



e-ISSN: 2278-8875

p-ISSN: 2320-3765

International Journal of Advanced Research

in Electrical, Electronics and Instrumentation Engineering

Volume 11, Issue 6, June 2022

ISSN INTERNATIONAL
STANDARD
SERIAL
NUMBER
INDIA

Impact Factor: 8.18

☎ 9940 572 462

☑ 6381 907 438

✉ ijareeie@gmail.com

@ www.ijareeie.com



EMS & TENS with Digital Interface to Monitor Intensity, Treatment Time, Cycle Repeattions

Atul Vijay Bade¹, Mandar Ananada Vanjare¹, Ashish Satish Tipkurle¹, Sahil Kalandar Sandi¹,
S. D. Gokhale²

Department of Electronics Engineering, DKTE's Textile and Engineering Institute, Ichalkaranji, India¹

Assistant Professor, department of Electronics Engineering, DKTE's Textile and Engineering Institute,
Ichalkaranji, India²

ABSTRACT : Neuropathic, pain commonly occurs in 1/10 th of the population aged above 30 years. Transcutaneous electrical nerve stimulation (TENS) is a technique in which electrical currents are given to a person in pain with the help of electrodes and its controlling circuit. This manuscript briefly provides information about TENS, its types and various applications of TENS in the field of medicine. We found from the reported literature that, roughly 30 min treatment of TENS is given to the patient in pain for roughly 6 weeks which can reduce about 80% of the problems in most of the cases. There are numerous applications of TENS in various fields such as dentistry, dermatology, orthopedics etc.

I. INTRODUCTION

Human body is made up of Muscle, bones, nerves, blood, organs etc. Each has its specific role in body stability. All are integrated with each other. Weakness in one cause retardation in system. Treatment Without Medication. TENS is a method of electrical stimulation which primarily aims to provide a degree of symptomatic pain relief by exciting sensory nerves and thereby stimulating either the pain gate mechanism and/or the opioid system. Emergency medical services (EMS) plays a vital role in the nation's emergency and trauma care system, providing response and medical transport for millions of sick and injured Americans each year.

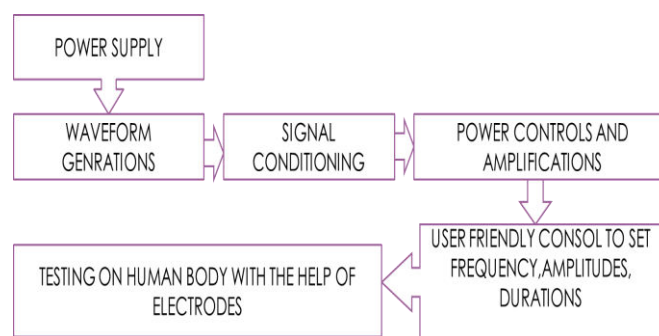


Figure1: Block diagram

II. WORKING

Turn ON power Supply.

After that starting of system and Display will Show message of ENT MODE

Then the Mode Selection Will Display.

ENT MODE:- 1. EMS 2. TENS

Then Select any one mode out of Two.



Then vary the nob Form 0 to sufficient level.
To set the intensity of pulses.
Attach Electro Pads to the body where the pain is reached.As per persons change the treatment time cycle.

III. COMPONENTS

Control Transformer is a transformer which supplies power to control and / or auxiliary equipment not intended for direct connection to the main source. Control Transformers are specifically used to provide control supply voltage for the control circuits of AC motor starters, i.e. Starter coils, timers, indicating lamps electronics protection relays etc. Control Transformers for contractor applications have to Energize the coil and Maintain a contact for definite period of time. The initial energizing of the coil takes 5 to 40 mil. seconds and requires 3 to 10 times the normal current. While calculating the VA rating of the Control transformer, this factor should be taken in to account. They are available for single phase and three phase inputs and are in the range from 15 VA to 30.

556 timer IC

The 556 timer is a 14 pin configuration. Each Timer is provided with its own threshold, trigger, discharge, control, reset, and output pins. This IC can be used for both the oscillator as well as pulse generator due to the availability of two separate 555 timers.

Optocoupler

An optocoupler (also called optoisolator) is a semiconductor device that allows an electrical signal to be transmitted between two isolated circuits. Two parts are used in an optocoupler: an LED that emits infrared light and a photosensitive device that detects light from the LED.

crystal oscillator

A crystal oscillator is an electronic oscillator circuit that uses the mechanical resonance of a vibrating crystal of piezoelectric material to create an electrical signal with a constant frequency. ... Quartz crystals are manufactured for frequencies from a few tens of kilohertz to hundreds of megahertz.

PIC16F877A Microcontroller

PICmicrocontroller PIC16f877a is one of the most renowned microcontrollers in the industry. This microcontroller is very convenient to use, the coding or programming of this controller is also easier. One of the main advantages is that it can be write-erase as many times as possible because it uses FLASH memory technology. It has a total number of 40 pins and there are 33 pins for input and output. PIC16F877A is used in many pic microcontroller projects. PIC16F877A also have much application in digital electronics circuits.

