

**Visvesvaraya Technological University,
Jnana Sangama, Belagavi – 590 018**



**Karnatak Law Society's
Vishwanathrao Deshpande Institute of Technology,
Haliyal – 581 329**



Department of Electronics and Communication Engineering

Mini-Project report entitled

SCROLLING DISPLAY USING WEB CONTROL

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6th Semester

Under the guidance of

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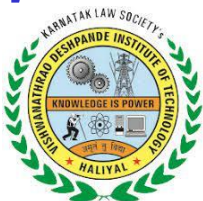
Department of Electronics and Communication Engineering

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CERTIFICATE

This is to certify that **Mr. Shivanand A ,Pradeep H, Ujwal K, Santosh S-**, bearing **USN: 2VD19EC093,2VD19EC056,2VD20EC410,2VD20EC405** , Student of **6th Semester** has satisfactorily completed the **Mini-Project** entitled “**Web controlled LED scrolling display**” submitted to **Department of Electronics and Communication Engineering, KLS Vishwanathrao Deshpande Institute of Technology, Haliyal – 581329.**

Prof. Vinay Chitare
Guide

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INDEX

Sl.No.	TITLE	PAGE No.
Chapter1	Abstract	1
Chapter2	Introduction	2
Chapter3	Literature survey	3
Chapter4	Problem statement and objective	4
Chapter5	Block diagram	5
Chapter6	Working principle	6-7
Chapter7	Flow chart	8
Chapter8	Components	9-12
Chapter9	Result	13
Chapter10	Applications	14
Chapter11	Conclusion	14
Chapter12	Reference	15

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The successful completion of any job is incomplete without mentioning the names that made it possible. We would like to thank all those people who helped us in completion of the Mini project. Many people supported our work within and outside and hereby we wish to express my sincere thanks to one and all. First, we would like to thank our guide **Prof. Vinay Chitare** for his guidance and whole hearted support and very valued constructive criticism that has driven to complete the Mini project successfully. The hardworking natures, constant perseverance, commitment to task and ignition to talent have impressed me a lot. I wish to hereby acknowledge my sincere heartfelt gratitude to our respected Principal **Dr. V. A Kulkarni** and our Head of the department **Dr. Mahendra.M.Dixit** for their constant encouragement and support. I also express my heartiest gratitude to all Faculty members and supporting staff of Department of Electronics And Communication Engineering, Vdit for extending their support throughout my study in the department.

Chapter 1

ABSTRACT

With the technological advancements there have been advancements in ways of displaying marketing and advertising of information. LED matrix display boards are used for displaying advertisements and notices. These Display boards have become a primary thing in educational institutes, shop floors (workstations) & various public places for displaying information regarding public transport timings, platforms, various advertisements regarding products, or important notices. People are now adapted to the idea of the world at its fingertips. The older version of display boards made use of wired technology for communication. Here wireless technology wi-fi is used for communication. Information is entered through the keyboard of transmitter or as speech signal and send through wi-fi & nodemcu or Wi-Fi module at receiver end will receive it and send it to matrix display due to which the desired information will be displayed on LED matrix display. Keywords –Wired display boards, Wi-fi, LED matrix display. The technology of displaying message is an important part of communication and advertisement. In recent times, Wireless communication has announced its arrival on big stage and the world is going with Smartphone technology. This work describes the design and implementation of a microcontroller based messaging display system In this paper an overview of different Light Emitting Diode (LED) display boards is presented. The enhanced LED plugs in all the loop holes in the existing product. Global Service for Message (GSM) based LED Display Board is a model for displaying notices or messages at places that require real-time noticing, by sending messages in the form of Short Message Service (SMS) through mobile

