

WIRELESS NOTICE BOARD USING ARDUINO AND IOT TECHNOLOGY

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Abstract

Notice Board is the most common and primary apparatus in any institution,organization or public utility places like bus station,railways stations and parks.But sticking various notices day to day is a difficult process.This project deals with a wireless notice board.

The main objective of the project is to develop a wireless notice board that displays messages sent from the user's mobile.when a user sends a message,it is received by a SIM inserted in IOT at the receiver unit.

Keywords: Arduino,IOT,ESP8266 WIFI Module. LED

Introduction

This project is an implementation to the idea of the wireless communication between

a mobile phone and a microcontroller. IOT is an Network of physical device.Embedded with electronic software.Data gathered by embedded sensorSemi autonomous network.Access in fast network.

WI-FI Module

The **ESP8266 WiFi Module** is a self contained SoC with integrated **TCP/IP protocol stack** that can give access to your WiFi network (or the device can act as an access point). One useful feature of Uno WiFi is support for OTA (over-the-air)**programming**, either for transfer of Arduino sketches or WiFi firmware. Connecting to the WiFi module through a TPLink WR841N router, [CN] as able to ping the module at **479 meters** with a huge rubber duck antenna soldered on, or**366 meters** with the PCB antenna.

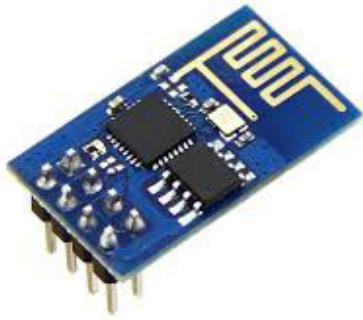


Fig. 1 ESP8266 WI-FI Module

Arduino AT Mega 328

ATmega-328 is basically an Advanced Virtual RISC (AVR) micro-controller. It supports the data up to eight (8) bits. ATmega-328 has 32KB internal builtin memory. This micro-controller has a lot of other characteristics. You should also have a look at [Introduction to PIC16F877a](#) (it's a PIC Microcontroller) and then compare functions of these two Microcontrollers. ATmega 328 has 1KB Electrically Erasable Programmable Read Only Memory (EEPROM). This property shows if the electric supply supplied to the micro-controller is removed, even then it can store the data and can provide results after providing it with the electric supply. Moreover, ATmega-328 has 2KB Static

Random Access Memory (SRAM). Other characteristics will be explained later. ATmega 328 has several different features which make it the most popular device in today's market. These features consist of advanced RISC architecture, good performance, low power consumption, real timer counter having separate oscillator, 6 PWM pins, programmable Serial USART, programming lock for software security, throughput up to 20 MIPS etc. ATmega-328 is mostly used in Arduino. The further details about ATmega 328 will be given later in this section.

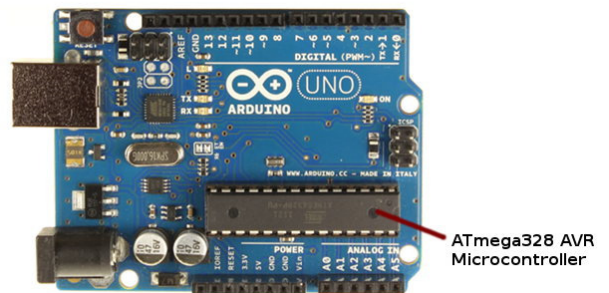


Fig.2 AT Mega328 AVR Microcontroller
LED

A light-emitting diode (**LED**) is a semiconductor device that emits visible light when an electric current passes through it. The light is not particularly bright, but in most LEDs it is monochromatic, occurring at a single wavelength. The uses of light-emitting diode (LED) is a semiconductor light source that emits light when current flows through it. Electrons in the

semiconductor recombine with electron holes, releasing **energy** in the form of photons.



Fig. 3 LED

te sever. The message will pass through LED it finally message will display through LED.

