



WiFi Based Led Display

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Abstract:

Everything around us is becoming smart such as smart phones, smart televisions, smart refrigerators, so why not smart display boards for advertisements and notices. Display boards are primary thing in any institute, organization, public utility places like bus stops, railway stations, parks, shopping malls to display information regarding platforms, various advertisements about the products, or important notices. People are now adapted to the idea of the world at its fingertips. The old -wired display boards are controlled by microcontroller. Wireless technology wi-fi is use for communication Information is entered through the keyboard of transmitter and send through wi-fi. receiver will receive it at through microcontroller send it to display control which display the information on LED matrix display.

Key words: old -wired display boards, wi-fi, LED matrix display,etc

I.INTRODUCTION:

The led Display System is aimed at the colleges and universities for displaying day to - day information continuously or at regular intervals during the working hours. Being WI-FI- based system, it offers flexibility to display flash news or announcements faster than the programmable system. WI-FI- based display system can also be used at other public places like schools, hospitals, railway stations, gardens etc. It presents an SMS based display board incorporating the widely used WI-FI to facilitate the communication of displaying message on display board via user's mobile phone from any circumference within wi-fi. It receives the SMS, validates the sending Mobile Identification Number(MIN) and displays the desired information after necessary code conversion. Thesystem is easy, robust, to use in normal life by anyone at anyplace with less errors and maintenance. As engineer's main aim is to make life simple with help of technology,this is one step to simplify real time noticing.

II.PROJECT:

Notice Board Is Primary Thing In Any Institution Or Organization Or Public Utility Palce Like Bus Station,Railway Station And Park. Sticking Various Notices Day-To-Day Is A Difficult Process. A Saperate Person Is Required To Take Care Of This Notices Display. This Project Deal About An Advance Hi-Tech Wireless Notice Board.The Project Is Built Around A Micro Controller Which Provide All The Functionality Of The Display And Wireless Control. Display Is Obtained On Led.The Advantages Of This Project Being Low Coast And Low Power Consumption.

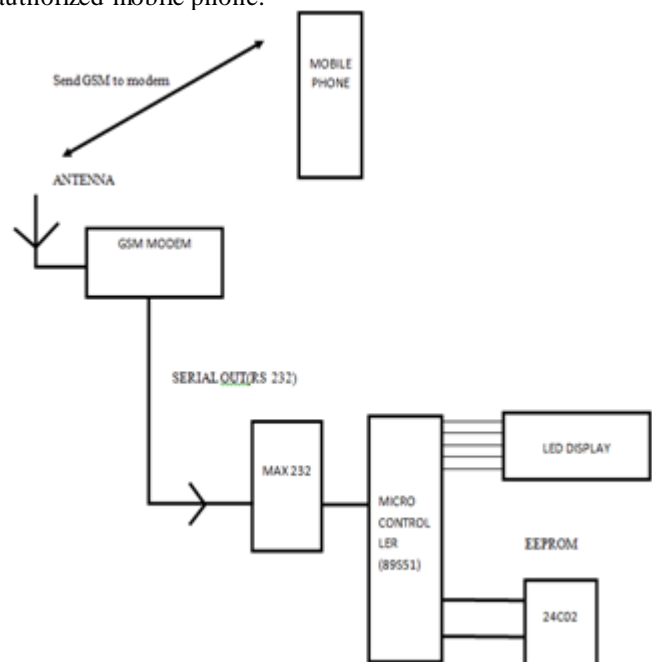
III.EXISTING SYSTEM:

This is a Scrolling (Moving) Message Electronic Display Board which displays the messages received as SMS or GPRS Packets. The main aim of this project will be to design a SMS driven automatic display board which can replace the currently used programmable electronic display. It is proposed to design receiver cum display board which can be programmed from an

authorized mobile phone. The message to be displayed is sent through a SMS from an authorized transmitter. The microcontroller receives the SMS, validates the sending Mobile Identification Number (MIN) and displays the desired information. Started off as an instantaneous News display unit, we have improved upon it and tried to take advantage of the computing capabilities of microcontroller.