IV. RESULT



Fig: Mode Selection



Fig: Enter in EMS Mode



Fig: Second Mode Selection



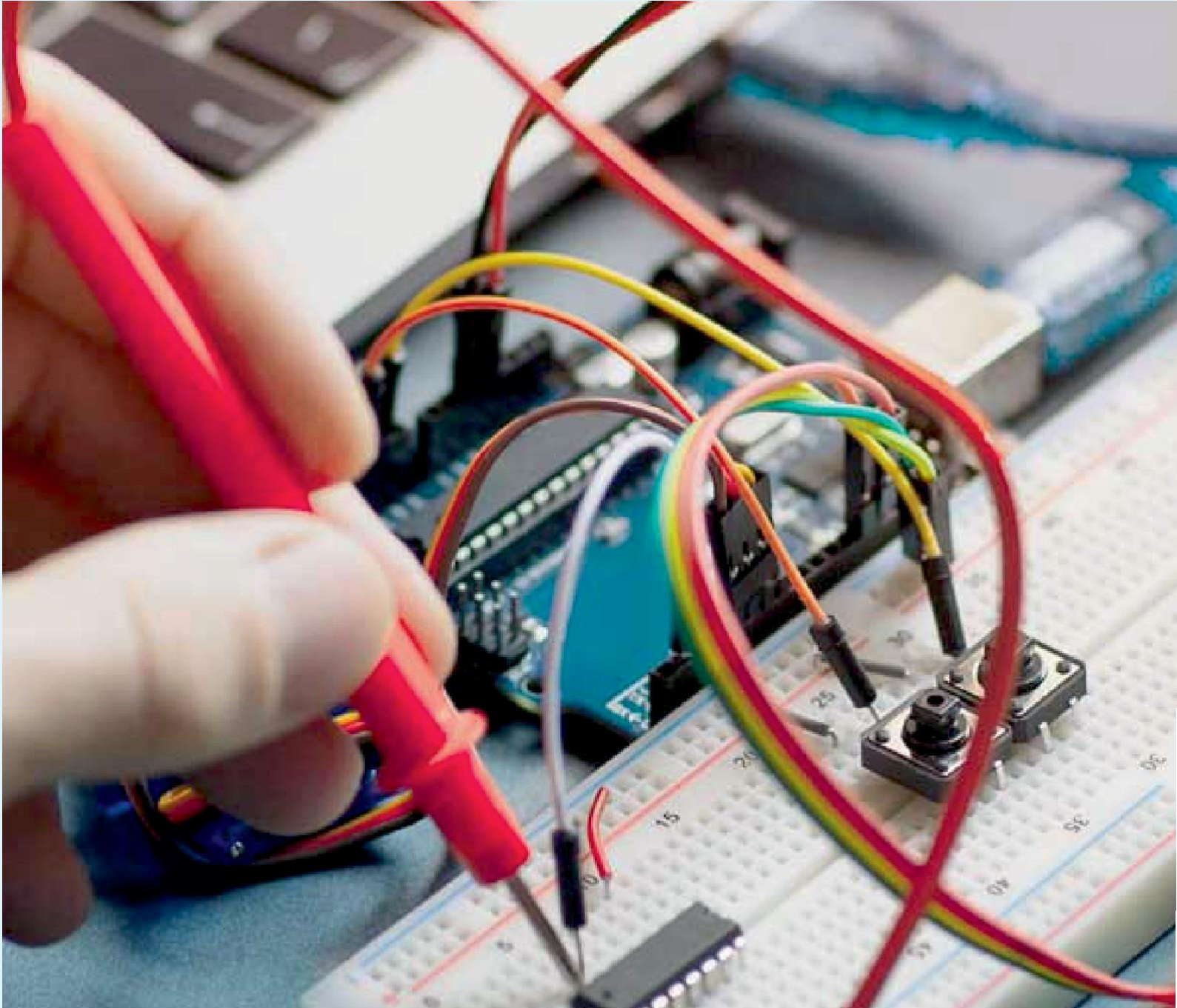
Fig: Enter in TENS Mode

V. CONCLUSION

There are nine reviews investigating TENS use in people with defined y chronic pain or in people with chronic conditions associated with ongoing pain. One review investigating TENS for phantom or stump-associated pain in people following amputation did not have anincludestudies.For people with chronic pain,This overview offers very low quality evidence and cannot confidently make any statement regarding the effectiveness of TENS for people with chronic pain.

REFERENCES

1. www.wikipedia.com
2. <https://www.omron-healthcare.com/eu/health-and-lifestyle/pain-management/managing-pain/transcutaneous-electrical-nerve-stimulation-tens-vs-electrical-muscle-stimulation-ems.html>
3. <https://www.healthline.com/health/tens-vs-ems>
4. <https://www.beurer.com/web/gb/products/medical/electrostimulation/tens-ems/>
5. <https://www.scientificamerican.com/article/how-to-get-fit-using-electrical-muscle-stimulation->



INNO  SPACE
SJIF Scientific Journal Impact Factor

Impact Factor: 8.18



ISSN INTERNATIONAL
STANDARD
SERIAL
NUMBER
INDIA



International Journal of Advanced Research

in Electrical, Electronics and Instrumentation Engineering

 9940 572 462  6381 907 438  ijareeie@gmail.com



www.ijareeie.com

Scan to save the contact details