

Scrolling Display using Arduino

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Abstract: *Internet of things (IOT) is a connecting a physical smart device and providing an information and also connecting a human-to-human relationships. In today's world of connectedness, people are becoming accustomed to easy access to information. Whether it's through the internet or television, people want to be updated information with the latest events happening around the world. Now a day's people prefer Internet of Things because they can interact with people easily and it requires less time. Notice Board plays a vital role in today's world. It is commonly used in place like schools, colleges, railway stations and other variety of institutions. In past years, Papers, ledgers, and documents are used to share information and latest news. Existing notice boards takes more time and it is a difficult process when a number of users or customers is high. It also costs more and the information is not received by the end users at the right time. It is emergency when it is in the need of information*

Keywords: Arduino, Display

I. INTRODUCTION

Today, interaction with digital displays is a deskbound or device- dependent experience. However, developments in display and information sharing technologies may enable a new form of interaction with digital media : “ubiquitous computing”. In ubiquitous computing , the physical location of data and processing power is not apparent to the user . Rather , information is made available to the user in a transparent and contextually relevant manner . A single display device restricts the repertoire of interactions between the user and digital media , so ubiquitous computing requires displays wherever the user might need one – in appliances, tabletops public transport, walls , etc .This project aims at integrating the expansiveness of an Internet Of Things and the ease of information transfer through the Internet with the coverage of public display boards. It is thereby a modest effort to realize the complete potential of public display boards in instantaneous information broadcast in swift response to events of interests. Now-a-days LED Message Scrolling Displays are becoming very popular . These displays are used in shopping malls, theatres , public transportation, traffic signs, highways signs, etc., The big problem with these displays is to carry a computer or special keyboard for generating and sending messages to LED moving display boards dynamically.

II. PROJECT OBJECTIVES

The goal of this project is By using this Arduino to scroll the display with the different palces for to convey the messages easily in different places for example school clooeges and other public places like railway stations etc.

III. LITERATURE REVIEW

In normal scenario we spend lot of resources like paper, manpower & printer ink and the most important time. Separate individual is required for taking care of notices. Using wireless network following exist systems are as follows :
Wireless electronic notice board : This notice board is developed by using zigbee. In this model the transmitter module will be interfacing computer via serial interface to the zigbee module. The receiver module placed at the remote end consists of zigbee module which is interfaced with microcontroller for displaying the message on LCD. The power consumption of zigbee is less them Wi-Fi. But its range is limited.



DTMF based smart notice board : In this system the mobile phone technology i.e Dual tone multifrequency (DTMF) & IOT MODULE are used. The DTMF module is put together functionally with microcontroller & LCD modules to complete the task of automatically & providing mobile control to the noticeboard. The DTMF is connected to mobile phone which is used to receive the calls from the all phone & facility who wish to update/change the notices. During the on going call a DTMF tone is generated which is decoded into its equivalent binary by the decoder. This binary equivalent of tone is then sent to the microcontroller which is preprogrammed to take a decision for any given input. Any mobile which will act to the mobile attached to the board will act as remote device. So the new updates can display automatically & speedily. But the circuit of this system is too complicated.

IV. METHODOLOGY OF THE PROJECT

Circuit diagram of scrolling notice board using Arduino:

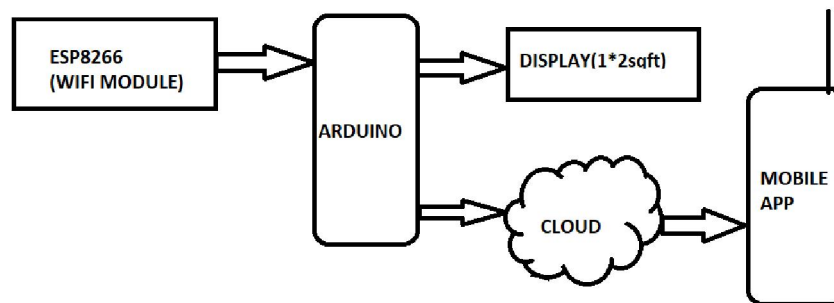


Fig. Circuit of scrolling notice board using Arduino.

Circuit description

Connections of Wireless Notice Board using IOT MODULE and Arduino are simple and shown in the figure below. Here a liquid crystal display (LCD) is used for display the “Notice” or message, which is sent though the mobile phone as SMS. Data pins of LCD namely RS, EN, D4,D5, D6, D7 are connected to Arduino digital pin number 7, 6, 5, 4, 3, 2. And Rx and TX pin of IOT MODULE is directly connected at TX and Rx pin.

How It Works

- For this wireless notice board project 1×2 LCD acts as display device
- IOT MODULE acts as a communicating medium
- Normal text message from our mobile will reach the IOT MODULE module through the carrier
- Once the message is reached IOT MODULE will send it to the Arduino board through UART communication that is RX and TX
- The code was written in such a way once the message reached it will display it in theLCD.
- IOT MODULE technology offers user the facility to send message from anywhere in the world andstill it will be display in the notice board
- For the purpose of prototyping have children I have chosen this small LCD model

Components Required

- Arduino
- LCD (1*2)
- IOT MODULE ESP 8266
- Power supply
- Connecting wires



Connections of Wireless Notice Board using IOT MODULE and Arduino are simple and shown in the figure below. Here a liquid crystal display (LCD) is used for display the “Notice” or message, which is sent though the mobile phone as SMS. Data pins of LCD namely RS, EN, D4,D5, D6, D7 are connected to Arduino digital pin number 12, 11, 5, 4, 3, 2. And Rx and Tx pin of IOT MODULE is directly connected at Tx and Rx pin of Arduino respectively. And IOT MODULE is powered by using a 12-volt adaptor. The microcontrollers control the whole system. It consists of IOT MODULE which receives the message from the transmitted source. The Max 232 IC converts the TTL logic to RS232 protocol. The received message is displayed to LCD only if the sender mobile number is valid, otherwise it will discard.

WHAT IS ARDUINO

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, a finger on a button, or a Twitter message - and turn it into an output - activating a motor, turning on an LED, publishing something online. You can tell your board what to do by sending a set of instructions to the microcontroller on the board. To do so you use the Arduino programming language (based on Wiring), and the Arduino Software (IDE), based on Processing.

Over the years Arduino has been the brain of thousands of projects, from everyday objects to complex scientific instruments. A worldwide community of makers - students, hobbyists, artists, programmers, and professionals-has gathered around this open-source platform, their contributions have added up to an incredible amount of accessible knowledge that can be of great help to novices and experts .

V. ADVANTAGES

- It's reducing the time of working on notice by writing paper.
- Also reduce the paper waste.
- Smart system will provide an automation.

VI. APPLICATION

- It will application in school, collage, hospital railway etc.
- It's will also useful for transfer a big writing communication message.
- Office notices for staff.
- In hotel to display the availability of the room rents the type of rooms.
- It used in nursing homes to display the staff attendance, the availability to doctors.

VII. CONCLUSION

The prototype of the IOT MODULE based display toolkit was efficiently designed. This prototype has facilities to be integrated with a display board thus making it truly mobile. The toolkit accepts the SMS, stores it, validates it and then displays it in the LCD module. The SMS is deleted from the SIM each time it is read, thus making room for the next SMS. The major constraints incorporated are the use of „*“ as the termination character of the SMS and the display of one SMS as a time. These limitations can be removed by the use of higher end microcontrollers and extended RAM.

The prototype can be implemented using commercial display boards. In this case, it can solve the problem of instant information transfer in the campus.

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