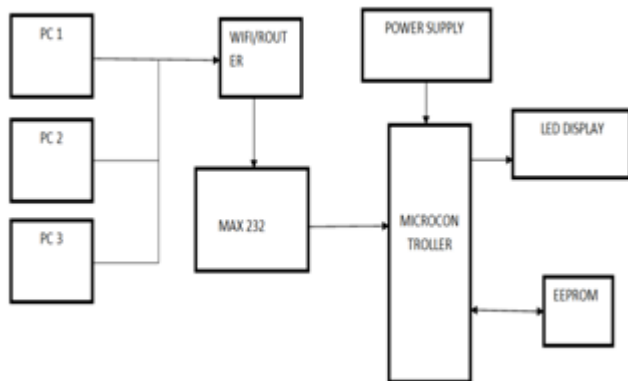
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V. PROPOSED SYSTEM



POWER SUPPLY:

In this project firstly we use one step down transformer. Step down transformer step down the voltage from 220 volt Ac to 12 volt Ac. This AC voltage is further converted into DC with the help of rectifier circuit. In rectifier circuit we use TWO diode. All the diodes are arranges as a bridge rectifier circuit. Output of this rectifier is pulsating Dc. To convert this pulsating DC into smooth dc we use one capacitor as a filter components. Capacitor converts the pulsating Dc into smooth DC with the help of its charging and discharging effect. Output of the rectifier is now regulated with the help of IC regulator circuit . We use 7805 regulator then its means its is 5 volt regulator and if we use 7808 regulator then its means that it is 8 volt regulator circuit. In this project we use 5 volt dc regulated power supply for the complete circuit. Separate 9 volt dc power supply is used for the relay coil. the pulsating Dc into smooth DC with the help of its charging and discharging effect. Output of the rectifier is now regulated with the help of IC regulator circuit . We use 7805 regulator then its means its is 5 volt regulator and if we use 7808 regulator then its means that it is 8 volt regulator circuit. In this project we use 5 volt dc regulated power supply for the complete circuit. Separate 9 volt dc power supply is used for the relay coil.

EEPROM:

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EEPROM: (also written **E²PROM** and pronounced "e-e-prom", "double-e-prom" or "e-squared-prom") stands for *electrically erasable programmable read-only memory* and is a type of non-volatile memory used in computers and other electronic devices to store relatively small amounts of data but allowing individual bytes to be erased and reprogrammed. EEPROMs are organized as arrays of floating-gate transistors. EEPROMs can be programmed and erased in-circuit, by applying special programming signals. Originally, EEPROMs were limited to single byte operations which made them slower, but modern EEPROMs allow multi-byte page operations. It also has a limited life for erasing and reprogramming, now reaching a million operations in modern EEPROMs. In an EEPROM that is frequently reprogrammed while the computer is in use, the life of the EEPROM is an important design consideration.

ARDUINO EEPROM:

The microcontroller on the Arduino and Genuino AVR based board has EEPROM: memory whose values are kept when the board is turned off (like a tiny hard drive). This library enables you to read and write those bytes.

The supported micro-controllers on the various Arduino and Genuino boards have different amounts of EEPROM: 1024 bytes on the ATmega328, 512 bytes on the ATmega 168 and ATmega8, 4 KB (4096 bytes) on the ATmega 1280 and ATmega2560. The Arduino and Genuino 101 boards have an emulated EEPROM space of 1024 bytes.

LED DISPLAY:

An **LED display** is a flat panel display, which uses an array of light-emitting diodes as pixels for a video display. Their brightness allows them to be used outdoors in store signs and billboards, and in recent years they have also become commonly used in destination signs on public transport vehicles. LED displays are capable of providing general illumination in addition to visual display, as when used for stage lighting or other decorative (as opposed to informational) purposes.

ATMEGA:

The ATmega328 is a single-chip microcontroller created by Atmel in the megaAVR 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.

