

MICROCONTROLLER BASED WIRE CUTTING MACHINE

Submitted in Partial fulfillment of the Requirements for the
Award of Bachelor of Engineering in Electronics and
Communication.

By

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**DEPARTMENT OF ELECTRONICS AND COMMUNICATION
ENGINEERING**

SATHYABAMA

INSTITUTE OF SCIENCE AND
TECHNOLOGY (DEEMED TO BE
UNIVERSITY)

Accredited with Grade "A" by NAAC

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MAY 2022



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**DEPARTMENT OF ELECTRONICS AND
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BONAFIDE CERTIFICATE

This is to certify that this Project Report is the bonafide **Promit Das (38130173)** and **Swardeep Saha (38130217)** who carried out the project entitled "**MICROCONTROLLER BASED WIRE CUTTING MACHINE** " under our supervision from November 2021 to May 2022.

Mr. Immanuel Rajkumar

Internal Guide

Dr. T. RAVI

Head of the Department

Submitted for Viva voce Examination held on _____

Name:

Signature:

Internal Examiner

External Examiner

DECLARATION

We **Promit Das (38130173)** and **Swardeep Saha (38130217)** hereby declare that the Project Report entitled “**MICROCONTROLLER BASED WIRE CUTTING MACHINE**” done by us under the guidance of Mr. Immanuel Rajkumar is submitted in partial fulfillment of the requirements for the award of Bachelor of Engineering degree in Electronics and Communication Engineering.

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2. SWARDEEP SAHA

DATE:

PLACE:

SIGNATURE OF THE CANDIDATES

ACKNOWLEDGMENT

We are satisfied to recognize our true on account of Board of Management of **SATHYABAMA** for their benevolent support in doing this undertaking and for finishing it effectively. We are appreciative to them.

We convey our thanks to **Dr. N. M. Nandhita.**, **Dean, School of Electrical and Electronics** and **Dr. T. Ravi, Head of the Department, Dept. of Electronics and Communication Engineering** for providing us necessary support and details at the right time during the progressive reviews.

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We wish to communicate our gratitude to all Teaching and Non-showing staff individuals from the Department of Electronics and Communication Engineering who were useful in numerous ways for the finishing of the task.

ABSTRACT

In electrical and gadgets industry there is tremendous necessity of wires and its estimation. The wire is required to have been estimated precisely. The primary inspiration driving this task was to take out the mistake to hand measure and cut huge amounts of wires. The proposed undertaking will consequently take care of and slice wires to a given length and amount. This undertaking depends on microcontroller stage which can simple to utilize and adaptable. The framework can gauge wire length precisely in keeping with given enter. The engines are driven via microcontroller with required pace. The slicing instrument is definitively intended to estimated wire length in appropriate configuration. This task was a colossal achievement for our scholastic professions and gave us priceless understanding to what we might be doing in the labor force after we graduate.

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CHAPTER 1

INTRODUCTION

1.1 GENERAL INTRODUCTION

In electrical industry there's enormous prerequisite of wires and its size [1]. The Heavy twine weight is required to have been assessed exactly. The twine perspective and cutting are regular and human undertakings are normal for it. The proposed undertaking will regularly compute twine period and cutting device will decrease it. The task depends on microcontroller stage which can smooth to apply and adaptable. The framework can gauge rope period as it ought to be as with regards to given input. The vehicles are pushed by means of microcontroller with required pace (upset in accordance with meter). The decreasing gadget is by and large intended to estimated twine period in right configuration. The length of the wire not entirely settled with the guide of the buyer as with regards to necessity. An installed machine for tinge identification of protected electrical rope, that is to cut, stripped with the guide of an automated WCM (wire cutting framework). These rope portions would be utilized in the gathering of Wire Harness. It depicts the subsystems which together will form the ideal utility. Plan of the contraption is executed the utilization of Image Processing, Embedded Software, Micro-regulator Programming, and equipment plan

1.2 PROBLEM IDENTIFICATION

The human endeavors in electrical wiring are high and the material utilized for the assembling of the wires is expensive. Consequently, it ought to be utilized really. Subsequently, this task is proposed to take care of the above issue to limit the human endeavors and to keep away from the wastage of the wires.

