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Design and Development of Dual Axis Controlled Robot for Medical Prescription Writing

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ABSTRACT: Rehabilitation technology is that the application of science and engineering to the answer of human problems and limitations caused by impairments, disabilities and handicaps. Most of the devices are currently available for the rehabilitation people growth that reduce or eliminate these limitations. Unfortunately, prescriptions often fail for many reasons. Risk prescription failure are often minimized if the rehabilitation engineer and therefore the rehabilitation physician enter into development and utilization with a transparent understanding of how a technology impacts a patients impairment, disability and handicap as defined by the World Health Organization with selected case example and a table outlining the impact that many present and future technologies have on these variables to beat the failures we are developing a replacement robot for writing a prescription. This paper represents an approach to style rapid movements of a universal robot to perform the artificial robot writing mimicking the doctor prescription writing when signing and therefore the trajectory.

KEYWORDS: Human-Machine interaction, ATMega328 Micro- controller, Bluetooth Module, Stepper Motor and Driver.

I.INTRODUCTION

Medical prescription are the instructions which is given to the pharmacist for indicating what are the medicines that the patient should need to take but thanks to the handwriting of the doctors, some patients and pharmacists face many problems, they can't understand the name of the written medicine. Due to this several lives' that could have been saved have been lost. In order to overcome this in our project we have come out with a robot prescription writing. Robot may be a machine that designed to figure automatically and it performs one or more tasks with speed. In our project we have a Bluetooth sensor which takes the data that is being given by the doctor. With the help of the Bluetooth receiver it receives the data and the robot starts writing. With the assistance of the stepper motors the x and y axis are often controlled so as that the text is often in order, and a server motor is being used in order to in order to rotate the pen.

II.SYSTEM MODEL

In our system, we are approaching an idea of robot writing mechanism for doctor. Prescribed medicines are told by the doctor who are going to be received by the mic and can be recognized by the android mobile and therefore the data are going to be sending to the robot mechanism through Bluetooth module. Once the receiver, receives the info it'll send to the micro controller. Then supported the received data the robot mechanism will start to write down the info within the message pad. By this method, robots are ready to write the prescription for the doctor with none time delay and error.

In this paper, we are using ATmega328 micro controller for the entire process. In this micro controller, we've already embedded the program for this process. In this entire paper, human voice to text conversion has been takes place. By using this program, robots can easily recognize the info and it'll write it on the message pad. In this digital world this technique might plays an efficient role within the medical field.