WI-FI ROUTER:

A **wireless router** is a device that performs the functions of a router and also includes the functions of a wireless access point. It is used to provide access to the Internet or a private computer network. It can function in a wired LAN (local area network), in a wireless-only LAN (WLAN), or in a mixed

wired/wireless network, depending on the manufacturer and model.

MAX 232

The MAX232 is an integrated circuit first created in 1987 by Maxim Integrated Products that converts signals from a TIA-232 (RS-232) serial port to signals suitable for use in TTL-compatible digital logic circuits. The MAX232 is a dual transmitter / dual receiver that typically is used to convert the RX, TX, CTS, RTS signals.

The drivers provide TIA-232 voltage level outputs (about ± 7.5 volts) from a single 5-volt supply by on-chip charge pumps and external capacitors. This makes it useful for implementing TIA-232 in devices that otherwise do not need any other voltages.

The receivers reduce TIA-232 inputs, which may be as high as ± 25 volts, to standard 5 volt TTL levels. These receivers have a typical threshold of 1.3 volts and a typical hysteresis of 0.5 volts. The MAX232 replaced an older pair of chips MC1488 and MC1489 that performed similar RS-232 translation. The MC1488 quad transmitter chip required 12 volt and -12 volt power,^[1] and MC1489 quad receiver chip required 5 volt power.^[2] The main disadvantages of this older solution was the ± 12 volt power requirement, only supported 5 volt digital logic, and two chips instead of one.

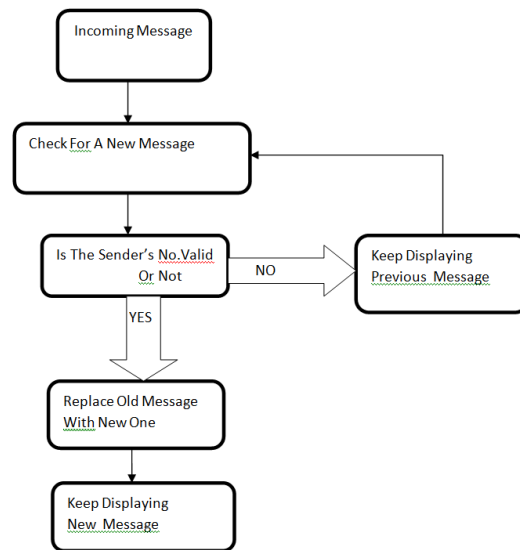
PERSONAL COMPUTER:

A personal computer (PC) is a multi-purpose electronic computer whose size, capabilities, and price make it feasible for individual use. PCs are intended to be operated directly by a end-user, rather than by a computer expert or technician. "Computers were invented to 'compute': to solve complex mathematical problems," but today, due to media dependency and the everyday use of computers, it is seen that "'computing' is the least important thing computers do." The computer time-sharing models that were typically used with larger, more expensive minicomputer and mainframe systems, to enable them to be used by many people at the same time, are not used with PCs. A range of software applications ("programs") are available for personal computers including, but are not limited to, word processing, spreadsheets, databases, web browsers, email, digital media playback, video games, and many personal productivity and special-purpose software applications. In the 2010s, PCs are typically connected to the Internet, allowing access to the World Wide Web and other resources. Personal computers may be connected to a local area network (LAN), either by a cable or a wireless connection. In the 2010s, a PC may be:

Applications

1. INSTITUTES
2. HOSPITALS
3. PARK
4. RAILWAY STATION
5. BUS STATION
6. SHOPPING MALL
7. PUBLIC PLACE
8. SCORE BOARD

VIFLOW CHART



VII CONCLUSION

The prototype of the WI-FI based display was efficiently designed. This prototype has facilities to be integrated with a display board thus making it truly mobile/PC. It accepts the message/information, stores it, validates it and then displays it in the LED display. The message is deleted from the EEPROM each time it is read, thus making room for the next message. Only one SMS can be displayed at a time. These limitations can be removed by the use of higher end microcontrollers and extended RAM. The prototype can be implemented using commercial display boards. In this case, it can solve the problem of instant information transfer.

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BIOGRAPHY



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