

Automatic Wire Cutting Machine

Dr.S.Sumathi¹, D.Madhanprakash², K.Prakash³, S.Prasanth⁴, R.Rajesh Kannan⁵

Head of the Department, Department of ECE, Adhiyamaan College of Engineering, Hosur, Tamilnadu, India ¹,

UG Students, Department of ECE, Adhiyamaan College of Engineering, Hosur, Tamilnadu, India ^{2,3,4,5}

ABSTRACT: Theoretical This Paper gives the point by point data about the structure and improvement of programmed wire cutting machine. During the previous hardly any decades, the electronic business has indicated extraordinary advancement in programmed control of various framework. Same as the programmed obstruction control framework, the manual treatment of any framework brings about less exactness as contrast with the microcontroller based control framework. At present regular technique is utilized for wire cutting and estimating which takes additional time which requires labor. The precision acquired by traditional technique is additionally poor. The mechanization framework takes care of the work issues it spares cost, expands exactness and diminishes human mistakes. This task is essentially gave an underlying topic that how we can way to deal with a boundary control framework utilizing microcontroller By utilizing computerization our targets to accomplish minimal effort cutting which works quick and lessens cutting time.

KEYWORDS: Microcontroller, DC engine driver, LCD show, Keypad, Cutter.

I. INTRODUCTION

In the immature little scope ventures, these days work is a significant issue for the businesses. Numerous a period's circumstances happen that workers strike for their own advantages which brings about execution corruption and misfortune in effectiveness. Subsequently the organization proprietors need to endure extraordinary misfortune and henceforth can't accomplish their ideal benefit and objectives. The framework can quantify wire length precisely according to given information. The engines are driven by microcontroller with required speed. The arrangement of robotization in industry can tackle this issue in an exceptionally powerful manner. The robotization framework tackles work issues which spares cost, builds exactness and diminishes human blunders.

In the wake of studying different electrical and gadgets ventures we presume that, these days the businesses have acquainted computerization in their frameworks with some degree however for some fundamental procedures which are tedious like wire cutting, bundling and so on they utilize HR. On the off chance that we acquaint computerization with these essential procedures, at that point it will be productive in regards to the organization's advancement and benefit gain as it improves the framework from multiple points of view. One such industry discovered in which they need an answer that is effective, quick and practical for cutting different lengths of wires which are required for delivering capacitors. So we attempt to advertise financially savvy wire cutting machine.

II. EXISTING METHOD

Organization is utilizing customary technique for wire cutting from ordinary strategy the creation rate is exceptionally low since they need to gauge the length of wire for each piece before cutting which likewise take additional time. Sometimes wires inconsistent length just as more labor is required.

A. ISSUES OF CONVENTIONAL WIRE CUTTING METHOD:

- 1) More labor is required.
- 2) More floor space is required.
- 3) It is required to gauge each bit of wire before cutting.

III. PROPOSED SYSTEM

The human endeavors in electrical wiring are high and the material utilized for the assembling of the wires is exorbitant. Along these lines it ought to be utilized viably. Hence, this venture is proposed to configuration to limit the human endeavors and to maintain a strategic distance from the wastage of the wires. This framework can precisely quantify wire length and cutting machine can cut wire into number of pieces .The framework works deftly by utilizing legitimate info given by console and showing the information given on LCD.

The goals of this venture are to plan and build up a programmed wire slicing machine to accomplish minimal effort cutting. It works quick and lessens the cutting time. This hardware isn't structured utilizing muddled parts. This machine is basic and compact. This machine is planned utilizing point bars, rollers, manage cylinders, shaper and controller unit to control the whole activity of machine. The down to earth goal of the programmed wire slicing machine is to cut required length of wire in required number of pieces.

A. POINTS OF INTEREST:

1. Automation
2. Efficient
3. User-accommodating
4. Transportable
5. Cost-compelling
6. Reduce strenuous and dreary assignment
7. Display client's info

IV. METHODOLOGY

A. DEFINING THE SPECIFICATIONS OF MACHINE:

The essential need of programmed wire slicing is to cut the wire of required length in required number of pieces, without work, productively. So we chose to shape an undertaking named 'Programmed wire cutting machine. For that we chose a few determinations given underneath:

- 1) To cut required length of wire.
- 2) The breadth of wire ought to be naturally flexible.
- 3) The spool is given to store wire stock.
- 4) Guide tubes are given to remain wire straight way. For creation of the robotized wire cutting machine we'll follow this system underneath, So right off the bat we chose to shape a virtual plan of the venture then we conclude that a last structure for venture.

B. MODERN WIRE CUTTING MACHINE CONSIST OF TWO SYSTEMS:

- 1) Mechanical framework
- 2) Electronics framework

C. IN MECHANICAL SYSTEM STEP BY STEP DONE PROCEDURE FOR ON THAT FORMAT OF DESIGN GIVEN BELOW

- 1) Making of a base of the mechanical part manufacture work
- 2) Select the material for the work
- 3) Purchasing of required material from showcase
- 4) Checking of all heaps following up on that outline We Decided to shape framework into Different Sub-Category
 - 1) Base
 - 2) Rollers
 - 3) Guide cylinders

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- 4) Sliding rails
- 5) Supports for mounting dc engines
- 6) Spring connection

V. BLOCK DIAGRAM

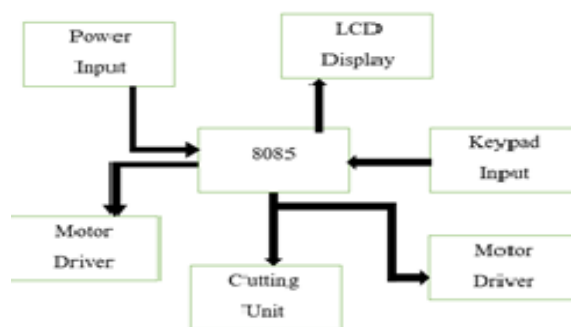


Fig 1: Block Diagram of Cutting Machine

Figure demonstrates the progression of work to be finished. Right off the bat power supply is ON, here utilizing +5vDC supply. At that point the information is given to the microcontroller. Here the necessary length of wire to be sliced is given as contribution to microcontroller and the microcontroller given in the yield show LCD show.

