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SMS Based Electronics Notice Board Using GSM

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Abstract: Notice board is primary issue in any establishment or organization or public-service corporation places like bus stops, railway stations or parks. However causing varied notices day to day may be a tedious method. This paper deals with advanced board. It presents associate SMS based mostly board incorporating the wide used GSM to facilitate the communication of displaying message on notice board via user's itinerant. Its operation is predicated on aurdino UNO. A SIM900A GSM electronic equipment with a SIM card is interfaced with the aurdino UNO with the assistance of AT commands. once the user sends a SMS via a registered variety from his mobile phone, it's received by SIM900A GSM electronic equipment at the receiver's finish. The messaged is therefore fetched into the aurdino UNO . it's additional showed on associate electronic board that equipped with light-emitting diode display interfaced to aurdino UNO.

Keywords: Arduino UNO, GSM Module, Led display, sim card, Messages.

I. INTRODUCTION

Nowadays advertisement is going digital. The big shops and the shopping centers use digital displays now. Also, in trains and buses the information like platform number, ticket information is displayed on digital boards. People are now adapted to the idea of the world at its finger-tips. The use mobile phones have increased drastically over years. Control and communication has become important in all the parts of the world. This gave us the idea to use mobile phones to receive the message and then display it on an electronic board. The GSM technology is used. GSM stands for Global System for Mobile Communication. Due to this international roaming capability of GSM, we can send the message to receiver from any where of the world. It has the system for Short Message Service(SMS). This project is a remote notice board with a GSM modem at the receivers end. So if the user wants to display any message, can send the information by SMS and thus update the LED display accordingly. As engineer's main aim is to make life simple with help of technology, this is one step to simplify real-time noticing system Design.

II. LITERATURE REVIEW

With the development of cellular networks in the 1970's for increasing the lack of frequencies in the radiotelephone services which in turn lead to introduction of AMPS (Advanced Mobile Phone System) where the transmission was analog based. This was known to be the first generation in cellular networks. The second generation was based on digital transmission and was called with various abbreviations as GSM (Global System for Mobile communications), ERMES (European Radio Messaging System). Various Cordless telephone standards were also introduced during this time only. The third generation has risen with the unification of different technologies; some of them which are popularly known are FPLMTS (Future Public Land Mobile Telecommunications System), UMTS (Universal Mobile Telecommunication System), and IMT-2000. The word GSM Refers to Global System for Mobile Communications. Nowadays many people are showing lot of interest to know more about GSM related concepts. So, here we have surveyed a list of various GSM based projects ideas which are having more demand and very interesting to learn. The following projects based on GSM technology we surveyed would give better idea about the GSM technology practically. Presently, the wireless communication has announced its arrival on big stage and the world is going mobile. We want to control everything and without moving an inch. This remote of appliances is possible through Embedded Systems. The main aim of this project will be to design a SMS driven automatic display toolkit which can replace the currently used programmable electronic display. It is proposed to design receive cum display toolkit which can be programmed from an authorized mobile phone. The message to be displayed is sent through an SMS from an authorized transmitter. The toolkit receives the SMS, Validates the sending Mobile Identification Number (MIN) and displays the desired information after necessary code conversions. GSM based data acquisition is a process control system that enables a site operator to monitor and control processes that are distributed among various remote sites.

III. PROPOSED SYSTEM AND WORKING

In the proposed system main parts are the Arduino UNO, GSM module and led display. when we would like to display a message on notice board, then user sent a message by the mobile from anywhere to the GSM module. GSM module receives the message from the register mobile number then sent to the Arduino UNO.

It is a microcontroller is small in a single integrated circuit containing a processor, memory and programmable input and output peripherals. Then type AT in the main window. If a response OK is returned back to mobile phone then type AT-CMGR which is again an AT command which means read message from a given memory location and display the message on the notice board.

IV. BLOCK DIGRAM

The block diagram of SMS based wireless notice board display using GSM mobile based on different components.