1.3 PROPOSED WORK

The human endeavors in electrical wiring are high and the material utilized for the assembling of the wires is exorbitant. Hence it ought to be utilized actually. Hence, this venture is proposed to plan to limit the human endeavors and to keep away from the wastage of the wires. This structure can definitively assess wire length and cutting machine can cut wire into number of pieces. The system works deftly by using suitable information given by control center and showing the data given on LCD.

1.4 LITERATURE SURVEY

Satapathy A.S et al. (2014) described currently the energy needed heavily relies on conventional sources. The wind is also sporadic. As a backup, adequate storage

technology is used to provide a continuous supply of power. This research has studied the long-term viability of a 4-kW hybrid wind-battery system to satisfy the demands. Both control systems are combined, and their efficiency is verified in MATLAB/SIMULINK using varied load and wind profiles.

Kirtley J.L et al. (2013) describes that dynamic grid support must be integrated for distributed power systems connected to medium voltage grids. This paper provides a comprehensive control system for utility-scale photovoltaic (PV) power plants to improve fault ride-through (FRT) capability. The paper suggests a new feature that takes advantage of grid-tied inverters' overload capabilities to improve FRT performance. In response to severe unbalanced voltage conditions caused by asymmetrical grid faults, a thorough simulation validated the suggested control methods' capacities to mitigate voltage dips, improve voltage response, and improve the overall stability of interconnected dispersed generation. Chen W.L et al. generators are determined using a systematic technique based on eigen structure assignment in this paper (IG).

Sekhar V.C. et al. (2016) showed how to use a DSTATCOM (Distribution Static Compensator) with a sliding mode controller (SMC) and a proportional. In steady-state settings, the use of a PI controller for terminal voltage control allows for error-free voltage profile tracking. The advantages of using SMC with a PI controller to operate DSTATCOM for an induction generator are single point voltage operation at the generator terminals and reactive power adjustment, which prevents the generator from being saturated. Balanced generator currents under any load condition, harmonic current suppression, constant DC link voltage, and a decreased number of sensors are among the other benefits offered.

Although fault indicator technology has provided reliable methods of detecting permanent errors, the current state of error detection is very worrying and time consuming as the technical team and monitoring teams still have to physically monitor and inspect equipment for long hours to find faulty parts. of their transmission lines and then have to clear the error, which requires a lot of human effort in identifying the error location and removing the error. Wire-based monitoring of transmission lines provides a solution to many of these concerns such as real-time structural awareness, rapid error detection, accurate error detection and detection of electrical errors in mechanical errors, reduced costs due to conditional rather than occasional correction. care, etc. These applications define solid

requirements such as faster delivery of large amounts of highly reliable data. The success of these applications depends on building an efficient and reliable network structure with fast response time. The most important disruption that will alternate the energy landscape may additionally come from the solar rooftop enterprise. As in line with their forecast, sun rooftop strength, supported through internet-metering

coverage and mixed with storage, could be cheaper than grid energy after 2022, for a huge segment of customers. During EB failure at night in college, the whole powerhouse becomes dark because of no backup power. Because of that a lot of times when powerhouse employees try to switch on the generator to give backup power to the whole college may fall into a cable trench or got hit by obstacles due to darkness in the powerhouse since no backup power is there.

Since the college powerhouse is being isolated from the college area due to safety measures, if someone got serious injuries it will be difficult to carry that person to the nearest medical help. So, considering all the issues, we gave a solution to the powerhouse in charge after analyzing the problem. We will be installing lighting fixtures to illuminate the whole powerhouse and this all will work on solar energy as a backup.

1.5 SCOPE OF PROJECT

This framework can be utilized for the remote programmed wire cutting framework utilizing GPS and GSM. This will enormously affect the electrical business and to work it from versatile or phone, Android application can be created. These are the future parts of venture improvement in this specific field. SS

1.6 METHODOLOGY

Displays the development of work to be finished. Power supply, above all, is ON, here we are utilizing +5v supply. Then, input is given by keypad to Arduino. Here the typical length of wire to be sliced is given as obligation to Arduino and the Arduino gives data to LCD. It will be shown to the LCD, input given by keypad to Arduino. Consequently, the connecting between miniature regulator and engine driver, then the two engines will begin to work. The engine, right off the bat, where the heap of wire is put on the shaft it will turn for specific time, as per determined span of revolution. As the wire will be out of the pack, it will make an excursion through transport line to cutting region. After that subsequent engine were the cutting foil is put will begin to run and thusly the wire will be cut by client need.

