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GSM Based Multiuser Electronic Notes Board

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Abstract: **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 control of appliances is possible through Embedded Systems. The use of "Embedded System in Communication" has given rise to many interesting applications that ensures comfort and safety to human life. Communication technology not only helps us to exchange information with human beings but also allows us to carry out monitoring and controlling of machines from remote locations. This remote control of appliances is possible with wired or wireless communication interfaces embedded in the machines. The use of "Embedded System in Communication" has given rise to many interesting applications. One of such applications is public addressing system (PAS). Many companies are manufacturing audio / video systems like public announcement system, CCTV, programmable sign boards etc. But all these systems are generally hard-wired, complex in nature and difficult to expand. So, by adding wireless communication interface such as GSM to these systems, we can overcome their limitations. The main aim of this project will be to design a SMS driven automatic display board which can replace the currently used manually updated notice board. 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.**

The system required for the purpose is nothing but a Microcontroller based SMS box. The main components of the kit include microcontroller, GSM modem. These components are integrated with the display board and thus incorporate the wireless features. The GSM modem receives the SMS. In return the modem transmits the stored message through the COM port. The microcontroller validates the SMS and then displays the message.

Keywords: GSM, Multi-user electronic board, SMS, ECS.

I. INTRODUTION:

Notice Board is primary thing in any institution/organization or public utility places like bus stations, railway stations and parks. But sticking various notices day today is a difficult process. A separate person is required to take care of these notices. This project deals about an advanced hi-tech wireless notice board. An Embedded system is a combination of software and hardware to perform a dedicated task. Some of the main devices used in embedded products are Microprocessors and Microcontrollers. Microprocessors are commonly referred to as general purpose Processors as they simply accept the inputs, process it and give the output. In contrast, a Microcontroller not only accepts the data as inputs but also manipulates it, interfaces the data with various devices, controls the data and thus finally gives the result. As everyone in this competitive world prefers to make the things easy and simple to handle, this project sets an example to some extent.

Now a day's every advertisement is going to be digital. The big shops and shopping center are using the digital moving displays. In Railway station and bus stands everything that is ticket information, platform number etc is displaying on digital display. But in these displays if they wants to change the message or style they have to go there and connect the display to PC or laptop. So keeping in this mind we are designing a new display system which can access remotely, we are using the GSM technology to access the display's which is one of the new technology in the embedded field to make the communication between Microcontroller and Mobile.

This project is a multiuser notice board with MODEM connected to it, so if the user wants to display some messages, he will send the messages in SMS format the MODEM in the display system will receive the message and update the display according to the message. And every user having authority to discard or erase their messages any time.

II. METHODOLOGY

An embedded microcontroller is a chip, which has a computer processor with all its support function (clocking and reset), memory (both program storage and RAM), and I/O (including bus interfaces) built into the device. These built in function minimize the need for external circuits and devices to the designed in the final applications.

The improvements in micro-controller technology has meant that it is often more cost effective, faster and more efficient to develop an application using a micro-controller rather than discrete logic. Creating applications for micro-controllers is completely different than any other development job in computing and electronics. In most other applications, number of subsystems and interfaces are available but this is not the case for the Microcontroller where the following responsibilities have to be taken.

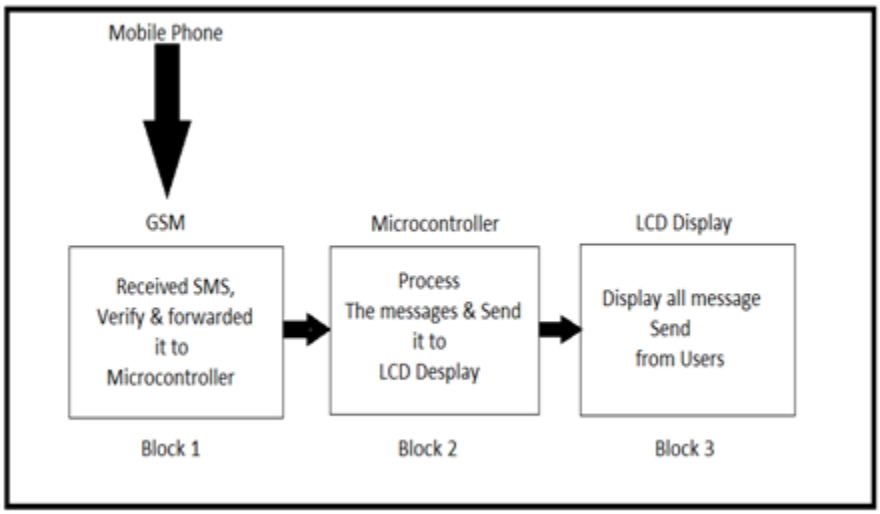
- Power distribution
- System clocking.
- Interface design and wiring.
- System Programming.
- Application programming.
- Device programming.

There are two types of micro-controller commonly in use. Embedded Microcontroller is the Microcontroller, which has the entire hardware requirement to run the application, provided on the chip. External memory micro-controller is the micro-controller that allows the connection of external memory when the program memory is insufficient for an application or during the work a separate ROM (or even RAM) will make the work easier.

