Mobile App For Displaying Short Message's On LCD

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Abstract :- The area of mobile technology opens the windows to the android app. The websites are disappearing and the mobile phones are prominent. It's the time to change from conventional websites and other things to apps, which has become the part of our daily routine. We are introducing "Voice To text" the android application software which would convert the voice to text. So our main aim is to reduce paperwork and time. Displaying any message almost immediately without any delay just by sending voice through SMS display on the LCD. The short messages are displaying on the notice board. The developed system will, therefore, aim at wirelessly sending the short information to intended users and also helps in saving the time and the cost of paperwork.

Keywords :- Arduino, Microcontroller, Wi-Fi, LCD display, smart phones

I. INTRODUCTION

Smartphones are playing a vital role in human life. They are easy to use, promising and durable devices that help in performing day to day tasks[5]. Nowadays advertisement is going digital. The big shops and the shopping centers use digital displays now. Also, in trains and buses the information like platform number, ticket information is displayed on digital boards. People are now adapted to the idea of the world at its fingertips. The use mobile phones have increased drastically over years. Control and communication have become important in all the parts of the world. This gave us the idea to use mobile phones to receive a message and then display it on a screen[7]. Upgradation in networking technologies has encouraged the development and growth of very dense networks. A lot of paper is been used and which is later wasted by the organizations. This, in turn, leads to a lot of deforestation thus leading to global warming. The main aim of this the paper is to design an SMS driven automatic display screen which can replace the currently used programmable electronic display and conventional display screen[4]. Using the Wi-Fi-based serial data communication technique, the corresponding transceiver module has been interfaced with microcontroller board at the receiver end. For this purpose, a low-cost microcontroller board (Arduino) is programmed to receive text messages through voice message[5]. To demonstrate this concept we here use an LCD screen to display messages. The LCD is interfaced with a microcontroller. We use a wifi module to receive Android-transmitted messages, send them to the microcontroller for decode and further into the process. The microcontroller then displays the message on the LCD screen[6].The three devices are powered by the same power supply. The proposed system will help in reducing the human effort, paper, printer ink and cost for manual changing of the notices[5]. As engineer's main aim is to make life simple with help of technology, this is one step to simplify real-time messages.

II. LITERATURE REVIEW

In this paper basically centralized on designing an electronic notice board for different sectors like schools, colleges, offices. The notice can be sent wirelessly within a second. This creative technique can be used to display the latest information. The contents of notice can be changed anytime. The current exit message can display until the next message cannot be updated on the LCD screen. The main objective of this paper is to develop a wireless notice board that displays message sent from the user and to design a simple, easy to display. It is a user-friendly system, which can display the notice of information in a particular way .so that the user can help keep track of the information easily every day and every time. Android is a set of software for mobile devices including Operation System. It is easy to use and easy to install.

III. SYSTEM DESCRIPTION

The mobile app for displaying the short message's on LCD system is developed send the desired information instantly to the intended users using Wi-Fi transceiver modules interfaced with a low-cost Arduino microcontroller board. The communication mode (Wi-Fi) is selected for data communication using the corresponding transceiver module with the microcontroller.
A. Wireless Communication for Android-Based Notice Board
From the communication mode selected by the Wi-Fi-based wireless communication for Android-based notice board is used. The Android-based software application program for Wi-Fi communication in the proposed system are explained below.

A. Microcontroller

Atmega328

(PCINT14/RESET) PC6 ☐	1	28 ☐ PC5 (ADC5/SCL/PCINT13)	
(PCINT16/RXD) PD0 ☐	2	27 ☐ PC4 (ADC4/SDA/PCINT12)	
(PCINT17/TXD) PD1 ☐	3	26 ☐ PC3 (ADC3/PCINT11)	
(PCINT18/INT0) PD2 ☐	4	25 ☐ PC2 (ADC2/PCINT10)	
(PCINT19/OC2B/INT1) PD3 ☐	5	24 ☐ PC1 (ADC1/PCINT9)	
(PCINT20/XCK/T0) PD4 ☐	6	23 ☐ PC0 (ADC0/PCINT8)	
VCC ☐	7	22 ☐ GND	
GND ☐	8	21 ☐ AREF	
(PCINT6/XTAL1/TOSC1) PB6 ☐	9	20 ☐ AVCC	
(PCINT7/XTAL2/TOSC2) PB7 ☐	10	19 ☐ PB5 (SCK/PCINT5)	
(PCINT21/OC0B/T1) PD5 ☐	11	18 ☐ PB4 (MISO/PCINT4)	
(PCINT22/OC0A/AIN0) PD6 ☐	12	17 ☐ PB3 (MOSI/OC2A/PCINT3)	
(PCINT23/AIN1) PD7 ☐	13	16 ☐ PB2 (SS/OC1B/PCINT2)	
(PCINT0/CLKO/ICP1) PB0 ☐	14	15 ☐ PB1 (OC1A/PCINT1)	