Chapter 2

INTRODUCTION

The LED Display Systems are specifically designed to be used at the colleges, universities, share market etc. for displaying day-to-day updates, important notices and other information continuously. Being IOT-based system, it offers flexibility to display flash news or announcements faster than the programmable system. IOT-based display system can also be used at places like shops, bus stations, nursing homes, factories shop floors railway stations, gardens etc. without affecting the surrounding environment. The led display system mainly consists of a Wi-Fi module as receiver and a display toolkit which can be programmed from an authorized mobile phone. It receives the data, from android Mobile through an application (App) and displays the desired information after necessary code conversion. It serves as an electronic notice display board which displays the important notices instantly avoiding unwanted delays. Being wireless, the IOT based led display it is easy to expand and allows the user to increase the number of display panels anytime and at any desired location depending on the requirement of the user. These days the use of LED Matrix Scrolling Displays has become very popular in arialike malls, movie theatres, public transports, traffic and highways signboards, etc. But major issue with these displays is to carry a personal computer, laptops or specialized keyboards for transmitting messages to these LED display boards. Carrying computational assembly or keypads every time, when the user needs to change the message on the LED display boards can be quite hectic An information display is a way of providing information and/or is used as an object for promotion. It can be seen in a form of cardboard or tarpaulin at stores/shops, streamers and electronic display devices. But the advent of new technologies made the information in the form of an electronic display in the world of advertisements and promotions. The ability to display a short message can be useful application to be available for any business Due to the present technological development, especially in the field of communication and Wireless network, a lot of applications appeared for the facility of our daily life needs.

Chapter 3

LITERATURE SURVEY

Paper 1

Title: Indian Journal of Science and Technology

Author name: Neeraj Khera

Topic: “Development of Simple and Low Cost Android Based Wireless Notice Board”

Abstract: The proposed system uses either Bluetooth or Wi-Fi based wireless serial data communication in displaying messages on a remote digital notice board.

Paper 2

Title: International Journal of Engineering and Technology Research Published by Cambridge

Research and Publications IJETR ISSN-2329-7309 (Print) 208 Vol. 21 No.5 June, 2021

Author name: Yash Teckchandani

Topic: “Large Screen Wireless Notice Display System”

Abstract: an aim to increase the usability of electronic notice board, deals with wireless reception and display of message using Raspberry Pi. Practically, all output resolution are supported .This paper presents a way to incorporate messages in HTML script.

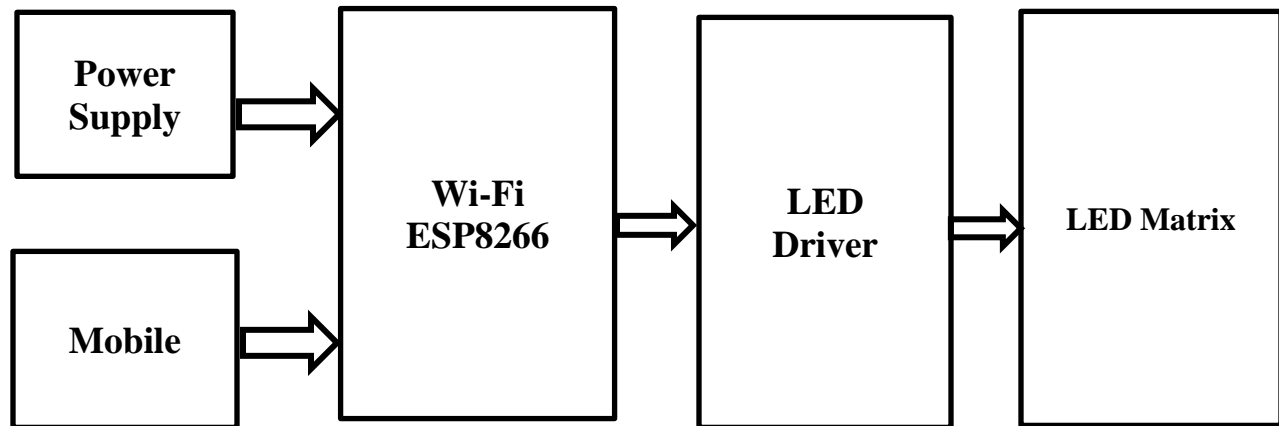
Chapter 4

Problem Statement

Scrolling display using web control is used for a digitally displaying message. Using Wi-Fi module display the message on to the display board that is on matrix display board and for the acknowledgement LED scrolling display is used. This system mainly includes public places like bus stand, railway station, airport, shopping malls, and park to the display information wirelessly. This project is also used in school and collages.