Main Parts

1. Arduino Uno Microcontroller (ATmega328).
2. GSM modem.
3. SIM
4. Power supply

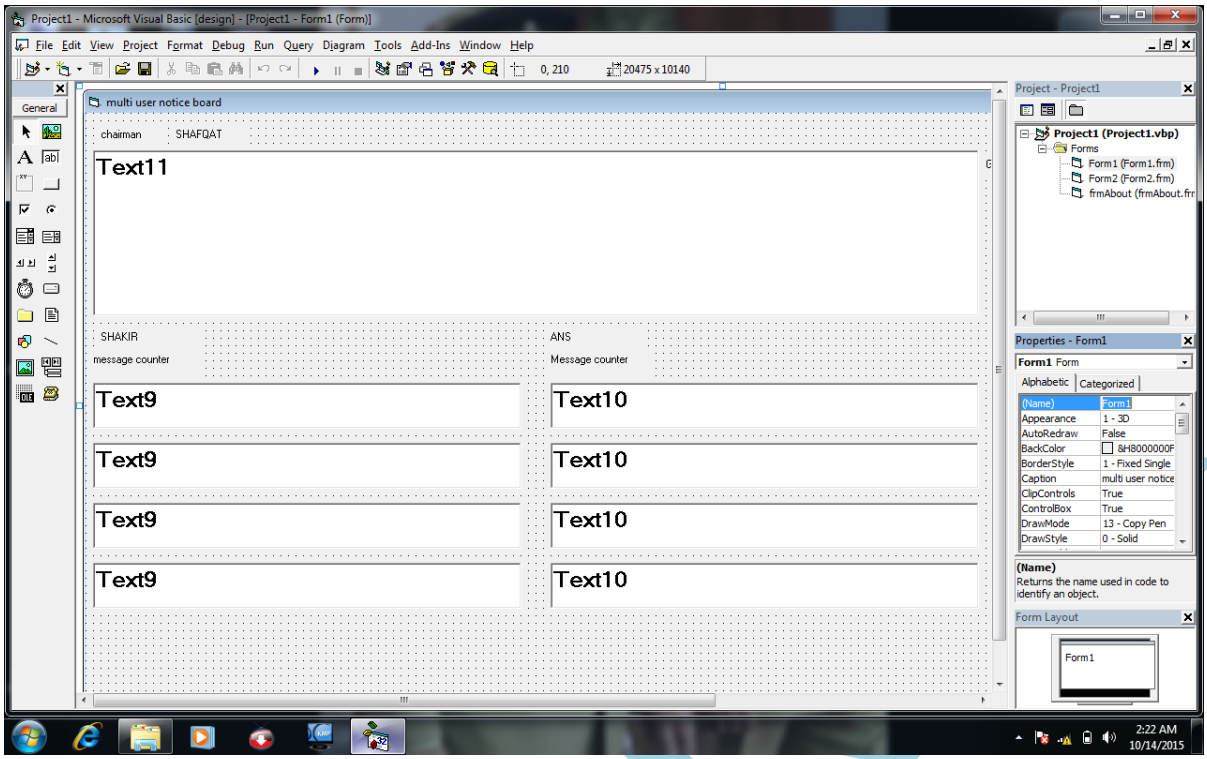
Block Diagram



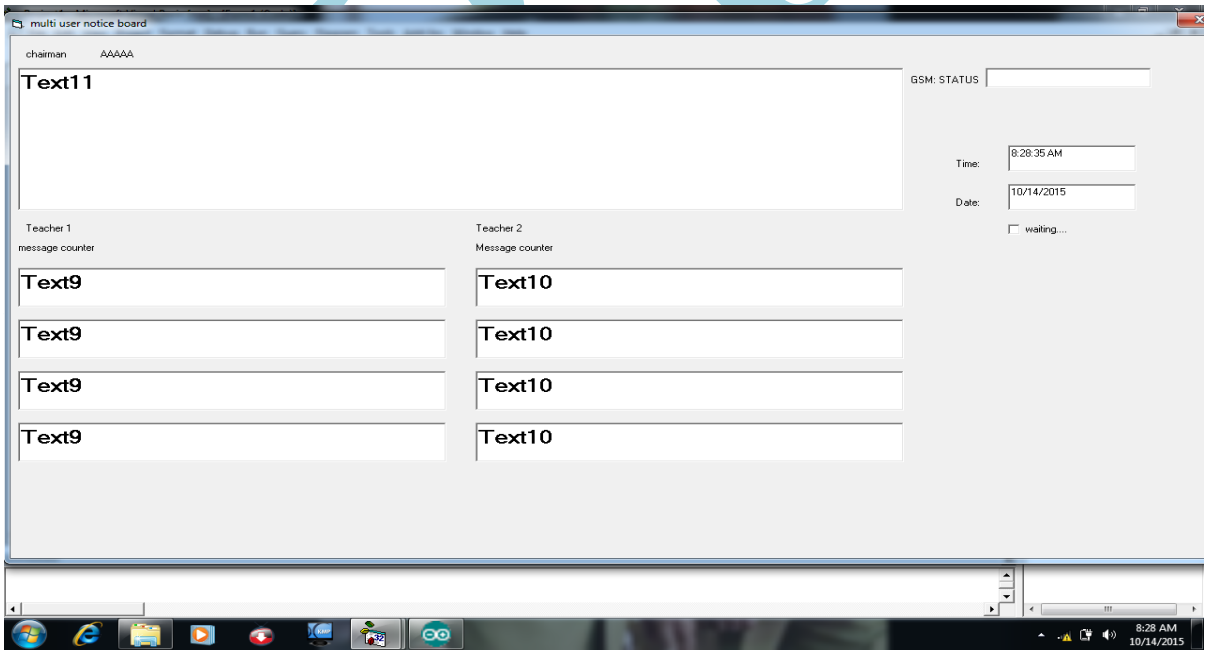
Software Simulation

We have used VB 6 (Professional) software's for real-time simulation of our project

VB windows



Result Window



LCD Display

CONCLUSION

The prototype of the GSM based display was efficiently designed. This prototype has facilities to be integrated with a display board thus making it truly mobile. The GSM accepts the SMS, stores it, validates it and then displays it in the LCD modules. The prototype can be implemented using commercial display boards. In this case, it can solve the problem of instant information transfer in the campus.

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