A microcontroller's processor will vary by application. Options range from the simple 4-bit, 8-bit or 16-bit processors to more complex 32-bit or 64-bit processors. In terms of memory, microcontrollers can

use random access memory (RAM), flash memory, EPROM or EEPROM. Microcontrollers are designed for embedded applications, in contrast to the microprocessors used in personal computers or other general purpose applications consisting of various discrete chips Microcontrollers are used in multiple industries and applications, including in the home and enterprise, building automation, manufacturing, robotics, automotive, lighting, smart energy, industrial automation, communications and internet of things (IoT) deployments.

By reducing the size and cost compared to a design that uses a separate microprocessor, memory, and input/output devices, microcontrollers make it economical to digitally control even more devices and processes. MCUs feature input and output pins to contraption peripheral functions. Such objects include analog-to-digital converters, liquid crystal display (LCD) controllers, real-time clock (RTC), synchronous/asynchronous receiver transmitter (USART), timers, universal asynchronous receiver transmitter (UART) and universal serial bus (USB) connectivity. Sensors conclave data related to humidity and temperature among others are also often attached to microcontrollers.

B. LCD

The LCDs have a lateral interface, bearing that the microcontroller has to preside several interface pins at once to control the display. The interface consists of the following pins:

A Register Select (RS) Pin that controls where in the LCD's memory you're writing data to. You can select either the data register, which is where the LCD's controller looks for instruction on what to do next.

A Read/Write (R/W) Pin that selects reading mode or writing mode.
An Enable Pin that enables writing to the registers.

8 data pins (D0-D7). The states of these pins (high or low) are the bits that you're writing to a file when you write, or the values you're reading when you read.

There's also a display construct pin (Vo), power supply pins (+5V and Gnd) and LED Blacklight (Bklt+ and BKlt-) pins that you can use to power the LCD, control the display contrast, and turn on and off the LED backlight, subsequently.

C. ARDUINO
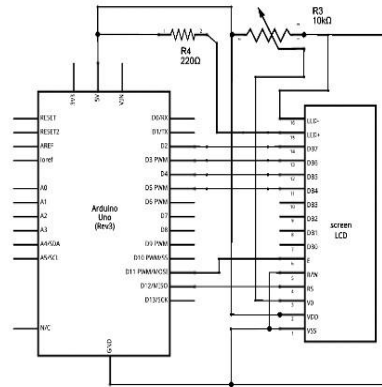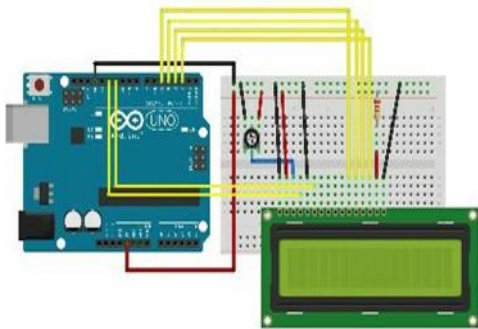
The Arduino software (IDE) concede you to write programs and transmit them to your board in the Arduino software page you will find options:

☐ If you have a reliable internet connection, you should use online IDE (Arduino Web Editor). It will concede you to save your sketches in the cloud, having them accessible from any device an backed up. You will always have the most up-to-date version of the IDE without the need to install updates or community generated libraries.

☐ If you would rather work offline, you should use the latest version of the desktop IDE.