Scrolling Display

In computer **displays**, filmmaking, television production, and other kinetic **displays**, **scrolling** is sliding text, images or video across a monitor or **display**, vertically or horizontally.



Fig. 5 Scrolling Display

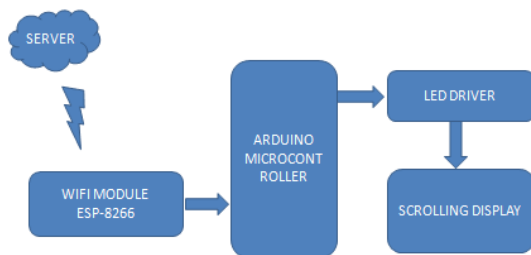


Fig. 4 Block Diagram

User send the message through the phone message will reaches the server.server can sent the message in WI-FI module.the network will access it convey the message in the Arduino microcontroller. The Arduino Uno microcontroller will receive the message. in the Arduino microcontroller the message will passed through it.its acknowledgement sends to

Literature Survey

1.Notice board is the most common and primary apparatus in any institution.this project deals with a wireless notice board. To develop a wireless notice board that display message sent form the users mobile.The notice board is an LCD display interfaced to a microcontroller(Arduino).

2.It is time consuming and tedious process to manually write down the different notice every nowand then to overcome the problem the idea of wireless digital display board has been proposed in the paper.The received message is then displayed on the wireless notice board making the whole process easy and fast.

3.Sending various notice day to day is a tedious process.this paper deals with advanced notice

board. Its operation is based on microcontroller ATMEGA 32 programmed in assembly language when the user sends a SMS via a registered number from his mobile phone. The message is fetched into the microcontroller. It is further displayed on an electronic notice board.

4. Reason for this project is average of paper in educational institution for printing notice. Due to rising paper usage day by day lot of trees are being cut which is harmful for the environment.

5. The message can be sent from any tablet, smartphone etc. when the user is sending the message from android application device this will be received by the WI-FI module. If the system is implemented in colleges all the information used to the students can be shared by the higher authorities at the college. It is very easy to use this kind of notice board and display the information. This process helps in having less physical work which is mostly used for physically challenged people.

6. The wireless communication between a mobile phone and a microcontroller. The GSM technology was initially developed in which depicts protocol for sound generation of cellular communication system that has gradually advanced over the years. GSM system has evolved as a replacement for first generation analog cellular networks. This paper proposes a GSM based wireless electronic notice board system

which can replace the current preprogrammable electronic display. GSM initially developed as an alternative for first generation (1G) has now been upgraded up to fourth generation (4G) and in some countries fifth generation (5G) technology.

7. A manual operation is required to update the information in the notice board day to day. It is a time-consuming method. The main aim of this paper is to replace the conventional board with an electronic display board. Software like embedded C for programming is used to control the microcontroller if the information is displayed electronically it would reduce the usage of paper by communication is efficient and faster.

8. A SIM card is interfaced to the ports of the microcontroller with the help of AT commands. This project is our experiment on real-time noticing. Wireless notice board means wireless data transfer for quick display of message in real-time. The device is manufactured using Atmel's high density non-volatile memory technology. The trends in technology and how exactly, simple carry-to-use device play a vital role in day-to-day life.

9. Notice board is one of the best mediums to communicate with the mass media. Notice boards are commonly used at public utility places. An android application provides security to the system. The control unit comprises of a display

the Arduino board .this smart notice board can be used in many applications including educational institutions,bank,public places like bus and railway stations.

10.This paper develops a phototype laboratory model wireless notice board system with GSM modern connected to it,which display the desired message of the user through at SMS in a most populated(or)crowded place.notice boards are one of the widely used ones ranging from primary schools to major organizations to convey message at large.

Experimental Results

The following figure illustrates the proposed system implementation.

Fig.5 Experimental Setup of the Proposed System

Conclusion

This Paper is developed using Arduino microcontroller, IOT and LED successfully.This digital display has very fast and quickly response.This paper concludes by eliminating the network problem.

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