1.7 COMPONENTS USED

- Arduino Uno
 - LCD Display 16x2
 - Wire Cutter
 - NEMA 17 Stepper Motor
 - NEMA Stepper Motor Driver A4988
 - Flexible Wires
 - Roller
 - Push Button Switch
-
- Power Supply 12V, 1A
 - Wooden Board
 - Soldering Iron 25Watt
 - Solder Wire

1.8 ALGORITHM FOR ARDUINO CODE

1. Start
2. Initialization of Control Unit
3. Enter the desired quantity of wire piece
4. Enter the length of wire piece
5. If count is $\leq$ Entered quantity
6. Cut Wire

1.9 Benefits

- Programmed Wire Cutting
- Wire Size Can be Adjusted
- Cutting + Wire Stripping
- Programmed Feeding System
- Exact Cutting Operation

1.10 Drawbacks

- Can cut just little width wires
- Doesn't eliminate stripped covers

CHAPTER 2

PRODUCT DESCRIPTION

2.1 BLOCK DIAGRAM

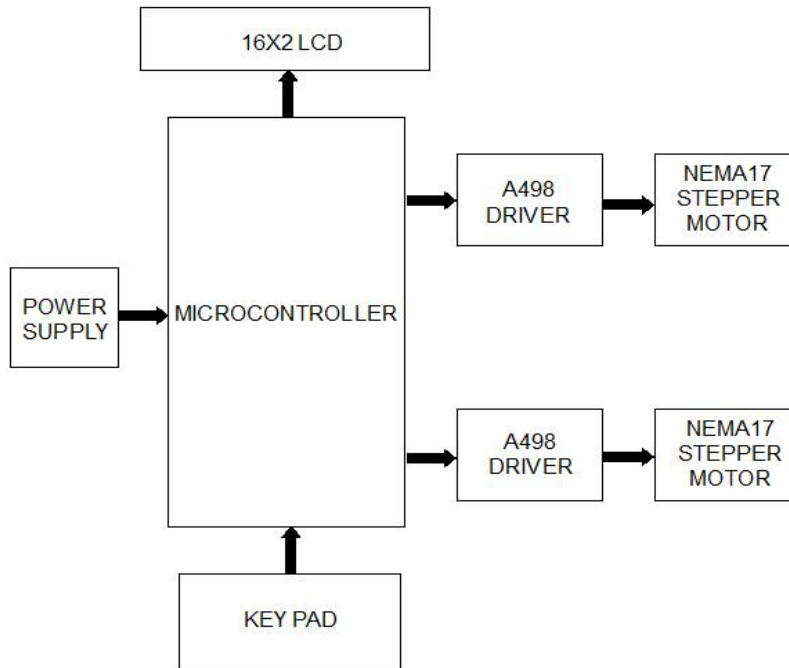


Fig 2.1 MICROCONTROLLER BASED WIRE CUTTING MACHINE

2.2 CONCEPT EXPLAINANTION

Fig-2.1 shows the movement of work to be done. Without skipping a beat 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 sliced is given as contribution to microcontroller what's more, the microcontroller gives data to LCD. It will be shown to the LCD, input given by keypad to microcontroller. Consequently, the communicating between miniature regulator and engine driver, then, at that point, the two engines will begin to work. The engine, first and foremost, where the heap of wire is put on the shaft it will pivot for specific time, as per indicated term of pivot. As the wire will be out of the pack, it will make a trip through transport line to cutting locale. After that ensuing motor were the cutting foil is set will start to run and thus the wire will be cut according to client need.

2.3 ARDUINO C+ SERIAL MENU INPUT

Figuring out how to code this was even more an undertaking then, at that point, assembling the mechanical, it really took me longer. I knew what I believed it should do well before I knew how to get it going. I spent a decent 3 weeks of understanding discussions, Arduino libraries, reference, guides, and so on. Invested some energy conversing with collaborators and companions. More often than not and dissatisfaction went into experimentation. I figured out down the code into tosses I expected to learn and handled them the slightest bit at a time.

Sequential Input; taking a client input and putting away it, and involving it in capacities.

Working the Stepper Motor and Big Easy Driver.

Driving the stepper a specific number of steps.

Working the Servo was quite simple, I had past experience on another undertaking.

Working the LCD. Sending show messages to the LCD. (more to come on this in later updates.)