It will be indicated the LCD, input given by keypad to microcontroller. Along these lines the interfacing between smaller scale controller and engine driver, at that point the two engines will begin to work. As indicated by determined span of pivot. As the wire will be out of the group, it'll travel through transport line to cutting zone. After that subsequent engine were the cutting foil is put will begin to run and along these lines the wire will be cut according to client prerequisite.

VI. FLOW CHART

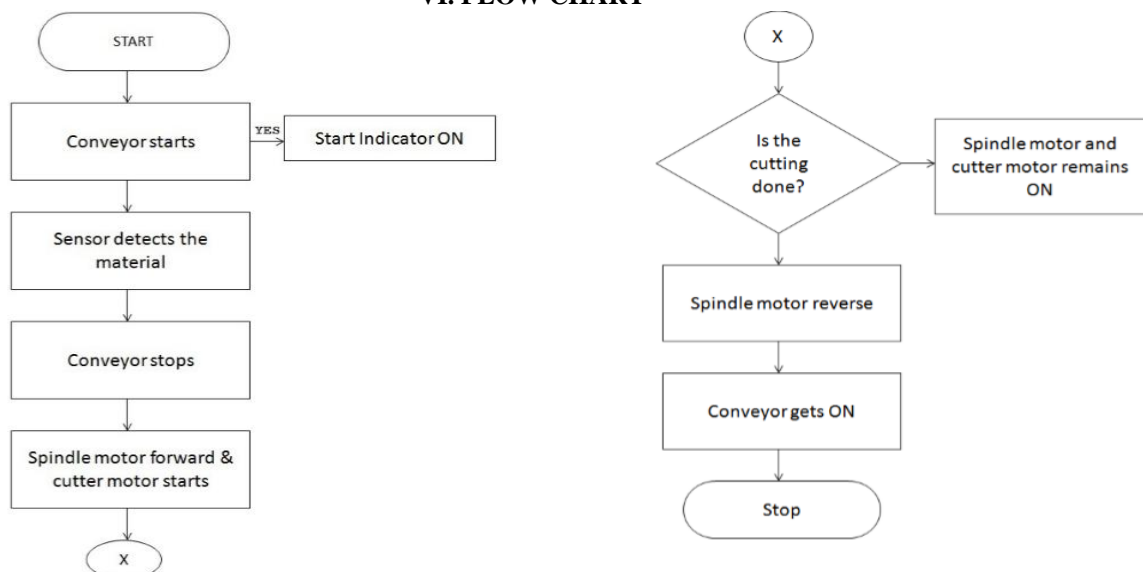


Fig 2: System Flow

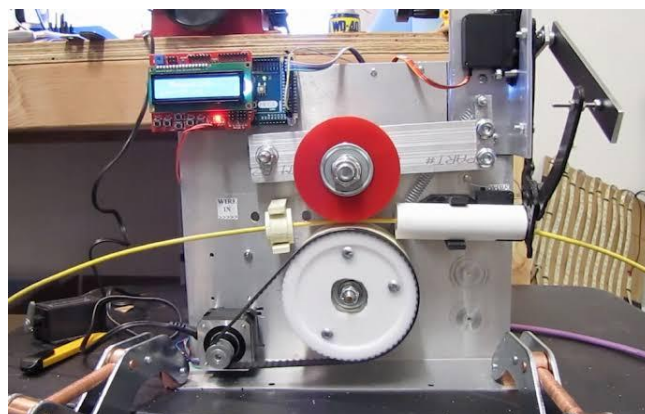
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It is necessary to describe the proper sequence of operations which helps to run the system in a successful manner. The sequence of operations can be described using narrative statements. These statements describe what must happen in the system and in what way to achieve the required result. The steps involved in this project are as follows:

- 1) Place the job on the conveyer
- 2) Press START push button on the control panel
- 3) Conveyer motor starts indicator glows and the inductive sensor detects for any presence of metal contains in the material.
- 4) If any metal is present, fault indicator and buzzer gets ON to indicate that the material is faulty. After some delay, faulty material get rejected and process continue.
- 5) If no metal is detected, the box proceeds towards cutting panel.
- 6) Sensor detects the material and after some delay the conveyer stops. The pneumatic cylinder gets activated and clamps the material.
- 7) The proximity switch sense that the material is clamped, the drilling motor starts and the motor moves in forward direction to bring the cutting motor in downward direction for cutting.
- 8) The job is unclamped and conveyer starts again. Sensor acts as the feedback and the loop is repeated.

VII. EXPERIMENTAL RESULT



VIII. CONCLUSION

"Programmed Wire Cutting System" gives significant level of exactness and careful cutting of wires than this cutting framework inside the market. Hence because of this the productivity of creation is expanded. This framework gives accurate number of wires with the predefined length. The circuit multifaceted nature is decreased right now. As the multifaceted nature in the circuit is decreased, it is straightforward. The principle favorable position of this framework is that the precision is expanded and the necessary outcome is acquired in



exceptionally less time. The time required to slice wires is less contrasted with the manual cutting of wires. Because of straightforward equipment it's helpful for the individuals. As the cost of the undertaking isn't high, it is financially moderate to average citizens and has been effectively executed in the business.

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