



AUTOMATED DRAWING AND WRITING MACHINE AND HOME AUTOMATION

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ABSTRACT

We have discussed comparative research with current system in this review article. research on Because robots are more adaptive, accurate, and trustworthy, as well as needing less human labour, they are increasingly being employed to do jobs. Robotic arms are programmable robots that can execute tasks that a human arm can. The purpose of our research is to develop a robotic arm that will enable physically challenged individuals to write and home automation systems to voice their commands when we say "turn on the light" or "turn on the fan." Voice recognition technology is used to force the user to write down what he says. The robotic arm is programmed to record the words said into the microphone by the patient or person. The writing operations will be performed by the robotic arm, which will be equipped with a pen. It's also possible that it'll make you feel horrible. Make fast sketches. It will be a low-cost device that can be created to enable physically unable people to write.

Keywords: *Arduinio Uno (At mega 328),servo motor ,stepper motor , Dc Motor , Motor driver IC L293D,Speech to text*

1. INTRODUCTION

We have technology such as automatic speech synthesis, TTS, speech-to-text output, printers, scanners, and so on. However, the main issue is that it only writes styles that the computer already owns. This includes Roman, Calibri Arial, Impact, Georgia, and more fonts. We want a machine that can write the entire contents of a page in our own handwriting using pen ink. By employing concepts such as CNC machines and wooden CNCs, which create designs on wood by providing precise feed to the driller. Similarly, we can employ this technology to create a writing machine.

Machinery design work has become more difficult in recent years in businesses ranging from small to large. It also necessitates designs and layouts varying from PCBs to large machinery parts, which must be drafted as real-time schematics (no prints). There is also a requirement for text overlaying and automatic drawing configuration in an industrial setting. Manually designing layouts and designs can reduce accuracy while also consuming manpower. As human efforts increase, the production cycle changes, resulting in more time being consumed. Furthermore, the machine that meets these requirements consumes a lot of energy and is not cheap. The demand for CNC-based machines has increased dramatically as a result of the spread need for low-cost automated systems in numerous industries.

Using conductive rails, pads, and other features carved from copper sheets laminated onto a non-conductive substrate, an ASWM printed circuit board physically supports and electrically connects electronic components. PCBs can be:

- Single sided (one copper layer)
- Double sided (two copper layers)
- Multilayer (outer and inner layers)

2. LITERATURE REVIEW

Paper is to shape a green and coffee fee hardware structure that is capable of draws a circuit format or a photograph on PCB or another stable floor the use of easy algorithm. In this CNC device, the complete motion manage is coordinated with the aid of using an ARM Cortex M3 primarily based totally microcontroller, LPC 1769 with software program applied on Oppressor the use of embedded C. The microcontroller converts G-code into a hard and fast of device language preparation to be dispatched to the motor driving force of the CNC plotter. Processing is applied right here that allows you to offer a person interface.[1]

Paper approximately the CNC Machine PCB Plotter that is used to attract circuit format on PCB. For that first you want to transform the textual content report or photograph report into G code the use of ink area software program. Then this G code is implemented to processing software program. AT

mega 328P microcontroller the use of Arduino Uno is used to manipulate the device. The controller modifications the given G code after which interprets them right into a device language preparation. These commands are for the motor drivers to be dispatched to the motor drivers. Laser face up to ablation spray black paint onto copper clad laminate, region into CNC laser plotter. The laser raster-scans the PCB and ablates (vaporizes) the paint in which no face up to is wanted.[2]

CNC machines in recent times are determined in nearly all industries, from a small scale enterprise to huge companies. There are rarely any production machines that aren't familiar with the aid of using CNC automation. CNC device may be very useful to the corporation because it will increase the accuracy, flexibility, repeatability and performance of the producing product. With ease of use and independence of manufacturing procedure it has capacity to apply shorter manufacturing cycles. The protection of the operator is likewise maintained the use of a CNC device. The CNC automation approach is normally used to draft actual time diagrams, blueprints and to attract complicated designs on plane. There is a brief upward thrust within side the call for of the CNC machines in diverse industries because of its vast applications.[3]