Objective

An LED scrolling display can be made to display information quickly and efficiently, so you can communicate and change messages as obtained as you need in fact, the best systems don't just display letters and text they can also show logos and high-resolution graphics, special fonts and many more

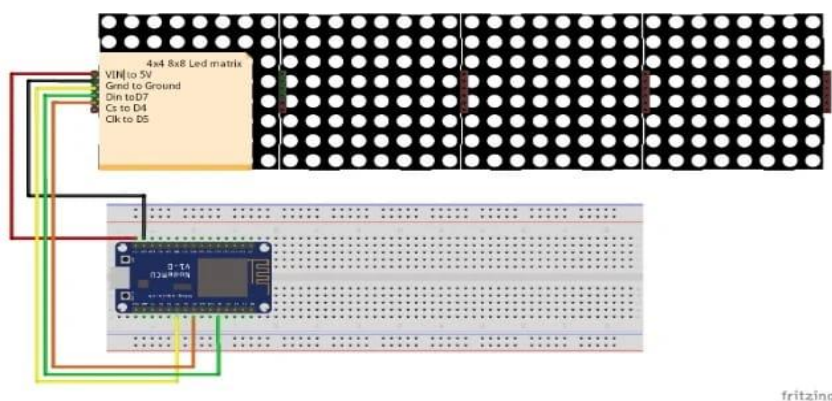
Chapter 5**BLOCK DIAGRAM**

Chapter 6

WORKING PRINCIPLE

Whatever we type on android phone should be displayed on the LED MATRIX For the data to be displayed on the matrix. Thus, at input section we have an android phone with a web page, this web page takes input as text signal and this text signal is given to nodemcu or Wi-Fi module esp2866 over Wi-Fi. Here the android app acts like a transmitter and nodemcu or Wi-Fi module acts like the receiver for text signal and sends it further to the matrix display. The medium of communication between transmitter and receiver

