SCROLLING LED BOARD USING BLUETOOTH

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ABSTRACT

Display boards are primary thing in any institute, organization, public utility places like bus stops, railway stations, parks, shopping malls to display information regarding platforms, various advertisements about the products, or important notices. The design of "Smart Scrolling LED Display using Bluetooth" utilizes low cost and user can access multiple applications. People are now adapted to the idea of the world at its fingertips. Thus, If anyone wants to display the message they can send message through using android Bluetooth by using this project. This project deals with advanced wireless Android development board. The main objective of this project is to design a wireless board that displays messages sent from android phone user using Bluetooth. The main controlling device of the whole system is android Matrix LED Display module, Bluetooth module is interfaced to android and android development tool with APK application.

KEYWORDS- Bluetooth, matrix LED display, Android phone

INTRODUCTION

The project aims at designing a LED based scrolling message display controlled from an android mobile phone. The proposed system makes use of Bluetooth technology to communicate from android phone to LED display board.

This project is used for instant information display using LED's by using android Bluetooth module.

Now a day's every advertisement or information is displayed digitally. The big shops and shopping centers are using the digital moving/scrolling displays at railway station, bus stands right from arrival/departure information to, platform number etc. displaying the information in digital form. But in these displays if the concerned authorities wants to change the message they are able to direct their messages through this Bluetooth based display system.

LED displays are used in variety of applications, like store signs, billboards and many more. In recent years it is commonly used in destination signs on public transport vehicles.

LED panels are also used for the purpose of general illumination, task lighting and for stage lighting. Display systems are classified into single line displays, and multiline displays.

This system is actually divided in main two parts, one is message transmission section which is android phone and another is reception and displaying section.

The Android phone is service which is used to transmit the text message which is to be displayed on LED board.

At the input/transmitter side the android phone is used to generate input to the system. The software used is arduino development tool. In that tool APK application is used for sending texts or numbers using Bluetooth access.

The message sent by Bluetooth is in the form of ASCII codes. At the receiver side Bluetooth receiver is used.

It receives ASCII codes from transmitter and gives to arduino development board which is controlled by AVR controller.

LITERATURE REVIEW

Paper name:LED Scrolling Display using Android Phone
Author: Deshmukh V. R. , Karande N. D , Patil S. S. , Tamboli A. S

Description: The project aims at designing a LED based scrolling message display controlled from an android mobile phone. The proposed system makes use of Bluetooth technology to communicate from android phone to LED display board. The system is actually divided into main two parts, one is message transmission section which is android phone and another is reception and displaying section. The Android phone is service which is used to transmit the text message which is to be displayed on LED board. At the input/transmitter side the android phone is used to generate input to the system. The software used is arduino development tool. In that tool APK application is used for sending texts or numbers using Bluetooth access. The message sent by Bluetooth is in the form of

ASCII codes. At the receiver side Bluetooth receiver is used. It receives ASCII codes from transmitter and gives to arduino development board which is controlled by AVR controller. The board is connected to 3 sets 16 rows x 32 columns LED display through SPI interface. The LED board displays this message using scrolling technique. So required information displayed on that board.

Paper name: Bluetooth based Notice Board
Authors: Saloni Sahar, Rajat Kadwe , Sheetal Garg
Description: The system represents Bluetooth based notice board and an android based application. In this application, user sends the message from the android application device, and then the message is received and retrieved by the Bluetooth device at the display unit. The Bluetooth access password will only be known to the user. It is then sent to the microcontroller that further displays the notice sent from the user on to the electronic notice board which is equipped with a 16X2 LCD display. It uses a microcontroller from 8051 family.
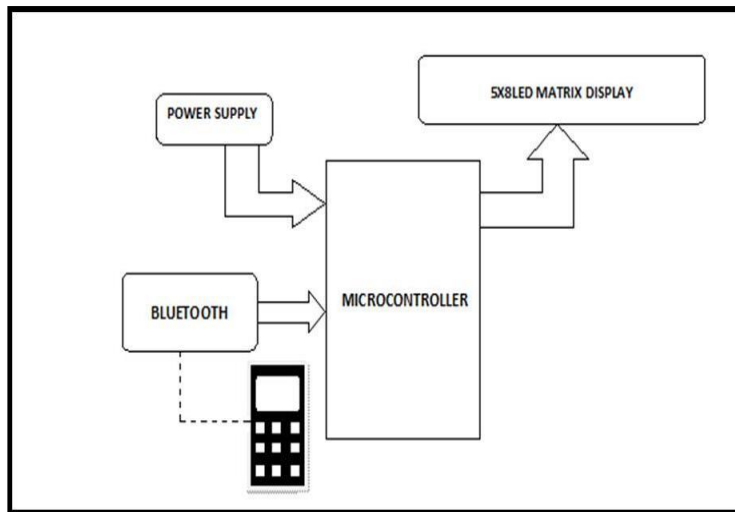
PROPOSED WORK