The undertaking proposed is setup with aggregate of G-code and hardware like controller and driving force for buying higher accuracy and unique attachment can provide the most performance G-code will assist the stepper motor precisely in which it'll go.[4]

In venture UditPandey and et al used idea of low price mini CNC plotter gadget, that is without problems manipulate with pc and abruptly prevent and paused through click on movement on pc. By the use of this we've got make Difficult and Complex Design in paper. This is small gadget that is without problems Transportable and Assembled anywhere on Requirement of it. Bed Size of this gadget is 50X50mm. Stepper Motor can be run on this standards of mattress length. If we've got boom the scale or duration of lead screw, it'll be loose to make huge length of layout in paper. We have used G codes to giving command. G-codes are language to offer the command to the gadget to transport right, left or up and down. On the a hit paintings of this gadget we've got a few extrude on it and make it business used and making use of equipment for cutting, grinding of smooth cloth etc.[5]

Paper offers with the layout of automated mini CNC gadget for PCB drawing and drilling. The Idea in the back of our venture is to layout and drill PCB primarily based totally on low price CNC gadget the decrease price is executed through incorporating capabilities of PC with ATMEGA 328 controller in an Arduino. We have use an G code for entire gadget operation G code is not anything however a language wherein humans inform automatic gadget equipment 'How to make something'. The How is described through commands on wherein to transport & how speedy to transport.[6]

Presents one of the packages carried out through Arduino Uno while sandwiched with Grbl protect that is a excessive overall performance open supply CNC controller written in optimized C-language. Here on this paper a report with extension .jpeg or .png, or .pdf is imported in open supply Aspire software program which converts it into .txt or .prt report. Vectors of the imported report are traced accordingly, observed through modeling and production procedures. Once the simulation of the producing report is visualized in Aspire software program then G-code report is generated the use of submit processing operation, this G-code report is stored with .txt extension. The Gcode report is then browsed in Universal G-code sender software program coupled to Grbl protect v0.9j and Arduino board via a computer serial port, G-code visualize choice is to be had on Universal G-code sender software program to visualize the producing steps together with the simulation. In this manner proprietary manipulate of a controller is eliminated, and CNC gadget is made person friendly.[7]

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3. EXISTING SYSTEM

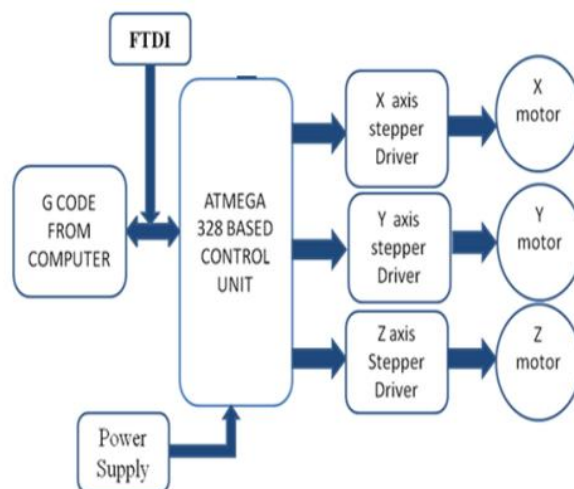


Fig3.1 existing system block diagram

In existing system consisting of The power supply, FTDI module, ATMEGA328, and three Easy drivers, each coupled to stepper motors X, Y, and Z, are the main components of this system. We obtain two volts from the power supply: +5volt and +12volt. A 5volt supply is required for ATMEGA328 and Easy drivers, whereas stepper motors require a +12volt supply. To draw up the voltage, RESET is linked to a 5v supply through 10k ohms resistors, which function as pull up resistors. We utilised a 16MHz crystal oscillator with two 22pF capacitors attached to an ATMEGA.