CIRCUITRY

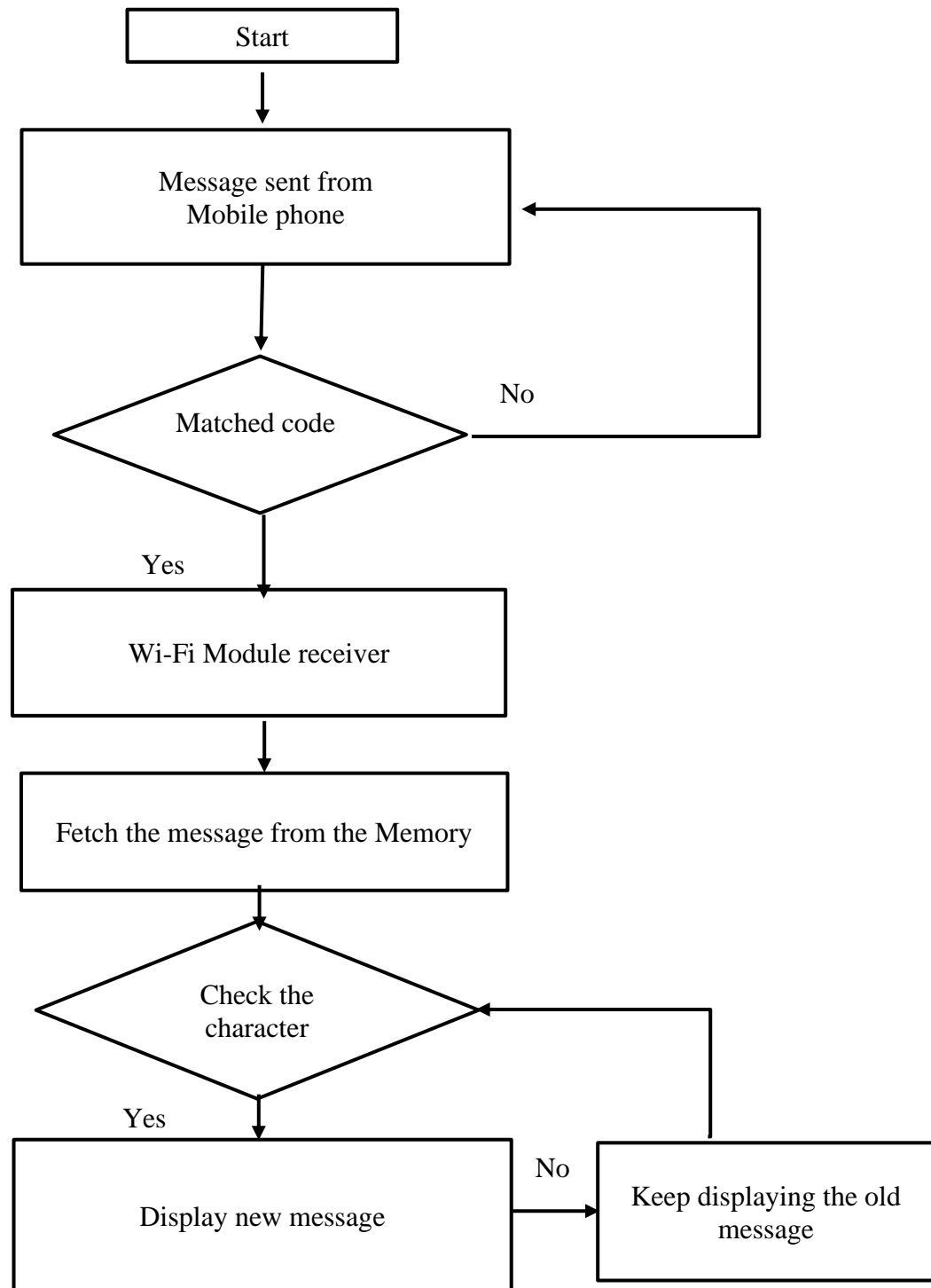


Let's have a discussion about LED scrolling display with circuit diagrams. Scrolling LED display can be implemented in various methods. Two methods are widely in use, first one is decade counters and another one using shift registers. The shift register is easy to implement for beginners. Let's discuss about LED using shift registers.

We normally use a simple static LED display screen to convey a message. Earlier, when we want to display large data, we used to change message for every few instances. Now scrolling displays are more preferred to static. By using a pre-programmed controller, we can make LED display in scrolling way. We can also make LED to adoptable by using PC controller-based system. Simple Outdoor LED Message Moving or Scrolling Sign Board, Electronic projects using LED Scrolled

Generator for outdoor digital signs, Marketable LED sign board with Message scrolling are the examples of the scrolling LED display.

If we connect directly 5v supply to LED, it may get damaged. For that, we connect a resistor in series with the resistor.

FLOW CHART**Chapter 7**

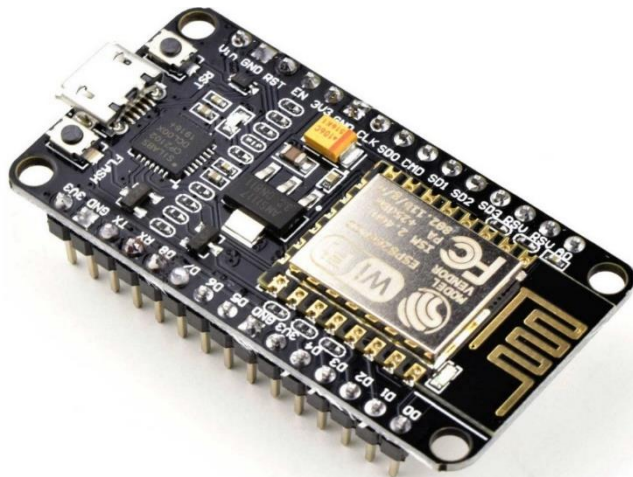
Chapter 8

COMPONENTS

- 1.** ESP8266 (Wi-Fi Module)
- 2.** ATMEGA
- 3.** MAX 7219 8X8 LED MATRIX
- 4.** General PCB
- 5.** LED Strip
- 6.** Male and Female jumpers

1. ESP8266 (Wi-Fi Module)

The ESP8266 Wi-Fi Module is a self-contained SOC with integrated TCP/IP protocol stack that can give any microcontroller access to your Wi-Fi network. The ESP8266 is capable of either hosting an application or offloading all Wi-Fi networking functions from another application processor. Each ESP8266 module comes pre-programmed with an AT command set firmware, meaning, you can simply hook this up to your Arduino device and get about as much Wi-Fi-ability as a Wi-Fi Shield offers (and that's just out of the box)! The ESP8266 module is an extremely cost-effective board with a huge, and ever growing, community. This module has a powerful enough on-board processing and storage capability that allows it to be integrated with the sensors and other application specific devices through its GPIOs with minimal development up-front and minimal loading during runtime. Its high degree of on-chip integration allows for minimal external circuitry, including the front-end module, is designed to occupy minimal PCB area.

