

Portable Automated Fabric Spreading Machine using PIC Controller

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Abstract: Tirupur is the seventh biggest city within the Tamil Nadu and is one of the most developing cities in the state. In this city can make one consider that this town earns and yearly \$1200 million plus in foreign exchange. As textile and apparel industry is moving towards automation. The existing fabric spreader has many drawbacks such as they are very costly, needs lots of space for installation, the process is complex and it is not portable. Based on the working principle of the fabric spreading process, the machine operated forward the new automatic spreading machine to improve the spreading time and user friendly for operating. The new framework cannot just complete the programmed control for the spreader and have numerous capacities, for example, spreading level setup yet in addition have the capacities including couple of parts to be controlled for the spreading procedure and viably diminish the cost of programmed spreader, and the improved spreader will have more grounded capacities, progressively advantageous activity, versatile and more straightforward upkeep.

Keywords: PIC Controller, Fabrication Process, Motor Drive Control, CMOS

I. INTRODUCTION

Texture spreading implies the smooth lying out of the texture in superimposed layers of unmistakable length. [1] It is a preliminary task for cutting and comprises of texture lying. Marker paper is laid in the highest point of the texture layers. It ought to be noted here that, during texture spreading, number of the handles ought to be not in excess of three hundred, where the quantity of lay relies upon the tallness of the texture and thickness of the texture. Texture spreading is a standout amongst the most significant procedures in readymade article of clothing part, by which texture utilizes are spread so as to get required length and width according to marker measurement. [2] If texture spreading is impeccable then texture wastage will be diminished, which eventually accomplishes higher benefit from a piece of clothing fare request. Programmed texture spreading implies the smooth spreading out of different sorts of texture as per explicit length. Texture Spreading Machine is one sort of machine by which the smooth spreading out of different kinds of texture as indicated by explicit length naturally rather than pulled by laborers. The target of spreading is to put various handles of texture that the creation arranging procedure has directed, to the length of the marker plan, in the hues required, accurately adjusted to length and width, and without pressure. Despite the fact that in specific areas, it stays important to cut single articles of clothing, in the greater part of the cases rejects is the reason for single piece cutting.[3,4]

The existing fabric spreading machine has a lot issues such as they are very costly and need a well-trained operator to operate the machine. The fabric spreading machine is mainly imported from the foreign countries so the amount for the machine is very high. The parts for the machine are also costly and they are very difficult to find in the market. Texture spreading is where heaps of texture are spread a particular length and width savvy as indicated by the article of clothing marker estimation. [5,6] A legitimate texture spreading process in pieces of clothing may impact on profitability, quality, and cost of the creation. Texture spreading is significant undertaking to keep up legitimate state of texture before cutting of articles of clothing. This is a preliminary activity for spreading and comprises of lying utilizes of fabric one over the other a foreordained way and connection between the good and bad sides of the material [7]. The piece of each spread for example the quantity of handles of each shading is gotten from the spreading request plan. The existing scenario of fabric spreading process in India is that most of the garment industries uses manual method for fabric spreading process because of the initial cost of the existing fabric spreading machine is very high. Normally 2 members are required for the fabric spreading process in manual method. For large diameter of fabric 4 to 5 members are required for the fabric spreading process[8,9]. Only the big fabric industries use the automatic spreading machine because they can afford the initial cost of the machine.[10]

II. EMBEDDED SYSTEMS

An implanted framework can be characterized as a figuring gadget that completes a particular centered activity. Apparatuses, for example, the climate control system, VCD player, DVD player, printer, fax machine, cell phone and so on are instances of installed frameworks. Every one of these machines will have a processor and extraordinary equipment to meet the particular necessity of the application alongside the inserted programming that is executed by the processor for gathering that particular prerequisite. The inserted programming is likewise called "firm product". The work area/workstation phone a universally useful PC. You can utilize it for an assortment of utilizations, for example, making diversions, word preparing, bookkeeping, programming advancement and soon. Installed frameworks complete a quite certain assignment they can't be customized to do various things. Implanted frameworks have constrained assets, especially the memory. For the most part, they don't have optional capacity gadgets, for example, the CDROM or the floppy plate. Implanted frameworks need to neutralize a few due dates. A particular occupation must be finished inside a particular time. In some inserted frameworks, called continuous frameworks, the due dates are stringent. Missing a due date may cause a disaster death toll or harm to property. Inserted frameworks are obliged for power. The same number of implanted frameworks work through a battery, the power utilization must be exceptionally low. Some inserted frameworks need to work in extraordinary ecological conditions, for example, extremely high temperatures and dampness

III. ARCHITECTURE PROPOSED METHODOLOGY

This chapter briefly explains about the architecture of the project. It discusses the design and working of the design with the help of block diagram. The main components of the voting system is listed as follows