BLOCK DIAGRAM
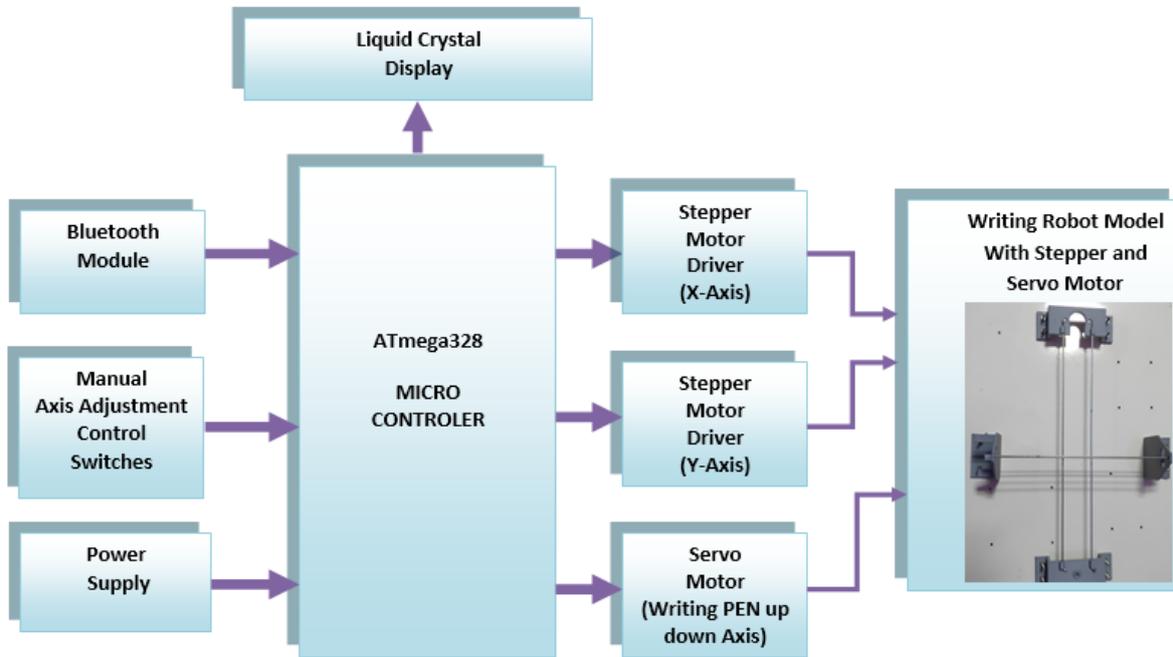
III. MECHANISM

The movement -Code file created by the assistance of Ink-scape software then the processing software is employed to send the G-Code file to the microcontroller. Then the CNC shield drive was sending the maximum controlling signals to the stepper motors and servo motor. Now the XY axis has been operated as follows by the instructions given to the controller unit.

The corresponding code is send the info to controller block is interfaced with motor driver unit along the DAC provides the heart beat width signal to motor unit where it's being processed and final output is written and displayed on the paper from the output unit.

IV. WORKING OPERATIONS

Our project proposes a robot that's used for prescription writing. It designs a rapid fluid movement of a universal robot to perform dual axis control robot for writing medical prescription. The robot is connecting to 5V power supply. Then it connects with the Bluetooth device. Thus the user receives the data and then the Bluetooth transmitter receives the data to Arduino (ATmega328P), then it starts interfacing with the program. The both ULN2003 then drive the stepper motors which are connected in the dual line axis that is the X and Y axis. The stepper and servo motor is moving with help of drugs and belt setups. And the stepper motor starts working to rotate the message pad. Once the info is received the server motor helps the pen to write down the text (in order to convert the audio into text). Hence the text is written.

V. OUTPUT ANALYSIS

TRANSMITTER SECTION:In the Transmitter section, user gives the info to the receiver with the assistance of the Bluetooth that's present within the mobile app (Bluetooth voice). The transmitter section it contains a Bluetooth device named HC-05 that helps to attach to the receiver Bluetooth for transmitting the info, First the user need to store the

specified data in Bluetooth voice app. Then the receiver receives the info from the transmitter section. Thus it recognizes the info and sends it to the receiver section. Then the receiver starts doing its work.

RECEIVER SECTION:In the receiver section it receives the info from the transmitter then with the assistance of ATmega328P the audio is converted into text. The manual axis adjustment is used to manage the direction. the facility supply helps to transmit power to the kit. The Stepper motor is employed to drive through the x & y direction and therefore the Servo motor is employed for writing the pen in up-down axis. Then the writing robot starts writing the data obtained from the transmitter.
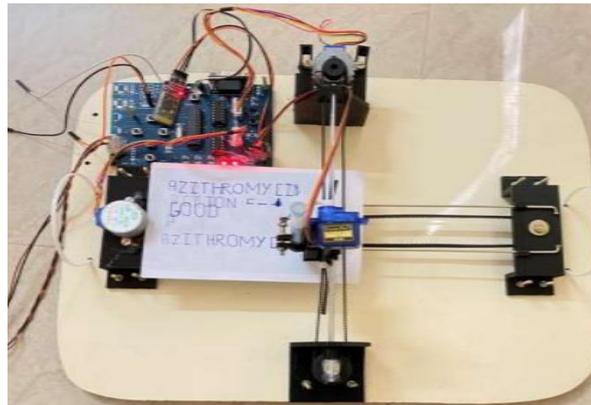

VI. CONCLUSION

Prescription writing may be a fundamental task performed by health professionals, incorrect prescription may cause fatal consequences including death. Due to this consequence, we are approaching a thought to beat this problem. In this paper, we present a way to style a robot to write down an error-free prescription. This will help to scale back the medication errors thanks to prescription writing errors.

