been changing, the time and energybeing put into writing down the articulated words is still the same. Typewriters, polygraphs, etc havedone their part in helping people ease the process of written notes, but yet, the manual work still seemsto be a burden. A lot of machinery in today's world is

getting automated. Almost all the large-scale industries today use machine to reduce man power and increase productivity in order to provide better services to the society. Manual Labor power costs a lot and doesn't give a lot of output. This has been a key problem in every area of production since decades. Also, the time put into production need to be reduced. With the help of Automatic Writing Machine, almost all the above mentioned problems seem to vanish in a second. There are a lot of advantages to this machine. This Automatic Writing Machine comes as a gift to all the people with hectic work hours and in grave necessity of handwritten figures or texts. This machine is efficient, reliable and versatile which decreases manual work. The time and effort taken in typing the keys on a keyboard which is time consuming and requires a lot of skills and human efforts can be avoided with the help of automation. Few technologies which are existing may convert voice to text, but these use only few inbuilt fonts. But this particular system is capable of writing on page with help a pen in user's handwriting or any pre defined font.

2. RELATED WORK

Reflecting through the various technologies that have been invented for the automation of

hand writing texts, the following review is generated. In the paper title "Automated Writing and Drawing Machine" a robotic arm has been developed which is fitted with a pen and this system is programmed to write down anything that the user pronounces into the microphone. This setup is cost efficient which helps a physically challenged person to write or draw small sketches, draw an outline diagram, and do multiple signatures. This work was based on Java and web applications along with firebase Server. The paper "Homework Writing Machine" discusses a composing machine which is capable of composing any kind of content and drawing any outline on paper. This instrument could be utilized by the network for the outline and quick composition process. This machine works in three axes whose movement is given by stepper engine and servo engine. The author in the paper "Design and Development of Arduino Controlled Writing Robot" has focused on developing a writing robot which incorporates speech recognition using an Arduino microcontroller. This machine is capable of recognizing voice inputs recorded by the user with the help of a microphone and writing the message on paper. The system proposed in this paper is an automated writing machine which is capable of performing optical

character recognition. The aim is to give the output on paper with the help of a pen controlled by motors in the user's handwriting or in a predefined font, provided the user's font is built and installed which can be done through web applications.

3. IMPLEMENTATION

An Arduino based Automatic Writing Machine that uses two motors to move in two different dimensions and write down written text. It should be a programmed composing machine used for composing any kind of content and drawing any outline on paper that works like a CNC machine.

Objectives

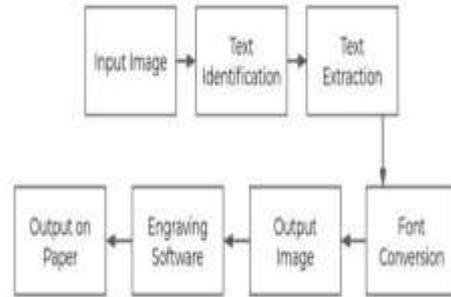
The project seeks to follow the following steps:

- To design a system to draw down any kind of texts or figures
- To reduce labor work, and increase productivity.
- The system developed aims to reduce the final production cost by 73%
- It got to be efficient, reliable and easy to use..

The proposed system is an auto composing machine through which one can make their work simpler by programming the venture. According to the title this is a straightforward task utilizing Arduino to make a writing machine at the place of work, which can draw any outline and

compose various kinds of fonts. This system is an embedded system whose working principle is based on the Computer Numerical Control machine. It uses an Arduino development board which is connected with other peripherals like motors to provide the necessary pen movement on the paper. The Arduino board is interfaced with one servo motor and two stepper motors to achieve the pen movement and x-y axis gantry movement respectively based on the input image that is fed into the system. The pen which is fitted in the system is part of the z axis movement. The servo motor helps in the vertical movement of the nib of the pen so that the pen nib will touch the paper only when something needs to be written and is raised above when not needed. This motion of the pen in the z axis coupled with the x and y axis movement achieved through the stepper motors results in a two dimensional sketching on the paper. This system is a valuable setup and can be utilized in everyday life. As we know, there are many areas in human life which require us to 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. Now a day's, human life is more compact stressful, and busy. Why should we waste our time to type the keys on keyboard

which requires more skills and more man power? Machines like Auto speech typing have basic problems of user's pronunciation. This machine will eliminate all the Problems. The present open record for every one of the exchanges and that at any point occurred in the system, the development is steady and the extent of the system likewise develops in parallel. The record is ethical and can without much of a stretch convey on the arrangement of substances of the entire frameworks surrendered to the lack of interest. This machine is an auto composing machine through which you can make your work simple by programming your venture. According to the title this is a straightforward task utilizing Arduino to make composing machine. This machine can draw any outline and compose any sort of fonts. One can see sharpness and flawlessness of writing in photographs. The machine utilizes a gantry to move the composition tip along the X and Y tomahawks. The flexible-nib pen is mounted on a servo engine which turns the tip onto the composition surface, dealing with the third hub.



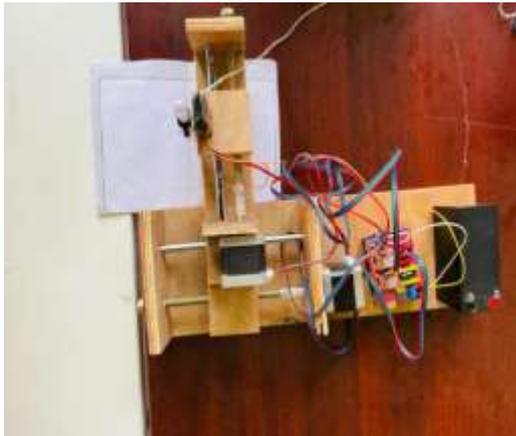
Flow Chart

4. EXPERIMENTAL RESULTS

Input the image of the text document which can be in predefined text or in a human's handwriting. We will consider predefined text for the sample implementation. The image obtained in the previous step is uploaded into the user interface terminal software, which is Benbox in this case. With the help of the firmware code, the image that is uploaded is written onto the paper with the help of hardware motion that is achieved through motors and power supply. This shows how the image can be uploaded into benbox. Image shows the parameter configuration in Benbox.



Paper Model



Prototype

5. CONCLUSION

In these developing times, humans are turning towards robots to do their work to save time and manpower and to have an efficient output. The basic problem with the already existing technologies like automated speech writing machines, speech to text converter, printers, scanners, is that they only write in predefined fonts present in the computer. The proposed system works as an automated writing machine that is capable of writing in any predefined font or in the user's handwriting style. After integrating the software with hardware, the resultant mechanical system 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. It has

been a great pleasure for us to work on this exciting and challenging project. This project proved good for us as it provided practical knowledge of not only programming in python and working with embedded systems, but also about all the handling procedures related with "Automated Writing Machine". It also provides knowledge about the latest technology used in developing web enabled application technology that will be in great demand in future. This will provide better opportunities and guidance in future in developing projects independently

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