

Electronic Notice Board using Android API

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Abstract – This paper aims to introduce the electronic bulletin board controlled by an android UI. It can make use of the existing Android mobile base station coverage. The Project is an Electronic Notice Board that is controlled by an Android gadget and showcases message on it. Generally, there were see sheets where any data or notice must be stick day by day. This winds up dreary and requires day by day upkeep. Therefore, this project overcomes this problem by introducing an Electronic display notice board interfaced to an android application Through the way of an android application, it can broadcast the notice-information in as creative and easy as possible, so that the masses can understand all aspects of information from the information screen. There are two basic functions in the system: the communication is realized by using 8051 microcontroller and Android user interphase ; As the client sends the message from the android app it is gotten by a microcontroller of 8051 family. The microcontroller shows the message on a LCD screen.

Indexed Terms: - API, XML, 8051 Microcontroller, LCD

1. INTRODUCTION

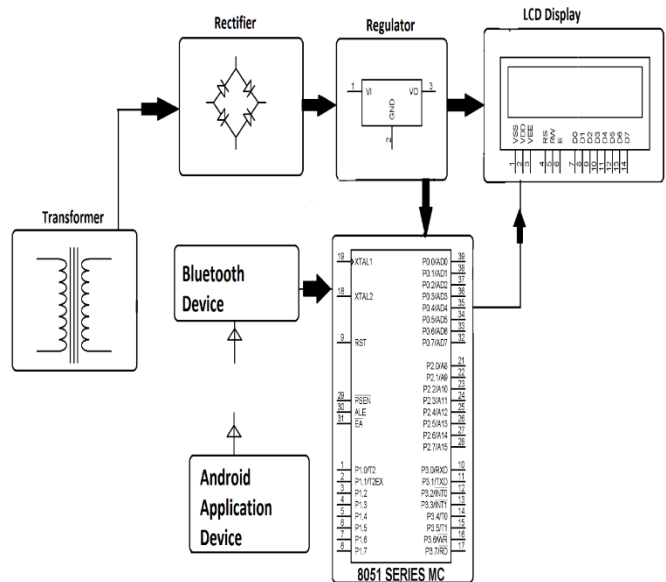
Notice Boards are an important medium for displaying information and keeping people informed. The conventional notice barricades include the sticking of printed or manually written data on a board. Be that as it may, this has the disservices of dependency on a man for sticking up notification and wastage of paper. Some developments in notice boards, in an attempt to overcome above-mentioned drawbacks, include display of data on a screen using wireless communication. This has been implemented on Liquid Crystal Displays (LCD) and Light Emitting Diode (LED) displays. Some of the available methods use ATmega32 [2], LPC2148 by NXP . Some methods can display only one message at a time or In the methods 16x2 character LCD has been used. The disadvantage of this system is that in order to view the message, the observer should be very close to the screen. Use of Field Programmable Gate Array (FPGA) for notice boards is not economically viable. Also, it requires synthesizing Micro Blaze processor on the FPGA for sending Attention (AT) commands . Thus, the parallel processing capability of the FPGA is not used as it is made to work sequentially.

This paper, with an aim to increase the usability of electronic notice boards, deals with wireless reception and display of messages using Android UI. Practically, the signal is sent through an android application and is received by 8051 microcontroller which displays the message on LCD screen.

The font size is customizable and it can display multiple notices at a time. The paper focuses on using Extensible Markup Language (XML) and JAVA for displaying messages since using XML, display features such as font size and background color can be easily set as per user requirement. The reason for using Android UI is that it is easily accessible and its UI, uses XML files.

2. SYSTEM ARCHITECTURE

The square graph of programmed light framework as appeared in fig.1, The block diagram of the Android based wireless notice board is shown below. The square outline of the remote board for the most part incorporates equipment and programming segments. Hardware requirements are 8051 microcontroller, rectifier, regulator, LCD display, resistors, capacitors, diodes, and transformer. Software requirements are XML and JAVA Script. In this project, 8051 microcontroller, IC level shifter, Android UI are the most essential components.



The fig(1) describes the block diagram

2.1 Microcontroller chip

1.) The as a matter of first importance rule for picking a microcontroller is that it must meet the job needing to be done

productively and cost viably. In dissecting the necessities of a microcontroller-based venture, it is seen whether a 8-bit, 16-bit or 32-bit microcontroller can best deal with the processing needs of the errand generally adequately. Among alternate contemplations in this class are:

(a)Speed – What is the most elevated speed that the microcontroller underpins?

