Android based Wireless Notice Board

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Abstract— A notice board at any institution / organization or public utility places like bus stations, railway stations, Bank, Hospitals and parks is a primary thing for the information. But sticking various notices day-to-day is a difficult process. A separate person is required to take care of this notices display. This project deals about an advanced hi-tech wireless notice board. In this paper we have proposed a system which will enable people to wirelessly transmit notices on a notice board (LED Display) using Bluetooth. In this paper we have proposed a system by which only authorized people can access the notice board using Android application.

Key words: Bluetooth, Android, ATMega-16 Controller, LED Display

I. INTRODUCTION

From the past many years we are seeing the notices of the college, companies, offices is usually displayed on the normal board having number of notices written on the same board .So we were thinking that if all these notices are displayed at the same place one by one except occupying the whole board area. So we come to the conclusion to design a Notice board such that it can fulfil the requirements such as less manual operation, same notice can be displayed at the various places at the same time, the notice should be visible from maximum area or distance, compact and compatible, easy handling.

The aim of this project is to develop a wireless notice board that will be used at the faculty in order to display latest information. Wireless electronics notice board is developed as user friendly notice board with wireless concept that offers the flexibility to control the notice board within range 10 meters.

The main intention of this project is to display the latest information or notice on the notice board through smart phone. Using small android application we can write message and send it to the notice board through wireless technology. The message is display on scrolling display board which is a common display today for shopping malls, railway stations, colleges, etc. This system is enhanced to display the latest information through an Android application of smart/ tablet phones. Once the owner connects Android application device to this system through the Bluetooth, then the owner can send the information to it. When the user enters the latest information on the Android application on the GUI, it is transferred to the microcontroller. Upon receiving information, the microcontroller replaces the new information on the LED display in place of the old one.

II. BACKGROUND

A. Aim:

The project is an electronic notice board that is controlled by an android device and displays message on it. Traditionally, there were notice boards where any information or notice had to be stick daily. This becomes tedious and requires daily maintenance. We have been using notice boards to display messages in offices, schools hospitals from a long time. But the major problem with these notice boards is every time we need to change the message we have to go there and then erase previous message and then write the new one. So this project is a solution to this problem as it wireless technology Bluetooth which provides us the facility to change message on notice board. The aim of this project is to reduce human effort as well as time.

B. Proposed System:

In this Project the LED display is used to display the latest information through an android application device by entering the updated information. The scrolling display board is a common display today for shopping malls, railway stations, colleges, etc., for effective mode of providing information for the people, but this is not easy for updating the messages instantly. This system is enhanced to display the latest information through an Android application of smart/tablet phones. Once the owner connects Android application device to this system through the Bluetooth, then the owner can send the information to it. The Bluetooth receives the message from the android device that is sent to a microcontroller of AVR family. The microcontroller displays the message on a LED screen.

III. SYSTEM DESIGN

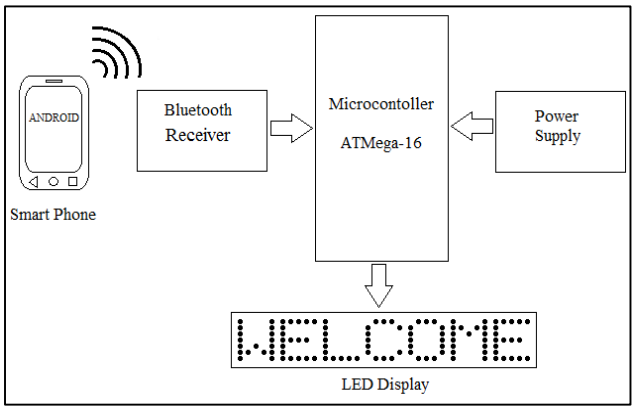

Fig. 1: Block diagram

The design steps and working principles of the system is organized into two different units like Hardware unit and Software unit. Hardware unit includes micro-controller, power supply section, display section, smart phone and Bluetooth receiver. Software unit includes the compiler to build the embedded c program used in AVR microcontroller**,** android application software.

As shown in the Fig.1 block diagram microcontroller block is a low-power, high-performance 8-bit microcontroller with 16K bytes of Flash Programmable memory. The on-chip Flash allows the program memory to be reprogrammed in-system or by a conventional non-

volatile memory programmer. By combining a versatile 8-bit CPU with Flash on a monolithic chip, the Atmel micro-controller is a powerful microcontroller, which provides a highly flexible and cost effective solution so many embedded control applications.