Counting down a specific number of cycles then, at that point, begin toward the start. Everything went smooth, yet I stalled out on the counting capacity for a decent fourteen days. Following quite a while of torment and win it boiled down to a Julia that go through around 10 minutes taking a gander at my code and aided fix a couple arrangement issues. I extraordinarily value getting the assistance from a genuine code ace = Julia B!

2.4 ARDUINO CODE

```
#include <math.h>           //math
#include <Servo.h> //From Library
Servo servoMain; // Define Servo
#include <SoftwareSerial.h> // soft serial for LCD
#define stp 2 //define stepper
#define dir 3 //define stepper
#define MS1 4 //define stepper
#define MS2 5 //define stepper
#define MS3 6 //define stepper
#define EN 7 //define stepper

float a;           //variable assignment qty
float b;           //variable assignment inches
```

```

float c;           //variable assignment required motor steps
float W;           //removed from functions for now, might need later.
char junk = ' ';   //any random character input.
char val;          // Data received from the serial port
char user_input;
int x;             //Probably over loaded on assignments, not sure. Remove later
and test.
int y;
int state;
SoftwareSerial mySerial(0, 11); // pin 11 = TX

void setup()       // set up
{
  pinMode(15, OUTPUT); // set the pin to input
  servoMain.attach(9); // servo on digital pin 9
  pinMode(13, OUTPUT); // led on pin 13
  pinMode(stp, OUTPUT); //B.E.D
  pinMode(dir, OUTPUT); //B.E.D
  pinMode(MS1, OUTPUT); //B.E.D
  pinMode(MS2, OUTPUT); //B.E.D
  pinMode(MS3, OUTPUT); //B.E.D
  pinMode(EN, OUTPUT); //B.E.D
  resetBEDPins(); //Set step, direction, microstep and enable pins to default
states
  Serial.begin(9600); // set up Serial library at 9600 bps

  mySerial.begin(9600); // set up serial port for 9600 baud
  Serial.println("Lets Cut Some Wires!"); //welcome message in

serial window
  Serial.println("");
  Serial.flush(); //clear the input que.
}

void loop()
{
  {

```

```

mySerial.write("          "); // clear display
mySerial.write("          ");
mySerial.write(254); // move cursor to beginning of first line
mySerial.write(128);

mySerial.write("Solution Systems  Feed n Cut!");

delay(2);
}
Serial.println("Enter Quantity, Press ENTER"); // user Input request qty
while (Serial.available() == 0) ; // Wait here until input buffer has
a character
{

    a = Serial.parseFloat(); // new command in 1.0 forward
    Serial.print("a = "); Serial.println(a, DEC);

    while (Serial.available() > 0) // .parseFloat() can leave non-
numeric characters
    { junk = Serial.read() ; } // clear the keyboard buffer
}

Serial.println("Enter Length in Inches, Press ENTER");
while (Serial.available() == 0) ;
{

    b = Serial.parseFloat();
    Serial.print("b = "); Serial.println(b, DEC);
    while (Serial.available() > 0)
    { junk = Serial.read() ; } // clear the

keyboard buffer

c = (float( b*26 ));

Serial.print("Motor Steps = ");
Serial.println(c, DEC); Serial.println();
}

```

```

Serial.println("Ready to Begin? Press ENTER");    // user Input request Y or
N?
digitalWrite(EN, LOW);                            //Pull enable pin low to set FETs
active and allow motor control
while (Serial.available() == 0);                  // If data is available to read,
{
val = Serial.read();                             // read it and store it in val
if (val == 'y')
{
Serial.println("Here We Go!");
delay(10);
for (a; a>0; a--){    // this step checks if the quantity entered (a) is greater than
0,... and deducts 1 from a.
Feedft();           // if it is it repeats the step feed and cut function again.
}
}
else {
Serial.println("Restarting Setup...");           // otherwise restart
}
delay(10);                                       // Wait 10 milliseconds for next reading
}
{ junk = Serial.read() ; }                     // clear the keyboard buffer

}

//Reset Big Easy Driver pins to default stages
void resetBEDPins(){
digitalWrite(stp, LOW);

digitalWrite(dir, LOW);
digitalWrite(MS1, LOW); // leaving wired and in sketch for now, not using micro-
step control at this time.
digitalWrite(MS2, LOW);
digitalWrite(MS3, LOW);
digitalWrite(EN, HIGH);
}