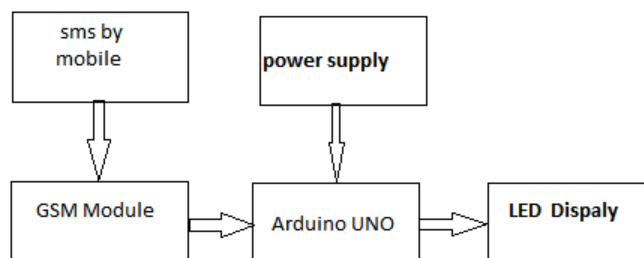


Fig.1 Block Diagram

V. COMPONENTS

A. Arduino Uno

A micro controller (Microcomputer, Micro controller or MCU) is a small computer on a single integrated circuit containing a processor core, memory, and programmable input and output peripherals. It is an integrated circuit that is programmed to do a specific task and sometimes called as mini computers. By reducing the size and cost compared to a design that uses a separate microprocessor, memory, and input/output devices, micro controllers make it economical to digitally control even more devices and processes. The Arduino integrated development environment (IDE) is a cross platform application written in Java, and is derived from the IDE for the Processing programming language and the Wiring projects



Fig.2 Arduino UNO

B. Gsm Module Sim900

The SIM900A is a complete Quad-band GSM/GPRS Module which delivers GSM/GPRS 850/900/1800/1900MHz performance for voice, SMS and Data with low power consumption. This GSM Modem can accept any GSM network operator SIM card and act just like a mobile phone with its own unique phone number. Advantage of using this Display Message on Notice Board using GSM SIM900A modem will be that you can use its RS232 port to communicate and develop embedded applications. Applications like SMS Control, data transfer, remote control and logging can be developed easily. The modem can either be connected to PC serial port directly or to any microcontroller. It can be used to send and receive SMS or make/receive voice calls. It can also be used in GPRS mode to connect the internet and do many applications for data logging and control. This GSM modem is a highly flexible plug and play quad band GSM modem for direct and easy integration

AT commands are instructions used to control a modem. AT is the abbreviation of Attention. Every command line starts with "AT" or "at". That's why modem commands are called AT commands. Many of the commands that are used to control wired dial-up modems, such as ATD (Dial), ATA (Answer), ATH (Hook control) and ATO (Return to online data state), are also supported by GSM/GPRS modems and mobile phones. Besides this common AT command set, GSM/GPRS modems and mobile phones support

an AT command set that is specific to the GSM technology, which includes SMS-related commands like AT+CMGS (Send SMS message), AT+CMSS (Send SMS message from storage), AT+CMGL (List SMS messages) and AT+CMGR (Read SMS messages).



Fig 3.GSM sim 900A.

C. Led Display

P10 32x16 (Total 512 LEDs) LED Display module is the easiest way to put together any size of Outdoor or Indoor LED display sign board. This panel is having total 512 high brightness red led's mounted on a high quality plastic housing designed for best display results. Any number of such panels can be combined in different fashions in order to realize LED sign board/ Graphics Board of any size.