☐ Arduino is an open-source electronics platform based on easy-to-use hardware and software.

☐ Arduino boards are able to read inputs-light on a sensor.

☐ Over the years, Arduino has been the brain of thousands of projects, from informal objects to complex scientific instruments.

☐ Arduino is a popular open-source development board for engineers and makers to develop electronics projects in an easy way. It consists of both a somatic programmable augmentation board (based on AVR series of microcontrollers) and a piece of software or IDE which runs on your computer and used to write and upload the code to the microcontroller board.
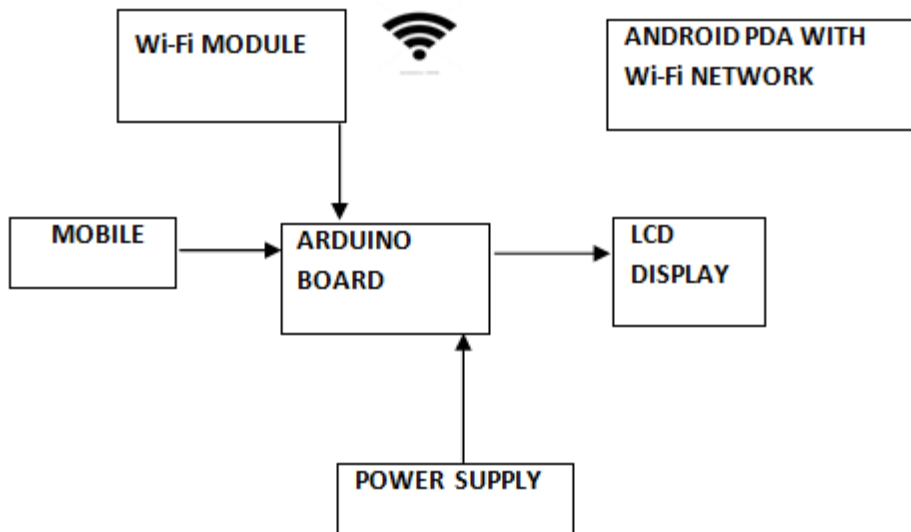
IV.   METHODOLOGY

Fig. 1: Voice Messages Displaying On LCD

Android-based wireless notice board interfaced in Wi-Fi communication mode using Wi-Fi transceiver. Using the android based wireless notice board in Wi-Fi communication mode the user can send the message through voice then it connects to Wi-Fi to the Ethernet by the IP address of both the Wi-Fi and the Ethernet and then Ethernet connection to the Arduino for the further process.Then further data will transfer to the LCD and the LCD will display the message.

V.   WORKING

In view of the current models of notice board, it will be apparent that there exists a need for electronic notice board that enables an efficient way to the user for displaying notices. This project is an implementation of the idea of wireless communication between a mobile phone and an Arduino. The display unit consists of the LED display that is interfaced with Arduino. Bluetooth is an open wireless protocol for exchanging data over short distances from fixed and mobile devices, creating Personal Area Networks (PANs). It was primitively perceived as a wireless alternative to RS232 data cables. It can equate several devices, overwhelming problems of synchronization.
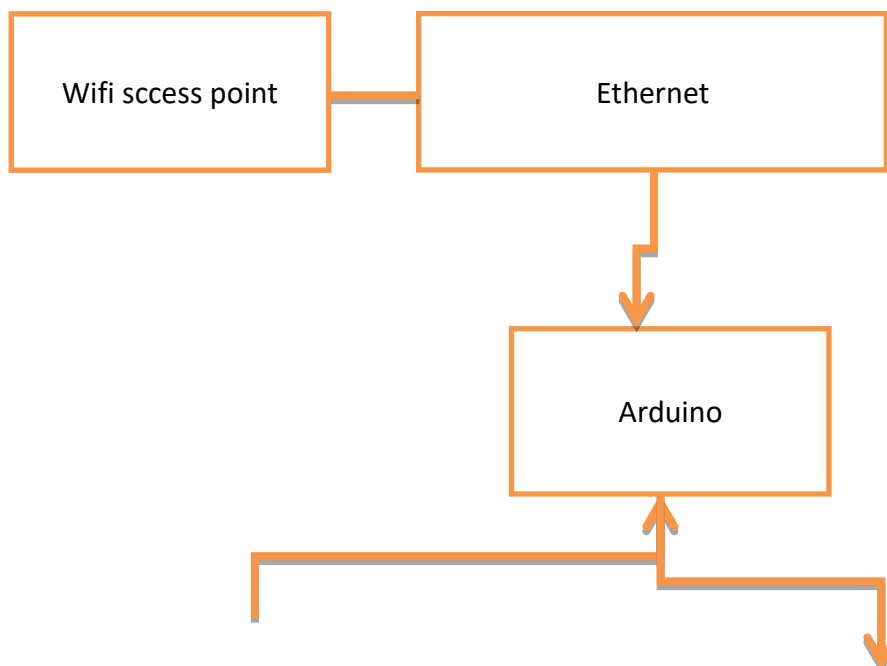
<div style="border:1px solid orange;">Battery</div>