```

```

//Functions
void Feedft(){
  Serial.println("Feeding Wire at default step mode.");
  digitalWrite(dir, LOW);           //Pull direction pin low to move "forward"
  for(x= 1; x<c; x++){              //Loop the forward stepping enough times for
    motion to be visible
    digitalWrite(stp,HIGH);         //Trigger one step forward
    delay(1);
    digitalWrite(stp,LOW);          //Pull step pin low so it can be triggered again
    delay(1);
  }                                  //Need to add a stepper done moving function
  here!!!!!!!!!!!!!!<=====
  ServoMainCut();                  //Run the Cut Function
  delay(2000);
  Serial.println("Cutting Wire!"); //Fair Warning.....
  // RepeatCount();                //Run the repeat function
  { junk = Serial.read();}         //Clear the keyboard buffer
}

//funtion Servo Cut
void ServoMainCut(){
  digitalWrite(13, HIGH);
  delay(100);
  digitalWrite(13, LOW);
  servoMain.write(177); // CUT!! Turn Servo Left to 176 degrees
  delay(750);           // Wait 1.5 second
  servoMain.write(65); // Open Cutter Turn Servo Left to 65 degrees
  digitalWrite(13, HIGH);
  delay(100);
  digitalWrite(13, LOW);
}

```

2.5 HARDWARE DESCRIPTION

1. ARDUINO UNO

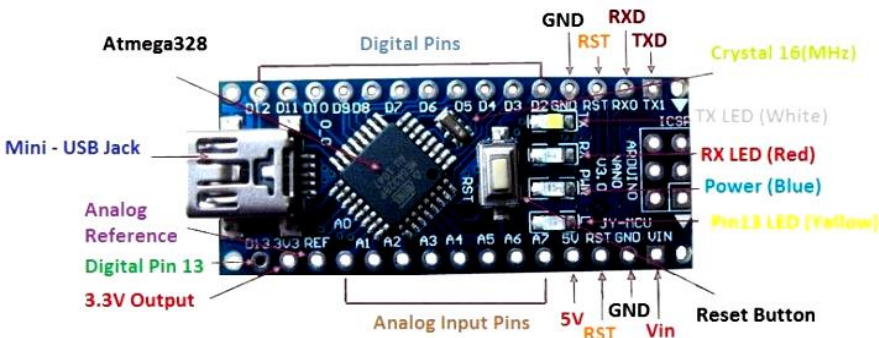


Fig 2.2 Arduino Uno

It has 14 high level info/yield pins, 6 simple data resources, a sixteen MHz quartz prized stone, a USB affiliation, a power jack, an ICSP header and a reset button.

No.	Pin Number	Pin Description
1	D0 – D13	Digital Input / Output Pins.
2	A0 – A7	Analog Input / Output Pins.
3	Pin # 3, 5, 6, 9, 11	Pulse Width Modulation (PWM) Pins.
4	Pin # 0 (RX) , Pin # 1 (TX)	Serial Communication Pins.
5	Pin # 10, 11, 12, 13	SPI Communication Pins.
6	Pin # A4, A5	I2C Communication Pins.
7	Pin # 13	Built-In LED for Testing.
8	D2 & D3	External Interrupt Pins.

Fig 2.3 Pin Description

FOLLOWING FIGURE SHOWS THE DETAILS OF ARDUINO NANO BOARD:

Microcontroller	Atmega328p/Atmega 168
Operating Voltage	5V
Input Voltage	7 – 12 V
Digital I/O Pins	14
PWM	6 out of 14 digital pins
Max. Current Rating	40mA
USB	Mini
Analog Pins	8
Flash Memory	16KB or 32KB
SRAM	1KB or 2KB
Crystal Oscillator	16 MHz
EEPROM	512bytes or 1KB
USART	Yes