1. PIC Microcontroller
2. Input Lay Count Module
3. LCD
4. Power Supply
5. Motor Driving Circuit

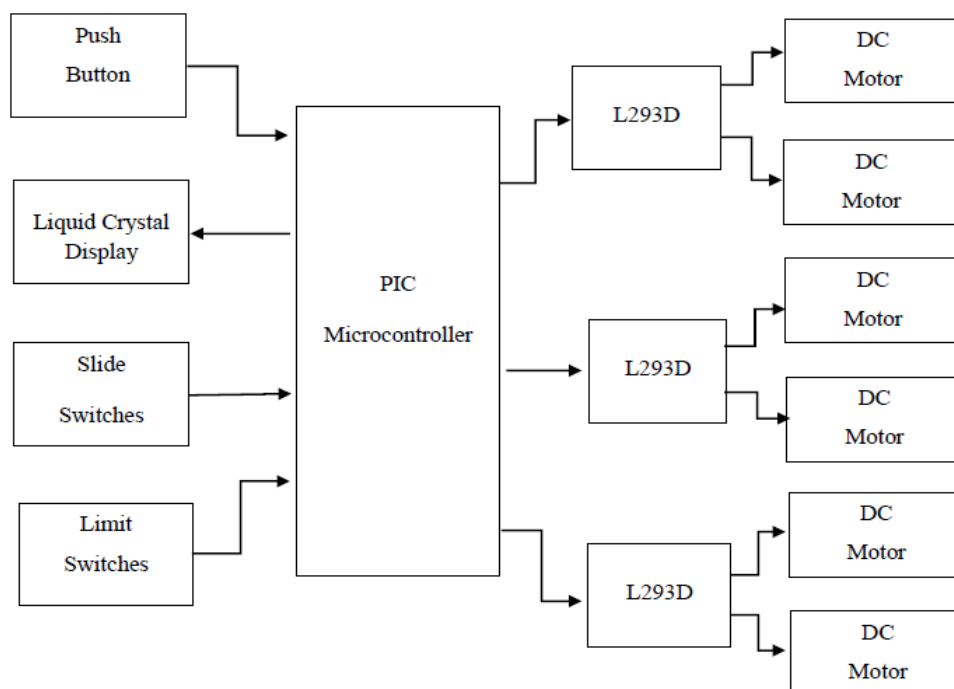


Figure1. Block diagram of the system

From figure 1. Demonstrates that square outline of spreading creation procedure utilizing microcontroller, as the name recommends, are little controllers. They resemble single chip PCs that are frequently implanted into different frameworks to work as preparing/controlling unit. For instance, the remote control you are utilizing most likely has microcontrollers inside that do translating and other controlling capacities. They are additionally utilized in vehicles, clothes washers, microwaves, toys and so on, where computerization is required. The microcontroller that has been

utilized for this task is from PIC arrangement. PIC microcontroller is the main RISC based microcontroller created in CMOS (Complementary Metal Oxide Semiconductor) that utilizes separate transport for guidance and information permitting concurrent access of program and information memory. The principle favorable position of CMOS and RISC mix is low power utilization bringing about an extremely little chip estimate with a little stick tally. The fundamental bit of leeway of CMOS is that it has insusceptibility to clamor than other creation procedures.

Different microcontroller's offer various types of recollections EEPROM, EPROM, FLASH and so forth are a portion of the recollections of which FLASH is the most as of late created. Innovation that is utilized in PIC16F877 is streak innovation, so information is held notwithstanding when the power is turned off. Simple Programming and Erasing are different highlights of PIC 16F877.

