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GSM based display system using Arduino

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Abstract —*In this paper, the idea of GSM based display using Arduino Technology has been presented. Our main aim is to reduce paper work and time. In this paper we have tried to implement our system in such a way that, the GSM module which is located at Digital notice board receives the message from authorized user and displays on notice board which is situated at remote location and at the same time this message is also sent to different user's mobile numbers that are stored in microcontroller memory. So circulation of important messages or notice takes place within very short span of time to respective mobile numbers.*

Keywords-*GSM Module, LCD Display, Arduino.*

I. INTRODUCTION

It presents an SMS based notice board incorporating the widely used GSM to facilitate the communication of displaying message on notice board via user's mobile phone. SIM 800 GSM modem with a SIM card is interfaced to the ports of the Arduino with the help of AT commands.SIM 800 is duly interfaced through a level shifter IC MAX232 to the Arduino. The messaged is thus fetched into the Arduino.

II. LITERATURE SURVEY

With the development of cellular networks in the 1970's for increasing the lack of frequencies in the radio telephone services which in turn lead to introduction of AMPS (Advanced Mobile Phone System) where the transmission was analog based.

We are using AT mega 328 to realize this project because Using an Arduino simplifies the amount of hardware and software development you need to do in order to get a system running. The Arduino hardware platform already has the power and reset circuitry setup as well as circuitry to program and communicate with the microcontroller over USB. In addition, the I/O pins of the microcontroller are typically already fed out to sockets/headers for easy access (This may vary a bit with the specific model).On the software side, Arduino provides a number of libraries to make programming the microcontroller easier. More useful are things such as being able to set I/O pins to PWM at a certain duty cycle using a single command or doing Serial communication. The greatest advantage is having the hardware platform set up already, especially the fact that it allows programming and serial communication over USB

Multiple units GSM controlled devices: The human brain always is in search of information of interest to control systems of its choice. In this modern-age of electronic systems it is very important to be able to manage and acquire as much as information from all places. GSM network is widely used today for calling or SMS or other communication related activities. Also, some places need urgent notices like in school-college, railway stations, airports, stock-market and this notice should be in real-time, so we need a real-time notice board. This project is our experiment to give a start to the era of real-time noticing

III. SYSTEM DESCRIPTION

3.1 Block diagram

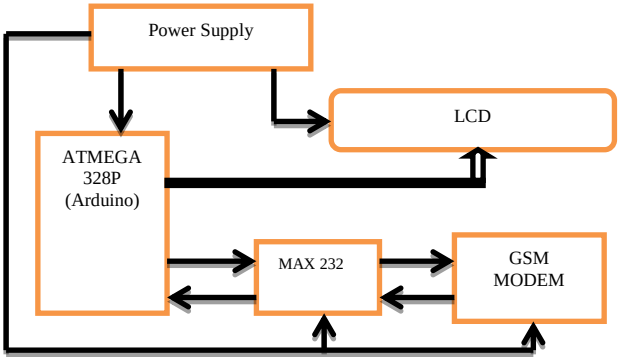


Fig. Block diagram

GSM Modem

A GSM modem is a wireless modem which works with a GSM wireless network. These extended AT commands are defined in the GSM standards. Extended AT commands give you the following options:

1) Read, write and delete messages.
2) Send messages.
3) Signal strength monitoring.
4) Battery charging and monitoring status.
5) Read, write and search phone book entries.

Microcontroller (Arduino 328 P)

Microcontroller is based on a 32/16 bit ARM CPU. It provides large buffer size and high processing power. Various 32 bit timers, single or dual 10-bit ADC, 10-bitDAC, PWM channels and 45 fast GPIO lines level sensitive external interrupts pins.

MAX232

IC MAX232 converts single from an RS-232 serial port to singles suitable for use in TTL compatible digital logic circuits. The MAX232 is dual driver-receiver and typically converts the RX, TX, CTS and RTS signals.

LCD Display

In our project we are using LCD (16x2) display. The basic LCD requires 3 control lines as well as 4 or 8 I/O lines for the data bus. The user may select whether the LCD is to operate with a 4-bit data bus or an 8-bit data bus.

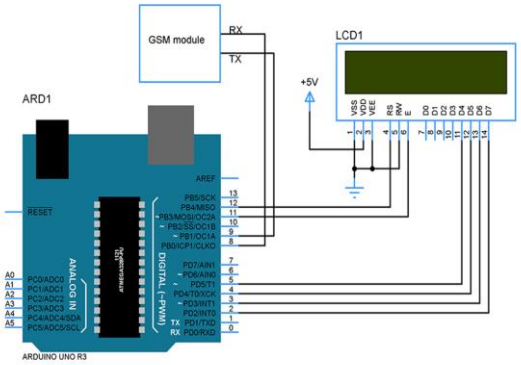
Power Supply

Power supply is an electrical power source to the whole system. A device or system that supplies electrical or other types of energy to an output load or group of loads is called a power supply unit.

GSM Modem and PC Interfacing

GSM Modem is used to receive message from the authorized user. This GSM modem requires a SIM card from a wireless carrier in order to operate.

3.2 Circuit Description



Connections of Wireless Notice Board using GSM and Arduino are simple and shown in the figure below.
Here a liquid crystal display (LCD) is used for display the "Notice" or message, which is sent though the mobile phone as SMS.
Data pins of LCD namely RS, EN, D4, D5, D6, D7 are connected to Arduino digital pin number 7, 6, 5, 4, 3, 2. And Rx and TX pin of GSM module is directly connected at TX and Rx pin.

IV. ADVANTAGES & DISADVANTAGES

The biggest advantage of Arduino is its ready to use structure. During coding of Arduino, you will notice some functions which make the life so easy. Arduino has automatic unit conversion capability. The most important factor which cannot be denied is cost. If journey of micro-controllers is started with Arduino then it will be very difficult for to make the complex intelligent circuitries in future

V. APPLICATIONS & FUTURE SCOPE

The above concept of display boards can be used in railway stations, for advertisement in shopping malls, in educational institutes. It can be used for managing traffic in metropolitan cities and other public utility places.
In recent years, the LCD has found wide spread use by replacing LEDs because of their declining prices, ability to display numbers, characters & graphics and the ease of programming. The model can be utilized to display temperature in case when there is no message to be display. The message can be first received display in standard language, the same message can be converted to another language and the message can be displayed.

VI. CONCLUSION

The GSM based display system that we have created has been in practical use in various companies like in construction and research area railways, colleges etc. This system can avoid paper work, reduce human efforts in different areas.
After reviewing the possible solutions, we decided to use Arduino for this project

REFERENCES

[1] SMS Tutorial –How to use Microsoft HyperTerminal to send AT commands.
[2] Foram Kamdar, Anubbhav Malhotra and Pritish Mahadik, Display Message on Notice Board using GSM, Advance in Electronic and Electric Engineering, ISSN 2231-1297, Volume 3, Number 7 (2013), pp. 827-832
[3] A K Shawhney, "Electrical and Electronics Measurements and Instrumentation" by Dhanpat Roy & Sons, 4th Edition 2007.
[4]http://www.arduino.cc
[5] ARDUINO.CC, "Arduino – Introduction", 2015 [Online] Available: http://arduino.cc/en/Guide/Introduction. [Accessed: 25- Feb - 2015].
[6] Arduino Phone. Instructables.com (2013-07-17). Retrieved on 2013- 08-04.