Fig 2.4 Arduino Nano Board

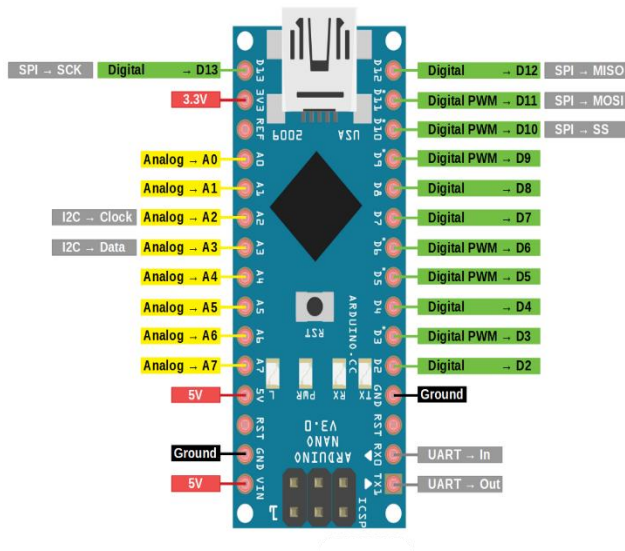


Fig 2.5 Pinout of Arduino Nano Board

2. LCD DISPLAY 16x2

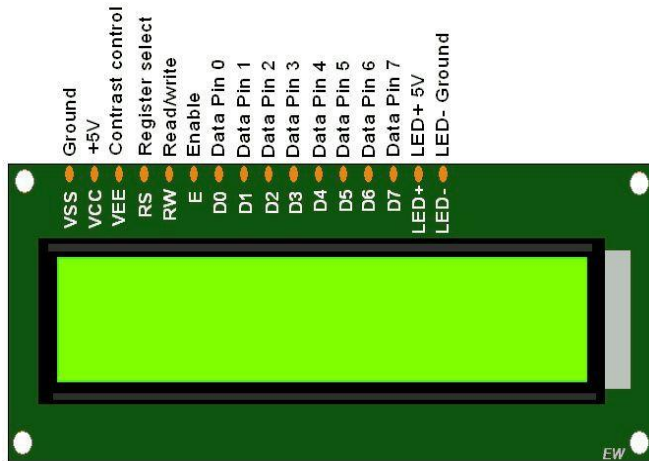


Fig 2.6 LCD Display 16x2

LCDs (Liquid Crystal Displays) are utilized in implanted framework applications for showing different boundaries and status of the framework. LCD 16x2 can be used in 4-cycle mode or 8-digit mode. Making custom characters is likewise conceivable. It has 8 information lines and 3 control lines that can be utilized for control purposes. For more data about LCD 16x2 and how to utilize it, allude the theme LCD 16x2 module in the sensors and modules segment.

3. Wire Cutter



Fig 2.7 Wire Cutter

It helps us to cut the wires for making connections.

4. NEMA 17 STEPPER MOTOR



Fig 2.8 NEMA 17 Stepper Motor

NEMA 17 is a half breed venturing engine with a 1.8° advance point (200 stages/transformation). Each stage draws 1.2 An at 4 V, taking into consideration a holding force of 3.2 kg-cm. NEMA 17 Stepper engine is by and large utilized in Printers, CNC machines and Laser Cutters.

5. NEMA STEPPER MOTOR DRIVER A4988



Fig 2.9 NEMA Stepper Motor Driver A4988

A4988 is a finished micro stepping engine driver with worked in interpreter for simple activity. This item is accessible in full, half, $1/4$, $1/8$ and $1/16$ stage modes work bipolar stepper engines, yield drive limit of up to 35 V and ± 2 A.

6. FLEXIBLE WIRES



Fig 2.10 Flexible Wires

Here we used these wires to connect all devices.

7. ROLLER



Fig 2.11 Roller

A roller is a round, drum-formed article, for example, a spool used to convey electrical wires. Here we used this to assemble the wire for easy cutting process.

8. PUSH BUTTON SWITCH



Fig 2.12 Push Button Switch

These push button switches are used for ON/OFF and for giving inputs.

9. POWER SUPPLY 12V, 1A

12V 1A



Fig 2.13 Power Supply 12V, 1A

Proficient 12 Volt DC 1 Amp power supply is reasonable for driving a wide scope of uses.

10. SOLDERING IRON 25Watt



Fig 2.14 Soldering Iron 25Watt

A Soldering iron is a hand device utilized in welding. It supplies intensity to dissolve patch so it can stream into the joint between two workpieces.

11. SOLDER WIRE



Fig 2.15 Solder Wire

These wires have a low dissolving point which can liquefy alongside the patching iron.