Figure 1: Architecture of Scrolling LED Board Using Bluetooth

System Architecture:

Microcontroller

The ATmega328 is a low-power, high-performance CMOS 8-bit microcomputer with 8K bytes of Flash programmable and erasable read only memory (PEROM). The device is manufactured using Atmel's high-density non-volatile memory technology and is compatible with the industry-standard 80C51 and 80C52 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. By combining a versatile 8-bit CPU with Flash on a monolithic chip, the Atmega328 is a powerful microcomputer which provides a highly-flexible and cost-effective solution to many embedded control Figure 2: Pin Mapping of Atmega328
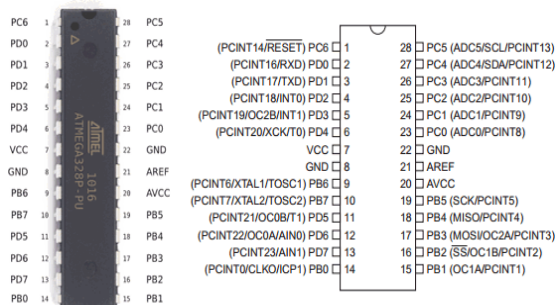
Figure 2: Pin Mapping of Atmega328

Applications.

Bluetooth HC05

Bluetooth HC05

HC-05 module is an easy to use Bluetooth SPP (Serial Port Protocol) module, designed for transparent wireless serial connection setup. Serial port Bluetooth module is fully qualified Bluetooth V2.0+EDR (Enhanced Data Rate) 3Mbps Modulation with complete 2.4GHz radio transceiver and baseband. HC-05, the HC-06 module can reach a range of up to 9 meters (30 ft) If you need a Bluetooth module to talk to your Smartphone and an Arduino board.

Voltage Regulator
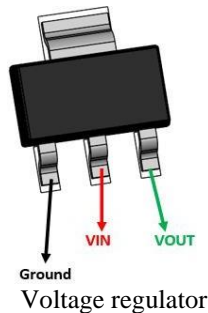
Voltage regulator

Two separate voltage regulators are used after the filter capacitor so as to generate constant DC voltage supply of 5 volts and 12 volts. We have used 7805 and 7812 as a voltage regulator. Both of them are three pin IC which are namely input, ground and output. We have to give output of filter capacitor to the input of regulator, and we get 5 volts and 12 volts supply at the output pin of the respective regulator.

Pin Description:

Pin No	Function	Name
1	Input voltage (5V-18V)	Input
2	Ground (0V)	Ground
3	Regulated output; 5V (4.8V- 5.2V)	Output

ADVANTAGES
1. LED dot matrix can have a relatively long useful life.
2. LED dot matrix light up very quickly.
3. LED dot matrix can be very small and are easily populated onto printed circuit boards.
4. LED dot matrix's can emit light of an intended color without the use of colors filters that traditional lighting methods require.
5. The system is cost effective.

RESULT

Fig .LED Display Board
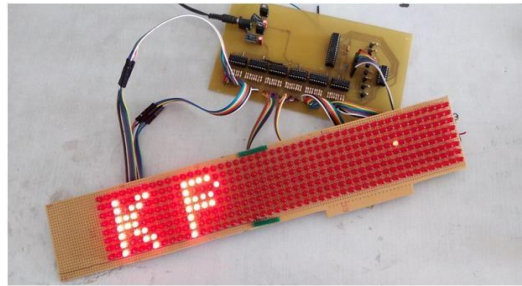
CONCLUSION

The introducing concept of wireless technology using Bluetooth in the field of communication we can make our communication more efficient and faster, with higher efficiency.

We can display the messages with less errors and maintenance. This model can be used very efficiently used in schools, chain restaurants in colleges where in students and staffs can be informed simultaneously in time. It can be used at public transport places like railways, bus station, and airport and also at roadside for traffic control and in emergency situations.

It is cost efficient system and user friendly.

APPLICATION

Providing eye catching display which can use for either indoor or outdoor uses, like health and safety display.
It is used in railway station, school bus warning sign.
It suitable for petrol Station, hotel restaurants,Shopping malls,Public parks.

FUTURE SCOPE

Multilingual display can be another added variation of the project. The display boards are one of the single most important media for information transfer to the maximum number of end users. This feature can be added by programming the 40 microcontroller to use different encoding decoding schemes in different areas as per the local language.

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