(b)Packaging – Does it come in 40-stick DIP (double inline bundle) or a QFP (quad level bundle), or some other bundling design? This is critical regarding space, collecting, and prototyping the finished result.

(c)Power utilization – This is particularly basic for battery-controlled products. The number of I/O pins and the clock on the chip.

(d)How simple it is to move up to higher – execution or lower utilization forms.

(e)Cost per unit – this is fundamental with respect to the last cost of the thing in which a microcontroller is used.

2.) The foundation in picking a microcontroller is that it is so natural to create items around it. Key contemplations incorporate the accessibility of a constructing agent, debugger, a code – productive compiler, specialized help.

3.) The third model in picking a microcontroller is its prepared accessibility in required amounts both now and later on. At present of the main 8-bit microcontrollers, the 8051 family has the biggest number of differentiated providers. By provider is implied a maker other than the originator of the microcontroller. On account of the 8051, this has begun by Intel a few organizations additionally as of now creating the 8051.

The fundamental design of 8051 comprises of the accompanying highlights:

- 1.) An eight piece ALU
- 2.)32 discrete I/O pins (4groups of 8)
- 3.) Two 16 bit clock/counters
- 4.) Full duplex UART
- 5.) 6 intrude on sources with 2 need levels
- 6.) 128 bytes of on board RAM

V. FOLLOWING ARE THE STEPS TO DISPLAY NOTICE: GENERAL STEPS

STEP 1: Search a program named “app.apk” and run it (stored in database) on the terminal. This will launch the android app and start the display in the form of an android application.

STEP 2: Followed by app.apk run the program named “chk.apk”.

STEP 3: Enter the required password for beginning the notice board.

STEP 4: After entering the right secret phrase the status of the application is checked.

STEP 5: If the status of use is OK, dispatch the application of notice board.

A) DISPLAYING NOTICE IN THE FORM OF TEXT:

STEP 1: Enter the validation password followed by the message to be displayed in the textbox of the user’s phone.

STEP 2: Send this content to the 8051 arrangement of microcontroller associated with control unit of notice board.

STEP 3: The got content is serially transmitted to the control unit and afterward verification secret word is checked.

STEP 4: If the password is correct, the notice will be displayed on the screen with a buzzer notification and concurrently an acknowledgement will be sent to the user.

B) DISPLAYING NOTICE IN THE FORM OF IMAGE/VIDEO:

STEP 1: The image or video that is to be displayed needs to be uploaded on the database of the notice board in the android app.

STEP 2: Enter the authentication password with a prefix “img:” followed by the image name (or video name) of image (or video) to be displayed in the textbox of the user’s phone.

STEP 2: Send this text to the 8051 series of microcontroller connected to control unit of notice board.

STEP 3: The got content is serially transmitted to the control unit and after that validation secret word is checked.

STEP 4: If the password is correct, the image(or video) will be displayed on the screen with a buzzer notification and simultaneously an acknowledgement will be sent to the user.

3. EXISTING AND PROPOSED SYSTEM

- The Existing System uses Atmel's ATmega32 microcontroller.
- Different wireless technologies: Bluetooth and ZigBee.

2. Microcontroller:

The microcontroller will go about as the handling unit. It will have the accompanying capacities:

- a. Process Data: It must process the information got from the sensor.
- b. Control Output: This yields information sent from the

application received by the microcontroller to display on screen.

c. Correspondence with remote interface: It must have the capacity to get and send signals through the system.

d. Control: Intelligent calculations will be utilized to adroitly control the LCD screen to rapidly react to the changes in notices as required.

The Proposed System is:

- Use of 8051 Series Microcontroller
- Android app to monitor and display the message.

The main advantage of this system is that

- Due to app large range provision is possible
- More proper and efficient way of working.
- More security and can be secured with a password.

More people can be connected at a time that makes it more user friendly and messages can be displayed with more creativity

4. CONCLUSION AND FUTURE WORK

With the everyday headway in innovation the Notice Boards are likewise developing from a written by hand framework to a computerized show and further to a Wireless Display System. The paper reflects a Digital Notice Board System

with an android UI and microcontroller 8051, which displays the desired notices in the form of a text or an image or video on the LCD screen through a message. Numerous notifications can be shown at the same time in parallel with a picture or video. Utilization of a secret key plan before the message and for beginning the notice board show has likewise upgraded the security concerns. Notification can be shown as word report, control point, video cuts by transferring them straightforwardly. This should be possible by utilizing a reasonable working framework, program documents, drivers, players to make them more attractive. Such notification can be shown by utilizing topics and including thoughts by giving an entrance to interested users. Moreover cloud can be used to dump the past notices and keep record of them.

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