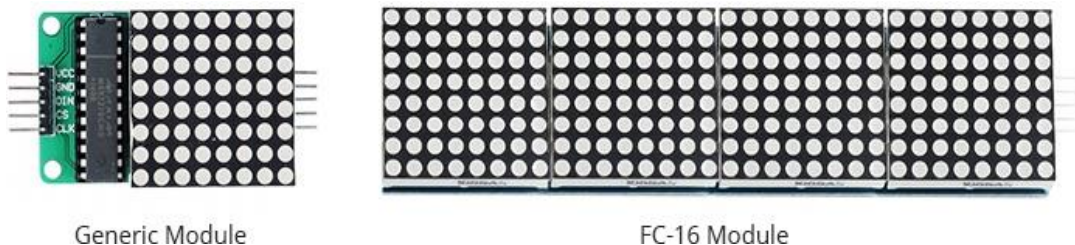


2.ATMEGA

The ATmega328 is a single-chip microcontroller created by Atmel in the mega AVR family. The Atmel 8-bit AVR RISC based microcontroller combines 32 kB ISP flash memory with read-while-write capabilities, 1 kB EEPROM, 2 kB SRAM, 23 general purpose I/O lines, 32 general purpose working registers, three flexible timer/counters with compare modes, internal and external interrupts, serial programmable USART, a byte-oriented 2-wire serial interface, SPI serial port, 6-channel 10-bit A/D converter (8-channels in TQFP and QFN /MLF packages), programmable watchdog timer with internal oscillator, and five software selectable power saving modes. The device operates between 1.8-5.5 volts. The device achieves throughput approaching 1 MIPS per MHz

3.MAX 7219 8X8 LED MATRIX

There are several MAX7219 breakout boards available, two of which are more popular one is the generic module and the other is the FC-16 module.



A typical MAX7219 module contains a 8×8 dot matrix display and a MAX7219 LED display driver. Let's get to know them one by one. The MAX7219 is an integrated serial input / output common-cathode display driver, it is connected to a microprocessor with 8-digit 7-segment digital LED display can also be connected to the bar graph display or 64 separate LED.

4.General PCB

A **printed circuit board (PCB)** or **printed wiring board (PWB)** is a laminated sandwich structure of conductive and insulating layers. PCBs have two complementary functions. The first is to affix electronic components in designated locations on the outer layers by means of soldering. The second is to provide reliable electrical connections (and also reliable open circuits) between the component's terminals in a controlled manner often referred to as PCB design. Each of the conductive layers is designed with an artwork pattern of conductors (similar to wires on a flat surface) that provides electrical connections on that

conductive layer. Another manufacturing process adds vias, plated-through holes that allow interconnections between layers.

5.LED Strip

Superior Lighting effect & Higher performance:

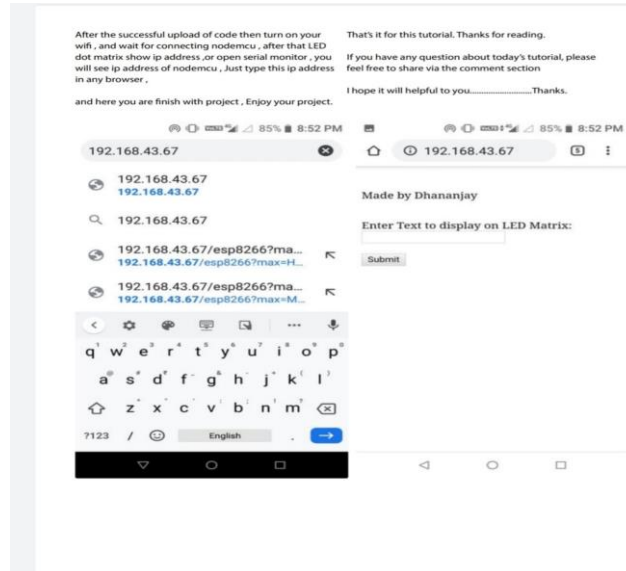
A high CRI LED strip light reproduces colours more effectively and produces a higher quality of light output. These strip lights also reveal the objects' true colour.

Software required

Arduino IDE v 1.8.19

Chapter 9

RESULT



Chapter10

Applications

1. Institutes
2. Hospitals
3. Park
4. Railway station
5. Bus station
6. Shopping mall
7. Public places
8. Score board

Chapter11

Conclusion

LED display board, this paper explains by integrating features of dual power supply, dual option of changing message and inbuilt motion detector in the field of communication. Such collaborative powers and method of changing message had not been developed in a single device, and this paper marks the beginning of the new technology of combining two separate technologies under one roof. Therefore, this new enhanced display system makes our communication more efficient and faster. Certainly, this model may be able to work under any circumstances with greater efficiency, as it does not need any man power to switch off the system because it is an automated system. Besides, in this paper the user can display additional messages at a time. From this the user of this display board can use the board for rental out, notice board and promotion board. In a nutshell, this paper describes the new enhancement in LED display board which is highly efficient than the existing technology

Chapter12

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