2.6 DESIGN AND CALCULATIONS

A. Selection of Motor

r = radius of roller

d = roller breadth

T = force expected for engine

Circumference of roller = wire length got in one upset = πd

$$= 3.142 \times 70$$

$$= 220\text{mm}$$

In one unroll of roller 220mm of length of wire is covered.

Speed of engine = 30rpm

1) Torque Required = $F \times r$: Where,

F = spring force.

r = range of roller.

For grasp reason we expected 2kg of spring force.

Hence, $T = F \times r$

$$= 2 \times 9.81 \times 35$$

$$= 700\text{N-mm.}$$

2) Clamping Force = Frictional Force Where,

Frictional force = $\mu \times R_n$

μ = coefficient of grating

R_n = response force = 20

We expected coefficient of grinding for elastic material 0.3.

f = frictional power.

$$f = \mu \times R_n$$

$$= 0.3 \times 20$$

$$= 6\text{N.}$$

Expecting 25% misfortune in communicated force from engine to drive roller because of contact.

$\therefore$ Torque of engine by thinking about 25% misfortunes.

$$T = 700 \times 1.25 \text{ N-mm}$$

$$= 875 \text{ N-mm}$$

3) Power Generated = 2.749watt.

4) Design of Spring:

Let,

Coil dia. = 2mm

$d_m = 12.5\text{mm}$

$K = 1.11\text{N-mm}$

$T_k = 19.76 \text{ kgf-mm}$

$d = 2 \text{ mm}$

Mean dia,

$D_m = 12 \text{ mm}$

Inward dia.

$$D_i = D_m - d$$

$$= 12 - 2 = 10 \text{ mm}$$

Outer dia.

$$D_o = D_m + d = 12 + 2$$

$$= 14 \text{ mm}$$

B. Cutting Force Calculations Calculation for Cu wire

$$S_{yt} = 70 \text{ Mpa}$$

$$= 70 \times (10)^6 \text{ N-m}^2$$

$$S_{ut} = 0.577 S_{yt}$$

$$= 40.39 \times (10)^6 \text{ N-m}^2$$

Force expected to cut the Cu wire

$$\sigma = F/A$$

Where,

$$A = \pi d^2/4$$

$$d = 1.2 \text{ mm} = 1.2 \times (10)^{-3} \text{ m}$$

∴ Force expected to shear 1.2 mm dia. Wire is,

$$40.39 \times (10)^6 = 4F/\pi(1.2 \times (10)^{-3})^2$$

$$\therefore F = 45.68 \text{ N}$$

L1 = length of shaper arm up to support point.

P1 = force applied by cam on shaper arm.

L2 = length of bleeding edge

p2 = slicing force expected to shear the wire.

$$\therefore L_1 P_1 = L_2 P_2$$

Now we have,

$$L_1 = 85 \text{ mm}$$

$$L_2 = 15 \text{ mm}$$

$$P_2 = 45.68 \text{ N}$$

$$P_1 = ?$$

$$\therefore 45.68 \times 0.015 = 0.085 \times P_1$$

$$\therefore P_1 = 8.06 \text{ N}$$

1) Required Torque of Motor:

$$T = F \times r$$

$$T = 8.06 \times 0.045$$

$$T = 0.367 \text{ N-m}$$

CHAPTER 3

CIRCUIT SIMULATION AND RESULT

3.1 CIRCUIT SIMULATION

At first the Circuit was Operating with 9V from Dc power supply Transformer. To disseminate the voltage to a voltage controller semiconductor to take care of the microcontroller with 3V to work and the driver engine circuit got 12V straightforwardly from the dc power supply. Source to make the four rollers to move and get 3V from the voltage controller to make the principal circuit to work, likewise our LCD get 5V source from the voltage controller to work.

