KC Draw Using Arduino

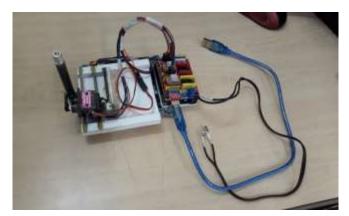## Sonali Dhanwade[1], Reshma Magar[2], Asmita Deshmukh[3]

[1,2]Student, K C College of Engineering and Management Studies & Research, Thane, Maharashtra, India
*[3]*Asst. Prof., Dept. of Computer Engineering, *K C College of Engineering and Management Studies & Research, Thane, Maharashtra, India*
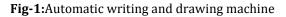
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Abstract - *Nowadays more and more individuals are turning to robots to do their work, because robots are more versatile, accurate, reliable and also reduce human efforts. Aim of our project is to develop a writing machine which helps the students or office workers to write. Automatic writing machine is a machine which is used to write the characters, words from document. Pen is used to write the document stored in hard-disk. This automatic pen writer concept features all the traditional elements like auto writing machine, pen, hard-disk, battery, etc. all in an innovative manner. Automatic pen writer with senor is designed for main purpose is to search the document in the hard-disk and start writing that document This paper describes the basic design of writing machine.*

Keywords—servo motor, Arduino uno, ben-box, grbl shield

1. INTRODUCTION

Education system plays a major role in describing the innovative ideas to the students. In recent years, the definition of a robot is generally used to mean an unmanned system or automation, as often seen in industrial applications, deep sea planetary probes. With the technological advancements in engineering field, efforts are being taken in researching, designing and development of robots for different practical purposes. In this highly developing society; time and man power are critical constrains for completion of task in large scales. The automation is playing important role to save human efforts Machines are designed to assist human in their work and reduced human efforts. In this competitive world, students expect creativity and innovation in every field including teaching. The ultimate aim of this project is to overcome the boring education system. This system demonstrates that arduino is a powerful means to control robot arms in closed-loop and real-time, outperforming other invasive and non-invasive approaches to human-Machine-Interfaces. Our main goal is to develop a machine to used auto pen writer for writing document written in English and draw basic shapes and diagram. The auto-writer works by having hard disk for storing large amount of data and three servo motors that rotate and are caught by two sliders that then pull the spring-loaded pen to draw the desired shape. In our project we are also using the Benbox software to convert the input given by user to g-format. The main advantage of this proposed system is to just recognize the file from computer which want to write on paper using this writer machine

without any hassle. It will reduce the workload as well as your time.

Fig-1: Automatic writing and drawing machine

2. EXISTING SYSTEM

Now days we are using keyboard to type a text which we want . but doesn't gives a feel of hand-written text also it is very time-consuming process. The existing device is huge in size. Since, it's size is big, the image processing and printing takes much time. All the images and dimensions are fed into the computer through program before initializing the sketch. Therefore, a huge hardware is required to print a given image. The existing system is not economic. Also, the requirements for the system are not easily available. Recently some other technologies are been invented in which we can write using speech recognition or by using brain sensor which are quite good but comparatively more expensive and complex tan our proposed system. Now a days printer and scanner are also available but this hardware requires more space. In a existing system student need to write their assignments or tutorials manually .Another one machine is available in market which is basically a robot working in the basis of visual recognition system .But this robot can only write it is not capable to draw a diagram. Even in government offices or in private sector some time employees need to write some documents manually in a same format. Writing any document manually is time consuming process as well as it increases the chances of errors .even it requires more man power. Hence , existing systems are either time consuming or expensive or both than proposed system.

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3. PROPOSED SYSTEM

In our project we are mainly focuses on reducing the size of the hardware and miniaturizing the total system. The time taken for sketching and writing is less. In this, we use stepper motors taken from old DVD writers which is very cost effective. The output image is of the size of the DVD writers. For designing the images, we make use of the Benbox software It converts the original image into g-code format. The g-code format specifies the co- ordinates of the image. Then the converted text will send to the arduino controller using serial cable (RS232).Servo motor used to control the angular movement of robot hand. It makes writing on a paper using robot hand fixed with Pen. The entire robot is based on servo mechanism and neuro-fuzzy control. The result is purely based on trial and error method. The simulation tool used here is Processing. In our project we are using arduino uno and servo motors to make this machine . arduino uno and three servo motors are using for making coordination between x axis and y axis. And we are using ben box software to maintain this coordination on the paper too. The machine uses a gantry to move the writing tip along the X and Y axes. The flexible-nib pen is mounted on a servo motor which rotates the tip onto the writing surface, taking care of the third axis. The main advantage of this proposed system is to just recognize the file from computer which want to write on paper using this writer machine without any hassle. It will reduce the workload as well as your time

4. ELEMENT REQUIRED

UNO arduino

Arduino is an open source computer hardware and software company, project, and user community that designs and manufactures single-board microcontrollers and microcontroller kits for building digital devices and interactive objects that can sense and control objects in the physical and digital world.

Servo motor

A servomotor is a rotary actuator or linear actuator that allows for precise control of angular or linear position, velocity and acceleration. It consists of a suitable motor coupled to a sensor for position feedback. It also requires a relatively sophisticated controller, often a dedicated module designed specifically for use with servomotors.

Grbl shield

The Arduino grblShield is a complete hardware solution for Dank's CNC motion control system called grbl. Compatible with the Uno and other 328p versions of the Arduino development platform.

Motor driver

Motor driver is a little current amplifier; the function of motor drivers is to take a low-current control signal and then turn it into a higher-current signal that can drive a motor.

Here are the specifications of "Arduino Uno R3":

PARAMETERS	SPECIFICATION
Micro-controller	ATmega328p
Operating voltage	5 V
Input voltage (recommended)	7- 12 V
Input voltage (limits)	8- 20V
Digital I/O pins	14
DC current per I/O pins	40 mA
Flash memory	32 kb (of which 0.5 kb is used by boot-loader)
SRAM	2 kb
EEPROM	1 kb
Clock speed	16 MHz

5. CONCLUSION

This machine will give better accuracy and reduce work load with the combination of hardware and software. This machine will be easy to use and convenient .This machine can be use by teachers and in offices where still some documents are writing manually.

6. REFERENCES

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