

Multiuser sms based wireless electronic notice board



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Wireless communication has announced its arrival on big stage and the world is owing 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. In this paper, it is proposed to design a model where the message to be displayed is sent through a SMS from an authorized transmitter. The toolkit receives the SMS, validates the user and displays the desired Information after necessary code conversion.

The main components of the toolkit notation microelectronic check which Is Interfaced with PC via MAXIMA level converter. MAX 232 level converter Is used to convert RESTS voltage to TTL voltage levels and vice versa. We use PC's serial port to Interface microelectronic. A xx Character LCD display is attached In byte mode to port 1 of microelectronic. This display will be used to display the messages [advertisements. Microelectronic coding will be done using Embedded C and Kiel. PC Coding will be done using IV. Nooks PC Connectivity SAD Is a tool used In IV for GSM modem Interfacing.

The modem transmits the stored message through the COM port. The microelectronic displays the message in the LCD display board. The microelectronic used In this case Is ATTACKS. MATRIX SIMIAN GODWIT used as a GSM modem. In the prototype model, replaced by actual display boards.

II. Design Layout The block diagram For Wireless GSM based electronic notice display is shown in figure 1. [pick] Fig. L Block Diagram of the System The whole system is basically divided into two sections: Transmitting and Receiving. Transmitting section consists of Just a mobile.

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Any type of user (Simi number) can be used, as users are assigned password for accessing the system. Authorized users end the message that they want to display on the notice board to the receiving section's mobile number and the message will be displayed only if the users have the authentication password. Receiving section on the other hand consists of a GSM modem to receive message. Received SMS is then extracted by PC with the help of a IV program using AT commands. SMS are then sent to microelectronic using MAXIMA ICC and PC's serial port. Microelectronic finally displays it on LCD display.

III. Hardware description A. Microelectronic Microelectronic is used for interfacing the LCD display with PC to display messages. The ATTACKS is a low-power, high-performance COSMOS 8-bit microcomputer with K bytes of Flash programmable and erasable read only memory (PERFORM). The device is compatible with the industry-standard CHECK and CHECK instruction set and pin out. The on-chip Flash allows the program memory to be reprogrammed in-system or by a conventional non-volatile memory programmer which provides a highly-flexible and cost-effective solution to many embedded control applications.

B. GSM Modem A GSM modem is a wireless modem that works with a GSM wireless network. A wireless modem behaves like a dial-up modem. The main difference between them is that a dial-up modem sends and receives data through a fixed telephone line while a wireless modem sends and receives data through radio waves. Like a GSM mobile phone, a GSM modem requires a SIMI card from a wireless carrier in order to operate. Generally, computers use AT commands to control modems. Reading of message from <https://assignbuster.com/multiuser-sms-based-wireless-electronic-notice-board/>

the SIMI card inserted into the modem is done by sending the appropriate AT command to the modem.

In addition to the standard AT commands, GSM modems defined in the GSM standards. Some common basic SMS related AT Commands are shown in table below: Fig. 2. AT Commands C. Display Unit One of the most common devices attached to an 8051 is an LCD display. Here we have used xx- that means 2 rows and 16 characters. It is a Hitachi HUDDLED compatible module, having 16 pins including 2 pins for backcloth. To program the LCD module, first we have to initialize the LCD by sending some control words. RSI should be low and E should be high when we send control.

RIVE pin 0 mean write data or control to LCD and RIVE pin 1 means read data from the LCD. To send a data to LCD, make RSI high, Ran' low, place the data in pins 7 to 14 and make pin E high and low once. To make this let us first build a circuit. We are going to write on the LCD module and not reading back. So, RAW is connected to ground directly. We need not have to input any data through, so all output pins are used in our application. Data pins of LCD are connected to data pins of the port. Strobe signal (Pin 1 of DAD connector) is given to E (Pin 6 of LCD), Select printer (Pin 17 of DAD) is connected to RSI (pin 4 of the LCD).

Pin Configuration of LCD is shown in fig 4. Fig. 3 Pin Description of LCD Hitachi HUDDLED Many functions as Rolling or still message display, speed variation, manage time for splay is also added to the display board. D. MAX 232 The MAXIMA is a dual driver/receiver that includes a capacitive voltage generator to supply Ella-232 voltage levels from a single 5-V supply. Each

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receiver converts EIA- 232 inputs to 5-V TTL/COSMOS levels. Each driver converts TTL/COSMOS input levels into EIA-232 levels. GSM Modem, which works at EIA-232 voltage levels, logic 1 varies from -3 to -15 volts and logic 0 from +3 to +15 volts.

The microelectronic which works on TTL logic levels, logic 1 is +5 volts and logic 0 is 0 volts. Therefore to interface the two we use a MAX 232 driver IC. Power Supply is an important part of a circuit. It provides required supply to different blocks of the circuit from input 230 VAC. The main blocks include transformer, rectifier circuit, filter circuit, and regulator circuit. Voltage regulator IC LM7805 is used as a voltage regulator. [pick] Fig. 4 Block Diagram of Power Supply IC. CIRCUIT DIAGRAM The overall circuit diagram of the system including all the hardware involved is shown in figure 3.