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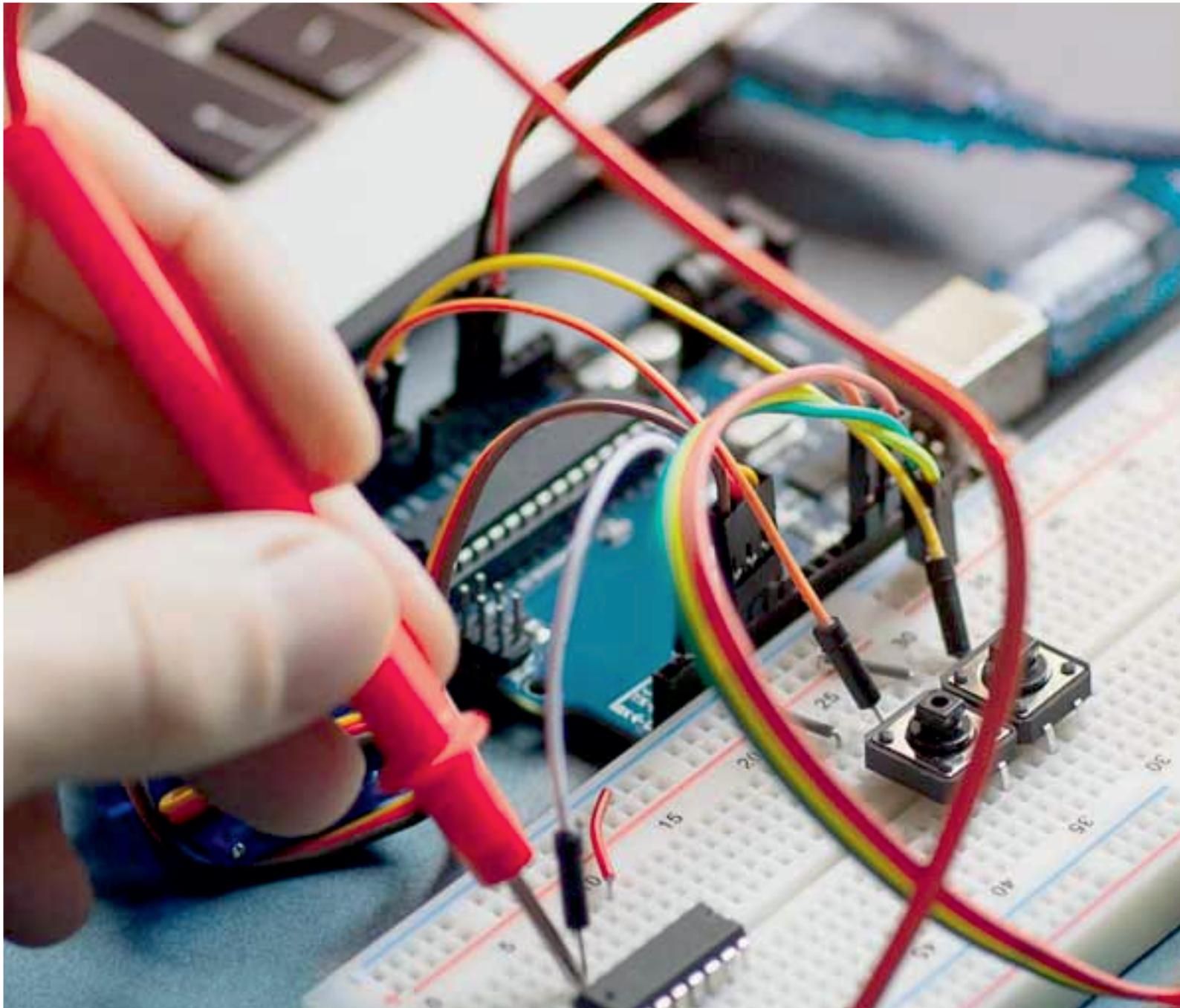
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