

WIRELESS SCROLLING MESSAGE AND VIDEO LED DISPLAY

R.Manimaran¹, R.Haribaskar², K.Gowtham³, M.Gopalsamy⁴

Guided by, S.Manikandan, M.E⁵,

⁵Assistant Professor, Department of Electrical and Electronic Engineering, Paavai Engineering College, Namakkal, India

ABSTRACT: The display development is driven by the increasing need to present information and graphics to larger audiences in more temporary and flexible formats. The need for portability, fast setup, easy reconfiguration and multiple uses has driven the need for light, efficient, easily erected, high quality displays. Through collaboration with multiple industry representatives, the display was designed to meet expectations of visual quality, portability, and display management, influenced by the LED arrangement, power efficiency, thermal regulation and physical construction. 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-to-day is a difficult process. A separate person is required to take care of this notice display.

This project deals about an advanced hi-tech wireless notice board. The overall software interface is simple, powerful, easy to learn and use. The project is built around the P6 LED module. This acts as a controller and Wi-Fi module provides all the functionality of the display. Display is obtained on LED Matrix Display Array on a printed circuit board. The scrolling speed text can also be changed according to user requirement using a mobile. This can be done using Wi-Fi wireless communication.

The key outcomes of this prototype include an operational, full scale prototype display, which implements large LED display colour aliasing, a purely passive thermal management solution, a rapid deployment system, and LED current control with two way display communication, auto-configuration and complete signal redundancy.

1. INTRODUCTION

The led Display System is used at the colleges and universities for displaying day to - day information continuously or at regular intervals during the working hours. Being WI-FI- based system, it offers flexibility to display flash news or announcements faster than the programmable system. WI-FI- based display system can also be used at other public places like schools, hospitals, railway stations, gardens etc. It presents an SMS based display board incorporating the widely used WI-FI to facilitate the communication of displaying message on display board via user's mobile phone from any circumference within WI-FI. It receives the SMS, validates the sending Mobile Identification Number(MIN) and displays the desired information after necessary code conversion. The system is easy, robust, to use in normal life by anyone at anyplace with less errors and maintenance. As engineer's main aim is to make life simple with

help of technology, this is one step to simplify real time noticing.

Notice Board is Primary Thing In Any Institution Or Organization Or Public Utility Place Like Bus, Railway Station and Park. Sticking Various Notices Day-To-Day Is A Difficult Process. A Separate Person Is Required To Take Care Of This Notices Display. This Project Deal about an Advance Hi-Tech Wireless Notice Board. The Project Is Built Around A Micro Controller Which Provide All The Functionality Of The Display And Wireless Control. Display Is Obtained On Led. The Advantages of This Project Being Low Coast and Low Power Consumption

EXITING SYSTEM

The LED Display System is used at the colleges and universities for displaying day to - day information continuously or at regular intervals during the working,

2.1 BLOCK DIAGRAM

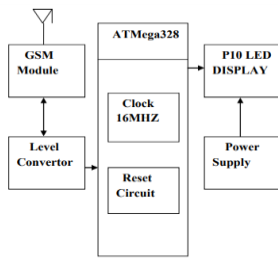


Figure 2.1 Digital Notice Board (IOT based)

2.2 METHODOLOGY

It requires 5 Volts 10 Amp current. Power supply is step down transformer. For getting +5 Volts supply we are using SMPS. SMPS stands for Switched Mode Power Supply. The input to SMPS is 230 Volts ac and output is +5 Volts. A Switched mode power supply is an electronic power supply that incorporates a switching regulator to convert electrical power efficiently.

GSM is a mobile communication modem. It stands for Global System for Mobile communication. It is widely used in mobile communication system in world. A GSM modem is a specialized type of modem which accepts a SIM card, and operates over a subscription to a mobile operator, just like a mobile phone. GSM modem devices for both sending and receiving SMS and MMS messages. GSM is an open and digital cellular technology used for transmitting mobile voice and data services operates at the 850MHz, 900MHz, 1800MHz and 1900MHz frequency bands. GSM modem is usually preferable to a GSM mobile phone.

2.3 P10 LED DISPLAY

This large, bright 512 LED matrix panel has on board controller circuitry designed to make it easy to use straight from your board. It displays 16 rows and 32 columns total 512 led shown in one led display. P10 led display contain shift register ICs and data transfer serial in parallel out. It is tough frame material.

2.3.1 ATmega328:

Arduino board is important in our project. ATmega328 is basically an advanced virtual RISC microcontroller. It receives the data from GSM, and gives signal to P10 LED display. Arduino is an open-source platform used for building electronic projects. It supports the data up to 8bits. ATmega328 has 32KB internal built in memory. The device operates between 1.8 to 5.5 volts. The most common implementation of this chip is on the popular Arduino development platform, display project are easy to create using this display. The distance between two points are 10mm then it is called as P10 LED display. P stands for namely the Arduino Uno and Arduino Nano models.