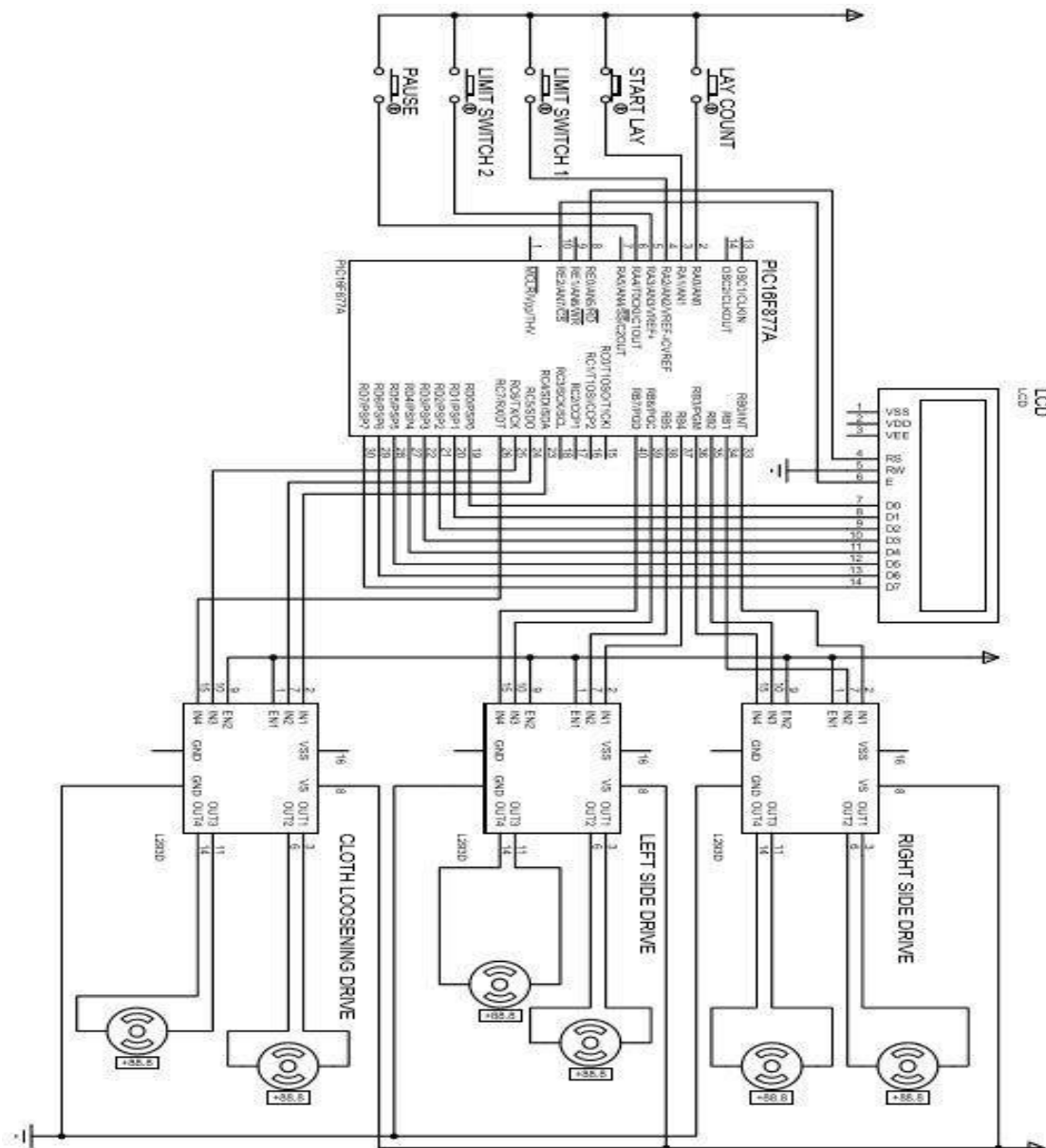


Figure 2. Circuit diagram of automatic fabric spreading machine

From figure 2 is utilized for texture spreading machines with L293D is a run of the mill Motor driver or Motor Driver IC which permits DC engine to drive on either course. L293D is a 16-stick IC which can control a lot of two DC engines at the same time toward any path. It implies that you can control two DC engine with a solitary L293D IC. Double H-connect Motor Driver incorporated circuit (IC). It chips away at the idea of H-connect. H-connect is a circuit which enables the voltage to be flown in either bearing. As you most likely are aware voltage need to alter its course for having the option to pivot the engine in clockwise or anticlockwise heading, henceforth H-connect IC are perfect for

driving a DC engine. In a solitary L293D chip there are two H-Bridge circuit inside the IC which can turn two dc engines freely. Due its size it is particularly utilized in automated application for controlling DC engines. Given underneath is the stick graph of a L293D engine controller.

There are two Enable sticks on l293d. Stick 1 and stick 9, for having the option to drive the engine, the stick 1 and 9 should be high. For driving the engine with left H-Bridge you have to empower stick 1 to high. Furthermore, for right H-Bridge you have to make the stick 9 to high. In the event that anybody of the either pin1 or pin9 goes low, at that point the engine in the relating segment will suspend working. It resembles a switch.

IV. FIREWARM EXECUTION OF PROJECT DESIGN

The firmware customized in microcontroller is intended to control the engines and works concurring the directions got from the Switches. Consequently, the primary firmware modified can be partitioned into three sections:

- Receive the Data from Push catch and handling and approving.
- And take the information from switches and contrasting and the information base and refreshing the information base.
- Display the order and show the outcome as for the switch activities.

V. CONCLUSION

Spreading of texture is additionally should be possible in manual technique. The individual conveying the finish of the texture goes with the texture to the opposite end yet returns flat broke, so he is being paid for just the twofold when contrasted with the genuine work he is doing. For greater length of spreads, there are upwards of 4 individuals utilized just to adjust the texture and check the strain all through. In this manner, this spreading procedure isn't beneficial and ought to be thought about and a change ought to be gotten the spreading method as quickly as time permits. In manual technique texture can be spreaded by hand, by snare and spreading truck with the assistance of administrator. The present study revealed that the Indian garment manufacturers dealing with delicate fabrics did not have sufficient awareness and complete knowledge regarding techniques and machineries which they could use during production. By the automatic portable fabric spreading machine can improve the garment production. Also eliminate amount of workers that was needed for spreading the fabric.

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