The Bluetooth module we have use that is HC-05 and it's rang is 10 meter. It receives signal from smart phone. Smart phone send message using android based application to the microcontroller. The led display blocks signifies the led matrix used to display message.

A. AVR Microcontroller:

AVR stands for Advanced Virtual RISK. There are many kinds of AVR microcontroller with different properties. Except for AVR32, which is a 32 bit microcontroller, AVRs are all 8 bit microprocessor, meaning that the CPU can work on only 8 bit of data at a time. Data larger than 8 bit has to be broken into 8 bit pieces to be processed by the CPU.

B. AVR features:

The AVR is an 8 bit RISC single chip microcontroller with Harvard architecture that comes with some standard features such as on chip program ROM, data RAM, data EEPROM, timers and I/O ports. AVRs has some additional features like ADC, PWM and different kinds of serial interface such as USART, SPI, I2C, CAN, USB and so on.

C. Wireless Technology (Bluetooth)

Bluetooth is a networking technology aimed at low-powered, short range applications. It was initially developed by Ericsson, but is governed as an open specification by the Bluetooth Special Interest Group. Bluetooth is a recently proposed standard for short range, low power wireless communication. Initially, it is being envisioned simply as a wire replacement technology. Its most commonly described application is that of a "cordless computer "consisting of several devices including a personal computer, possibly a laptop, keyboard, mouse, joystick, printer, scanner, etc., each equipped with a Bluetooth card. There are no cable connections between these devices, and Bluetooth is to enable seamless communication between all them, essentially replacing what is today achieved through a combination of serial and parallel cables, and infrared links. However, Bluetooth has the potential for being much more than a wire replacement technology, and the Bluetooth standard was indeed drafted with such a more ambitious goal in mind. Bluetooth holds the promise of becoming the technology of choice for adhoc networks of the future. This is in part because its low power consumption and potential low cost make it an attractive solution for the typical mobile devices used in adhoc networks. Bluetooth is a specification for Wireless Personal Area. It is a way to connect and exchange information and data between mobile phones, laptops, digital cameras and video games. The communication is wireless and has the range of up to 10 meters. Bluetooth enables to transfer files, photos, and songs from the mobile to other device. The Bluetooth comes in with a wireless headsets and it comes in free with the mobile phone or computer, the wireless headset also useful for people who like to be on the go or while driving the car, as they are hands free.

D. LED Display

An LED display, or light emitting diode display, is a flat panel display that uses light emitting diodes as the video display. An LED display panel can be either a small display or part of a larger display. LED diodes are used in order to make up an LED display. There are many different kinds of LED Displays. At Future Electronics we stock many of the most common types categorized by display type, digit/alpha/matrix size, colour, common pin value, packaging type and number of digits/alpha/matrix/bars. The parametric filters on our website can help refine your search results depending on the required specifications. The most common types for display type are light bar, seven segment and dot matrix. We also carry many other different types of display. Digit/Alpha/Matrix Size can range from 0.03 in to 0.40 in, with the most common sizes being 0.2 in, 0.3 in and 0.4 in.

E. Android

Operating system have developed a lot in last 15 years. Starting from black and white phones to recent smartphones or mini computers, mobile OS has come far away. One of the most widely used mobile OS these days is ANDROID. Android is a software bunch comprising not only operating system but also middleware and key applications. After original release there have been number of updates in the original version of Android. It is the software stack of mobile devices. Android SDK provides the API's that is necessary to begin developing applications on the Android platform using the Java programming language. Android includes an embeddable browser built upon Web Kit, the same open source browser engine powering the iPhone's Mobile Safari browser. An Android application consists of one or more of the following classifications: 1) Activities: Is the application that has a visible UI is implemented with an activity. When we selects an application from the home screen or application launcher, an activity is started.2) Services: A service should be used for any application that needs to persist for a long time, such as a network monitor or update-checking application. 3) Content providers: A content provider's job is to manage access to persisted data, such as a SQLite database. Suppose for the bigger system like Speech to text conversion system or one that makes data available to multiple activities or applications, a content provider is the means of accessing your data.4) Broadcast receivers: This is use to launched to process element of data or respond to an event, such as the receipt of a text message.

IV. CONCLUSION

This project present the model of wireless notice board using android application which help us to send notice or any information to the led display board. When the user wants to send notice he require wireless connection to transfer notice or information. Once the user connects Android application device through the Bluetooth, then the user can send the information to led display.

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