<div style="border:1px solid orange;">LCD</div>

- Mobile app converts voice to text and sends to a system via wifi.

  • Wifi access point is connected to ethernet.

  • Ethernet is controlled by Arduino.

  • Arduino is connected to LCD display (20x4).

  • When we speak to the app it converts to text and sends it to the assigned IP address of the Arduino Ethernet.

  • Ethernet gets the data and sends to Arduino.

  • Arduino takes the data and sends to LCD.
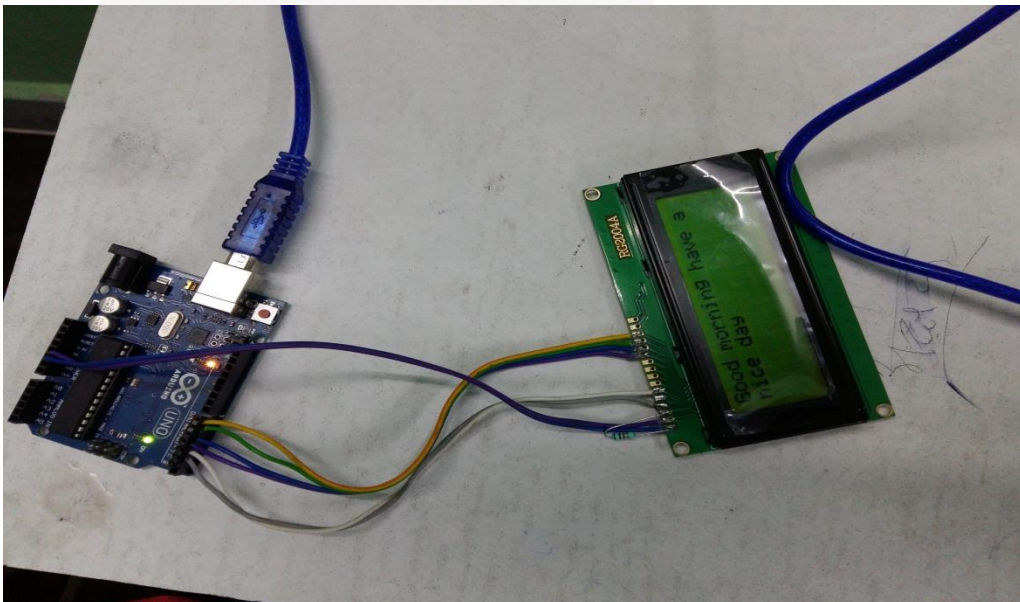
VI. Advantages

• It is easy to use and easy to install.
• The speech controlled rolling display is really helpful for disabled people or handicapped people.
• It is user-friendly.
• It reduces the time and paper work.
• It can save a time.
• It reduces the manpower.

VII.   HARDWARE REQUIREMENT

A. Hardware
Arduino
Ethernet shield
Wi-Fi
Power Supply

B. Software
Embedded C

VIII. CONCLUSION

As the technology is conquering daily the display message on LED systems are propelling from Normal handwriting display to digital display. The system is simple, low cost and easy to use that interacts with the intended users instantly. This system can be used in various applications like banking, schools, restaurants offices, hospitals, scoreboards for sports etc. The voice calling feature can be added to the proposed system as a further enhancement for using the system in railways, airport or bus.

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