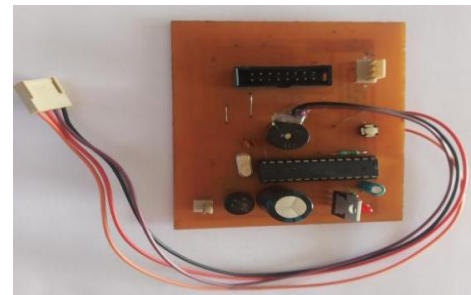


Fig2.2. ATmega328

Features:

- High performance.
- Non programmable data and program memory.
- Low power consumption.
- Fully static operation.
- 32KB Flash memory.
- Advance RISC Architecture.

2.3.2 Working Methodology

The GSM Module used consist of a SIM Card of some number. The message transmitted by any number to this number is received and saved in the memory of the SIM card. The module works with the AT – commands. RxD and TxD pins of this GSM module are connected to the TxD and RxD of the ATmega328 respectively so that the information or message is transmitted. The message received by GSM module is retrieved by the ATmega328 by using suitable AT

commands. The message is transferred to the display board.

2.4 Problem Definition

The existing system "IOT Based Digital Notice Board" is cheap, quick reliable and secured for any organization that requires circulating notice regularly and reducing physical efforts but needing continuous connectivity to WI-FI.

For using GSM technology so there is no problem of the range i.e. distance. We can send notice from any location. The proposed system uses SIM900, LED Display, GSM module, ATmega328.

2.5 Disadvantage

Now a day's every advertisement is going to be digital. The big shops and shopping centers are using the digital moving displays now. In Railway station and bus stands everything that is ticket information, platform number etc is displaying in digital moving display.

But in these displays if they want to change the message or style they have to go there and connect the display to PC or LAPTOP. Suppose the same message if the person want to display in main center of the cities, means he has to go there with laptop and change the message by connecting into PC.

This system is also useful mainly for police or army i.e. displays will be connected to all the main center in city if they want to display messages about something crucial within 5 minute, which they cannot. So keeping this in mind a new display system which can be accessed remotely, using the IOT technology to make the communication between microcontroller and mobile was designed.

PROPOSED SYSTEM

The smart notice board uses the digital technology and the electronic components/modules. It is implemented to display the notice or message which is more convenient for the administrator in terms of displaying, modifying and viewing of the

notices/messages. The Internet of Things (IOT) is used to sense, control and communicate among the all interconnected devices like sensors, actuators, display devices and the microcontroller. In this IOT technology, each thing is uniquely identifiable by an embedded operating system using internet infrastructure. According to experts estimation the Internet of Things (IOT) will consist of about 30 billion objects by 2020.

The IOT technology has been widely used due to the integration of various technologies like wireless, machine learning and sensors and embedded computing system. Several applications of IOT include in smart home, enterprise, industrial management, agriculture and environmental monitoring. In this paper it has been proposed a smart notice board which can be controlled by an authorized person or administrator in spite of any distance between that person and the system.

To make the system more user friendly an android application is developed to monitor and control the smart notice board. The time consumption, resources and manpower of conventional notice board were reduced by implementing this system. The proposed system is a step forward to achieve the Green IT and Automation. It is also a cost effective solution over the earlier conventional notice board system.

3.1 OBJECTIVE

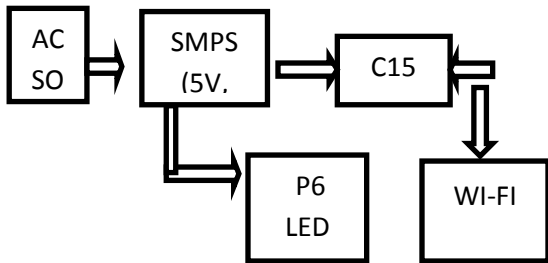
- To displaying a video using P6 LED Module.
- To test and verify the video streaming using wireless Technology (WI-FI) through IOT.
- To control the LED intensity based on our displaying luminosity of LED.

3.2 PROPOSED SYSTEM

The proposed system consist of a two module

- LED Displaying unit
- Information passing unit

3.3 BLOCK DIAGRAM



3.4 PROPOSED METHODOLOGY

To display a content whatever typed by the principle or administration coordinator using LED matrix display board through wireless fidelity technology. The project is built around the FM612 module. This acts as a controller and Wi-Fi module provides all the functionality of the display. Display is obtained on LED Matrix Display Array on a printed circuit board. The scrolling speed text can also be changed according to user requirement using a mobile. This can be done using Wi-Fi wireless communication.

CONCLUSION

This project is regarding advanced wireless video display system. In IOT based web controlled video display internet is employed to wirelessly send the video from browser to the LED display. The main objective of the project is to develop a wireless video display that displays messages sent from the user's mobile application .thus this project gives the easiest approach of sending and displaying information in important places like school and colleges.

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