For three-dimensional tool motion, CNC machines have three axes: x, y, and z. A software called part - programme provides the numerical data necessary for plotter operation, and then translates the numerical data to electrical signals. Stepper motors receive these electrical impulses as input. Each signal defines a specific place in the coordinates, and the tool moves in accordance with that point.

We compare our proposed system to existing systems, and we have designed systems with amazing variability, such as Automatically draw with Wrote sentences by using speech, and one of the best benefits is the ability to control home appliances such as fans, lamps, and other appliances using speech techniques. Our system has more benefits than existing systems in terms of design. It has high performance precision and is regulated to approaches. In Section No. 4, we have a full discussion of our design system.

4. PROPOSED SYSTEM

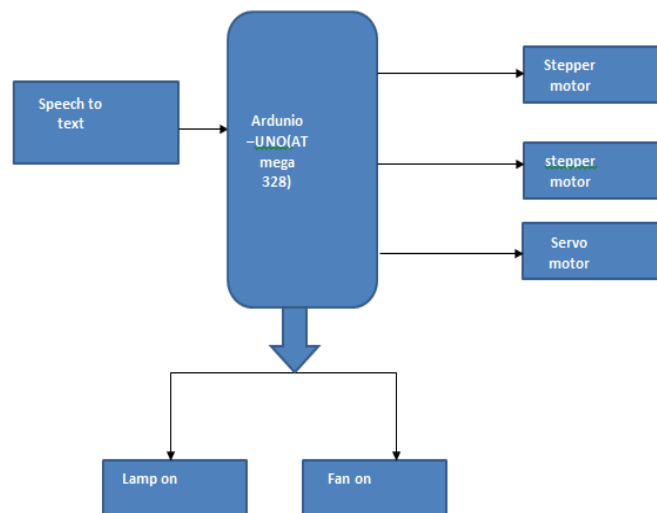


Fig 4.1 System Architecture.

5. WORKING PRINCIPLE

Many aspects of human existence, we know, need writing the matter in ink on paper in their own handwriting. Departments such as Administration, Judicial, Municipal, and Police, for example, employ clerks to manually record information. We will propose an autonomous writing machine to eliminate this tedious task. CNC machines are computerized numerical control machines that can sketch or design any mechanical item based on a design programme given into its controller unit. A computer or a microcontroller can be used as the controlling unit. Stepper and servo motors are used in CNC machines to draw the design according to the supplied software. After doing some study on CNC machines, I decided to make my own utilizing materials that were readily available in my area.

There are a lot of CNC machines in the world, and some of them are quite technical and difficult to build or even run properly. As a result, I chose to build a CNC plotter machine using Arduino, which is by far the easiest to construct. Most simple forms, words, and even cartoons may be drawn with this Arduino CNC Machine. It works in a similar fashion to how a human hand writes. When compared to how a human can write or draw, it is faster and more precise. We have designed systems such as home automation-based systems, and our systems must meet certain requirements. We've utilized this service to convert voice to text. speech to control home appliances. such as fan off and lamp on off control to achieves.

6. CONCLUSION

We have compared the present system to the existing system in this review paper, and we have clearly explained our design project's benefits and weaknesses, as well as their goals and requirements for future expectations.

The advantages of our system are the cost of the hardware used is minimum, the man power required can be controlled, Can produce the desired number of replicas of the layout onto the copper board, Efficiency in reproducing the exact replicas compared to its predecessors is high. The proposed system is a ASWM (Automated speech writing machine) with which we can practically trace and plot or write text a layout from and onto a ASWM. In our system we can track a layout and plot it directly on to a copper board. For this we use the aid of a robotic arm.

The proposed system is a ASWM (Automated speech writing machine) speech based on the Arduino platform. It is a writer with a rotating, extendable arm. The main advantages of this system by using speech concept to control home appliances Fan on, lamp on are giving to commands according appliances work we have Achieves both work and improves system performance.

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