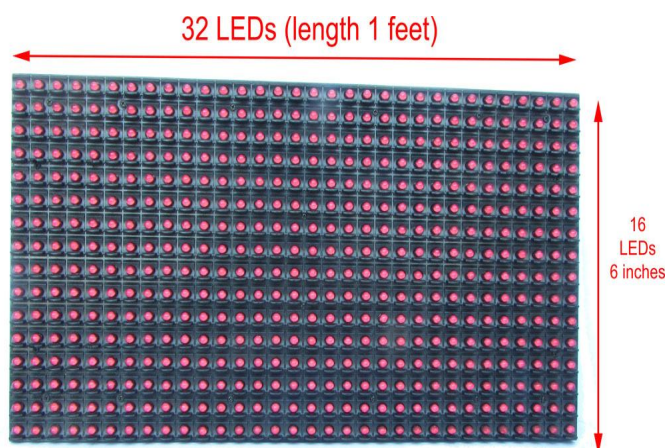


Fig.4 led display

D. Interfacing Diagram

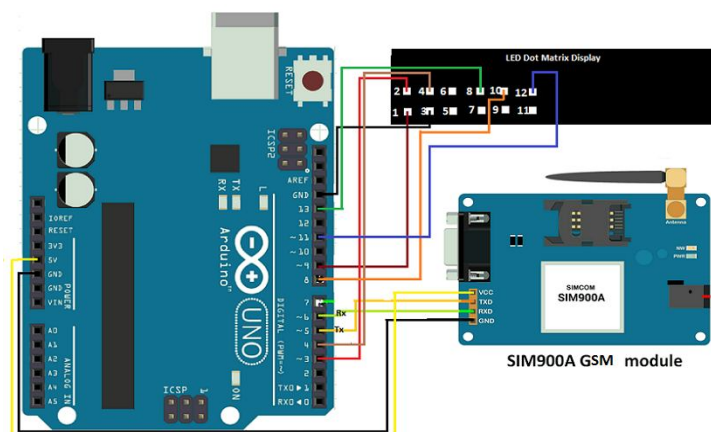


Fig.5 interfacing of arduino,GSM and LED

E. Flowchart Of Message Execution

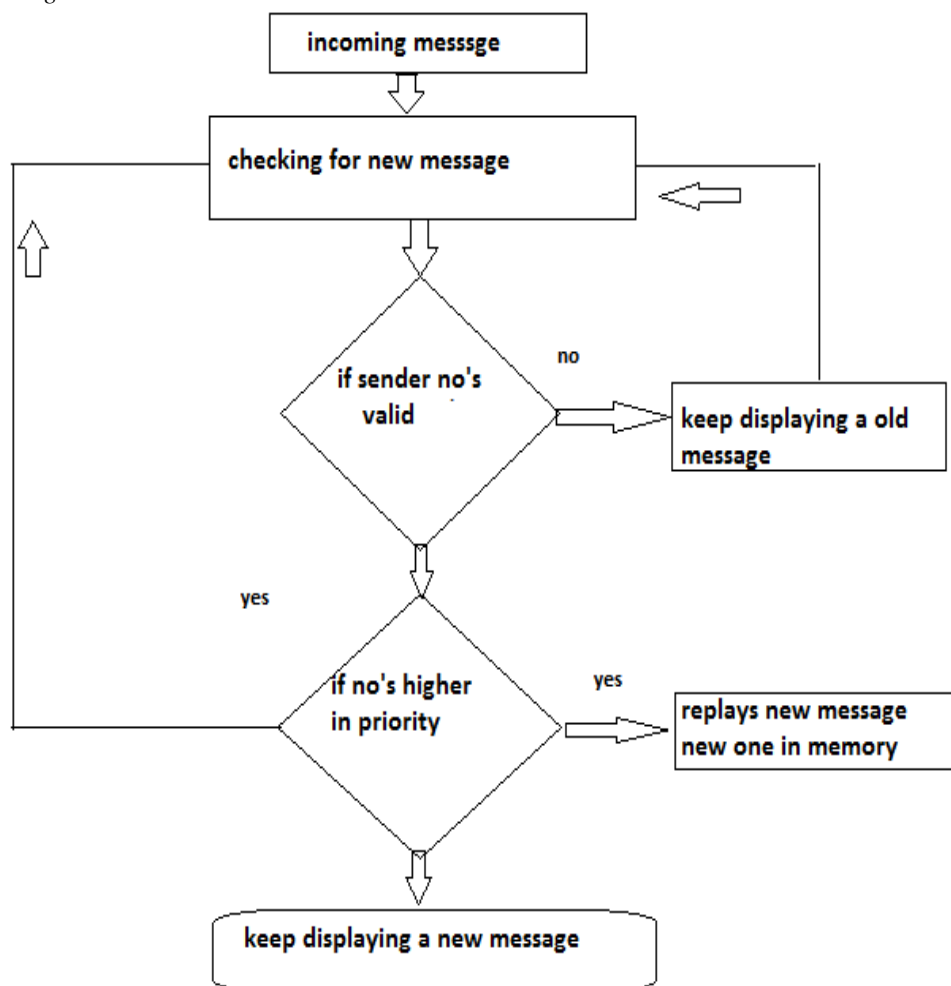


Fig.6 flowchart for messaging

VI. RESULTS

As we send a message from mobile phone it reaches to receiver of GSM module and then through arduino that message display on LED matrix display board.



Fig.7 message display



Fig.8 message display

VII.CONCLUSION

By introducing the concept of wireless technology in the field of communication we can make our communication more efficient and faster, with greater efficiency we can display the messages and with less error and maintenance. This model can be used very efficiently in establishments like chain restaurants where the order and special discount can be displayed at all branches simultaneously, in colleges where students and staff can be informed simultaneously in no time it can be setup at public transport places like railways, bus stations, and airports and also at roadsides for traffic control and in emergency situations, it is a cost-efficient system and very easy to handle. Latency involved in using paper in displaying notices is avoided and the information can be updated by the authorized person.

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