3.2 HARDWARE RESULT

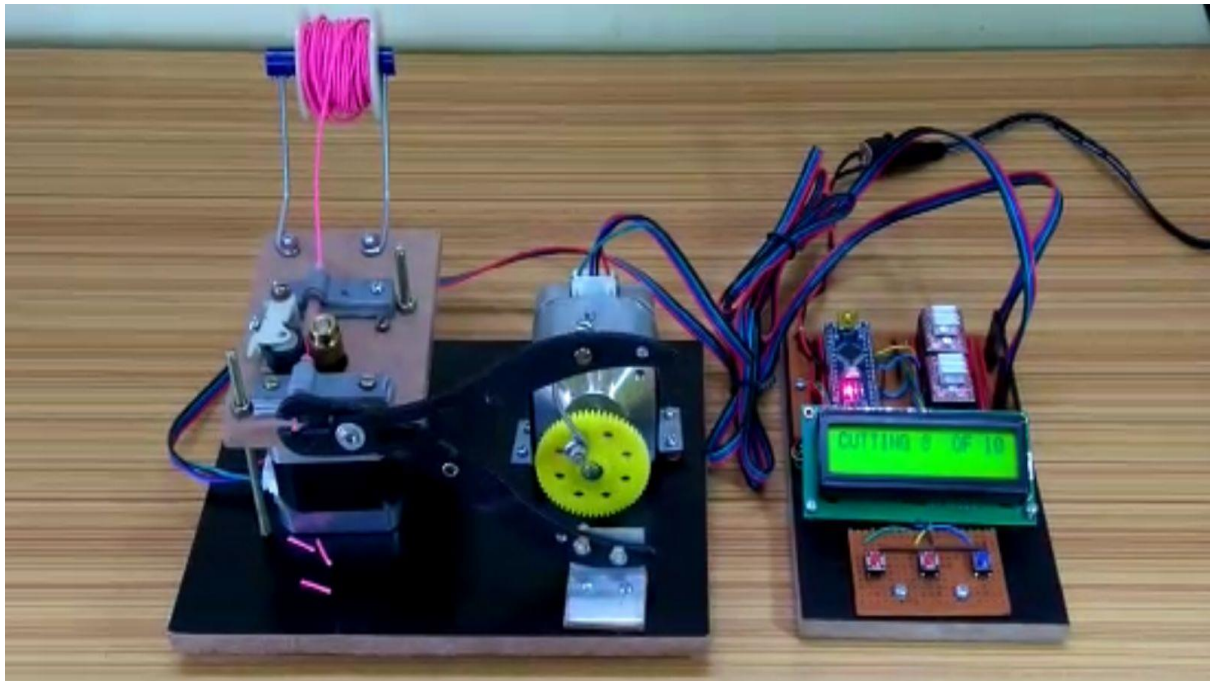


Fig 3.1 Result for the Microcontroller Based Wire Cutting Machine

Final Setup of Development and designing of Automatic wire cutting system using Microcontroller (Fig 3.1)

Here the required length of wire to be sliced is given as contribution to microcontroller what's more, the microcontroller gives data to LCD. It will be shown to the LCD, input given by keypad to microcontroller. Consequently, the communicating between miniature regulator and engine driver, then, at that point, the two engines will begin to work. The engine, first and foremost, where the heap

of wire is put on the shaft it will pivot for specific time, as per indicated term of pivot. As the cord could be out of the percent, it's going to go through shipping line to cutting district. After that ensuing motor had been the slicing foil is set will start to run and henceforth the wire might be reduced in keeping with client need.

CHAPTER 4

CONCLUSION AND FUTURE SCOPE

4.1 CONCLUSION

During the beyond couple of many years, the electronic business has shown incredible advancement in programmed control of various framework. This robotization framework saves cost, builds precision and diminishes mistakes. Subsequent to looking over different electrical and gadgets enterprises we presume that, these days the ventures have acquainted robotization in their frameworks with some degree however for a few fundamental cycles which are tedious like wire cutting, bundling and so forth they utilize HR. On the off chance that we acquaint computerization with these fundamental cycles, it will be productive in regards to the organization's turn of events and benefit gain as it works on the framework in numerous ways. One such industry figured out in which they need an answer that is exceptionally effective, quick and efficient for cutting different lengths of wires which are expected for creating capacitors and resistors. So, we attempt to advertise financially savvy wire cutting machine. This framework can precisely gauge wire length and cutting wire into number of pieces. The framework works deftly by utilizing legitimate information given by console and showing the info given on LCD.

4.2 FUTURE SCOPE

This framework can be utilized for the remote programmed wire cutting framework utilizing GPS and GSM [3]. This will have an extraordinary effect on the electrical business. What's more, to work it from versatile or phone, Android application can be created [4]. Our project is based on an applied approach to solve the real-time problem and enhance technology. We are doing this project to gain more theoretical and practical knowledge on microcontroller. In our project, we came across a lot of challenges when we started mapping the layout of the powerhouse. First and foremost, the problem statement of the project, to better understand the project.

CHAPTER 6

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