Fig. 5. Circuit Diagram of the system V. MULTI-USER CONCEPT AND

SECURITY ISSUES As already mentioned, multiple users are assigned a common password to access the system, i. e. They can update messages on the notice board. For security, password is provided to authorize users. Before sending message, a user needs to authenticate itself with the system by sending the assigned password to the receiver section's modem SIMI number. The receiving section's system verifies password, sends response to the user and tells them to send the message.

To prevent misuse, users are provided with a time-out time before which they have to send the desired message. User has to authenticate again if it does not send message within that time-out time. Password can be periodically changed by administrator at PC to avoid threat to system security due to

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password leakage. VI. SOFTWARE USED A. EXPRESS PC Express PC is free PC software and is a snap to learn and use. Designing circuit boards is simple for the beginner and efficient for the professional. The board manufacturing service makes top quality two and four layer BPCS. B.

EMBEDDED C international demand for programmers with 'embedded' skills, and many desktop developers are starting to move into this important area. Because most embedded projects have severe cost constraints, they tend to use low-cost processors like the 051 family of devices considered in this paper. C. KEEL Keel development tools for the 8051 Microelectronic Architecture support every level of software developer from the professional applications engineer to the student just learning about embedded software development. The Keel 8051 Development Tools are designed to solve the complex problems facing embedded software developers.

D. VISUAL BASIC Visual Basic (VB) is an event driven programming language and associated development environment from Microsoft for its COM programming model. Visual Basic was derived from BASIC and enables the rapid application development (RADAR) of graphical user interface (GUI) applications. Visual Basic allows many additional components to be added to the toolbox. The Microsoft COM component is used to add a serial communication facility. Here we have used VB also for providing graphical user interface at PC for easy access to display system, password changing and monitoring. IL. GSM MODEM-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. This SIM number is contact number of the receiving section. PC's use AT commands to control modems. <https://assignbuster.com/multiuser-sms-based-wireless-electronic-notice-board/>

Although GSM modem is interfaced with PC through Bluetooth using a IV program, a GSM modem can be tested before actually implementing into the system. The MS Hypermedia is a handy tool when it comes to testing the GSM device. It can be found at Start -> Programs -> Accessories -> Communications -> Hypermedia.

Various parameters like connection name, icon, com port, and correct port settings are specified for our GSM modem. Finally in the hyper terminal main window, AT commands are sent and responds received from GSM modem can be seen. Screenings of dialog box showing sending and receiving of AT commands is shown in guru below (Here mobile phone connection is the connection name) We will first have to type " AT" A response " K" should be returned from the mobile phone or GSM modem. Now we will type " AT+SPIN? ". The AT command " AT+SPIN? Is used to query whether the mobile phone or GSM modem is waiting for a PIN (personal identification number, I. E. Password). If the response is "+SPIN: READY", it means the SIMI card is ready for use. After this, various AT commands depending on the used modem's instruction set are send to modem and responses are received. This process is very useful in testing GSM modems. Evil. PC-MICROELECTRONIC COMMUNICATION 8051 provides a transmit channel and a receive channel of serial communication. The transmit data pin (TXT) is specified at UP. 1, and the receive data pin (ARC) is at UP.

O. All modes are controlled through SOON, the Serial control register. The timers are controlled using ATOM, the Timer mode register, and TCO, the Timer control register. [pick] Fig 7. Circuit diagram for PC-Microelectronic interfacing First we have to design a communication protocol. After this, to <https://assignbuster.com/multiuser-sms-based-wireless-electronic-notice-board/>

get started open Visual Basic. Start a new Standard EXE. Next go to the Project | Components... Menu Check the Microsoft Com control 6. 0. Click K. Next double-click on the yellow phone in the toolbar to add the Noncoms control to our form.

Form is created using drag and drop technique, and a tool is available is available to define their control status. Now that the form is set up and ready to go, we just need to add the code to send the data. Microelectronic is also programmed to read the data and further uses it to program LCD Module by steps described in display unit in the hardware description section. 'X.

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 errors and maintenance.

This model can be used very efficiently in establishments like chain restaurants wherein the order and special discounts can be displayed at all branches simultaneously, in colleges wherein students and staffs can be informed simultaneously in no time. It can be set up at public transport places like railways, bus station, and airport and also at roadside for traffic control and in emergency situations, it is a cost efficient system and is easy to handle. Latency involved in using of papers in displaying of notices is avoided and the information can be updated by the authorized persons. . A commercial model can be able to display more than one message at a time.

2. Alphanumeric LCD have a limitation on size as well as no of characters.

These can be replaced with large LED display boards which are not only eye catching but display characters in a moving fashion one after the other. 3. In <https://assignbuster.com/multiuser-sms-based-wireless-electronic-notice-board/>

our project we are sending messages via GSM network and displaying on a LCD by utilizing AT commands. The same principle can be applied to control electrical appliances at a distant location. 4.

Robots can be controlled in a similar fashion by sending the commands to the robots. This can be used for spy robots at distant locations, utilized by the military to monitor movement of enemy troops.