Automatic wire cutting machine

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Abstract - *During the past few decades, the electronic industry has shown great progress in automatic control of different system. Same as the automatic barrier control system, the manual handling of any system results in less accuracy as compare to the microcontroller based control system. This project is basically gave an initial theme that how we can approach to a barrier control system using microcontroller. so we had designed an automatic wire machine which give more accuracy and reduces the human error ,man power, reliable work done and save the wastage of wire.*

Key Words: Microcontroller, DC motor driver, LCD display, Keypad, Cutter.

1. INTRODUCTION

In electrical industry there is huge requirement of wires and its measurement [1]. The Heavy wire weight is needed to be measured accurately. The wire measurement and cutting is traditional and human efforts are required for it. The proposed project will automatically calculate wire length and cutting machine will cut it.

The project is based on microcontroller platform which can easy to use and flexible. The system can measure wire length accurately as per given input. The motors are driven by microcontroller with required speed (revolution per meter). The cutting tool is precisely designed to measured wire length in proper format.

The length of the wire can be decided by the user as per requirement. An embedded system for color detection of insulated electrical wire, which is to cut, stripped by an automatic WCM (wire cutting machine). These wire segments would be used in the assembly of Wire Harness. It describes the subsystems which together will compose the required application. Design of the system is performed using Image Processing, Embedded Software, Micro-controller Programming, and hardware design.

1.1 Problem identification

The human efforts in electrical wiring are high and the material used for the manufacturing of the wires is costly. Therefore it should be used very effectively.   Therefore, this project is proposed to solve the above problem to minimise the human efforts and to avoid the wastage of the wires.

1.2 Proposed work

The human efforts in electrical wiring are high and the material used for the manufacturing of the wires is costly. Therefore it should be used very effectively. Therefore, this project is proposed to design to minimise the human efforts and to avoid the wastage of the wires .

This system can accurately measured wire length and cutting machine can cut wire into number of pieces .The system operates very flexibly by using proper input given by keyboard and displaying the input given on LCD.

2. Block diagram

 Fig-1 shows the flow of work to be done. Firstly power supply is ON, here we are using +5v supply. Then input is given by keypad to microcontroller. Here the required length of wire to be cut is given as input to microcontroller and the microcontroller gives information to LCD. It will be displayed to the LCD, input given by keypad to microcontroller. Thus the interfacing between micro controller and motor driver, then the both motors will start to operate. Firstly the motor were the bundle of wire is placed on the shaft it will rotate for particular time, according to specified duration of rotation. As the wire will be out of the bundle, it will move through conveyor belt to cutting area. After that second motor were the cutting foil is placed will start to run and thus the wire will be cut as per user requirement.
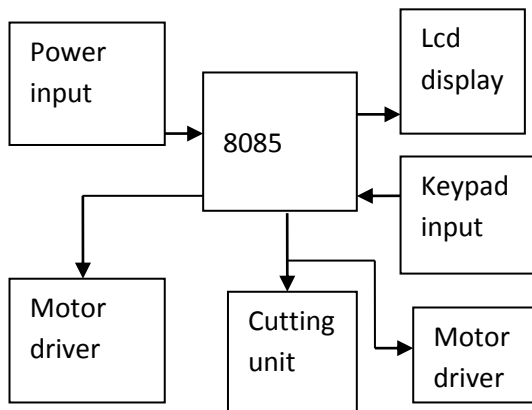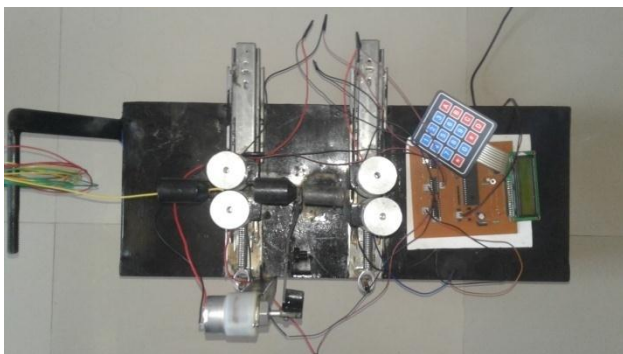
Fig-1: Block diagram

Fig-2: Actual view of automatic wire cutting machine.

3. CONCLUSIONS

As our proposed, Wire cutting system is automatic, easy to handle, reduces man power, save wires from damage because it is automatic with zero error with reliable process. It is advantageous for the industries and for workers.

4. FUTURE SCOPE

This system can be used for the wireless automatic wire cutting system using GPS and GSM [3]. This will have a great impact on the electrical industry. And in order to operate it from mobile or cell phone, Android application can be developed [4]. These are the future aspects of project development in this particular field.

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