

Digital Boards with Speaker

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Abstract

This project is to design and develop a digital notice board using Arduino modem. The project is based on Arduino with VGA Shield for sending and receiving messages. It consists of two sections: the transmitting section and the receiving section. The software of this model is prepared by using the java language. This notice board is implemented in classrooms for displaying messages and as the message will arrive on the board there will be a beep sound which will be a signal that some message has been arrived on the board. Notice board is a very primary & a basic requirement for every institution. It is also used in railway station, bus stations and many more places. Because sticking notices on everyday basis is a difficult task, so this technology makes the job easier and gives us the way towards the implementation of advanced and modern board for displaying notices and messages. The three modules which is used for this project is namely, Arduino IDE, Visual Studio, Displaying monitor.

Keywords- Digital Board, Arduino, Visual Studio, Speakers, VGA Boards

I. INTRODUCTION

We have prepared this board with the help of Arduino as it is an open source of electronics and it has better compatibility with the hardware and the software. Arduino also reads the input well and the main advantage of using it in our project is, it is quite cheaper when compared with other components. The type of Arduino which we are using is namely, "Arduino Uno". It is a microcontroller with 14 digital input/output pins. It is based on the ATmega328 processor with 16mega hertz frequency. The platform on which we are running our code for digital board is "Visual Studio 2013". The components used are VGA shield, Arduino tool kit with programmer, displaying monitor. WHYDID WE CHOOSE THIS PROJECT???To make our college environment even smarter by using such advance technology and showing its implementation and advantage. Yes, no doubt it makes our job easier and avoids the disturbance in the class by verbally producing the notice.

II. MARKET SCOPE

The messages those are to be broadcasted in public places and should be known as well as visible to everyone in places such as bus station, railway stations, traffic signal, shopping malls, city squares, hospital, and conference hall. and also in places such as colleges and schools for passing messages from teachers to student and displaying all institutional information for outsider, as well as used in factory or industry for making people aware for the particular messages.

III. CONSTRUCTION

A. Software Part

1) Arduino IDE

This open-source Software makes it simple to write code and upload it to the Arduino. It is compatible with Windows, Mac OS X and Linux. The environment is written in Java. Programs written using Arduino Software (IDE) are called sketches. These sketches are written in the given text editor of IDE and are saved with the file extension .ino. We have written the sketch using java language.

2) Visual Basic

Visual Basic is a third-generation event-driven programming language from Microsoft Visual Basic was derived from BASIC, a user-friendly programming language and it enables the rapid application development (RAD) of graphical user interface (GUI) applications.

Below is the output which we got after coding.

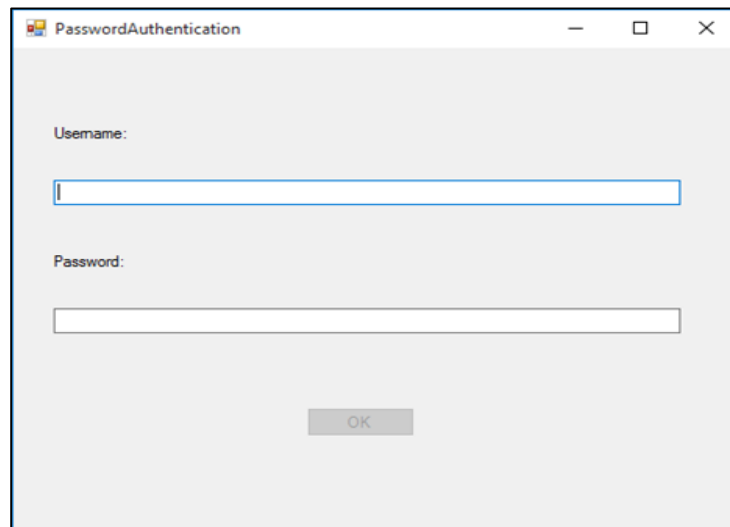


Fig. 1: Authentication Screen

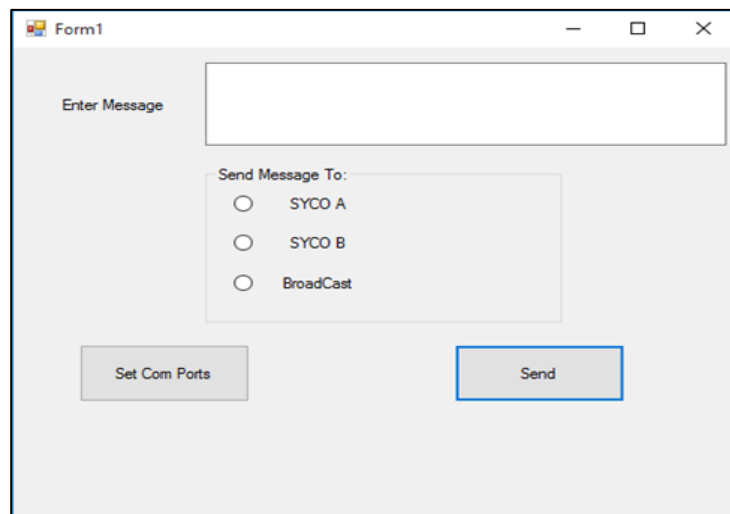


Fig. 2: Application Screen

B. Hardware Part

- LCD Monitor
- Arduino
- VGA Board
- Speaker

1) LCD Monitor

It is used to display the notice. User will post the text after the authentication. Notice will display through the Arduino.

2) Arduino

Arduino is a micro-controller and it has better compatibility with the other hardware shield and the software. Arduino will take the string from the application and process the string in VGA format.

3) VGA Board

It is an interface between an Arduino and LCD monitor.

WIRING

4X470 ohms resistors

4X68 ohms resistors

2XDSUB 15 female connector

PIN & PORT

IV. IMPLEMENTATION

The message which is to be displayed will be entered in the message column mentioned in the form1. Then you need to select the options mentioned below i.e. in which classroom you want to display the message. The options are SYCO A, SYCO B, and Broadcast. The string will be transmitted to the Arduino through serial port. The string which is transmitted to the Arduino will be displayed on the monitor and is what your message is.

A. USE CASE

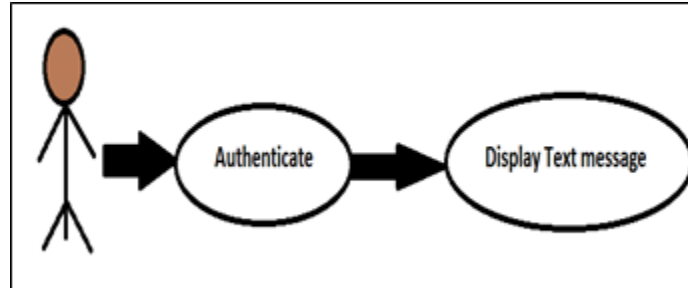


Fig. 6: USE CASE Diagram

V. LOCATION AND INFRASTRUCTURE REQUIRED

- Educational Institutions and Organizations
- Advertisement Conference Hall
- OFFICE
- Any public utility place.

VI. ADVANTAGES

- 1) Effortless functions: this technology reduces our effort of verbally passing the notices.
- 2) It is more efficient and comfortable.
- 3) Prevent unauthorized access of notice board.
- 4) No printing and photocopy cost.
- 5) Saves time, energy and friendly environment.
- 6) Less errors and needs less maintenance.

VII. DISADVANTAGE

- 1) As we are using Arduino Uno it has fewer pins for input & output so only one displaying board can be connected to a single Arduino which increases our cost if we want to connect multiple display boards to one machine.
- 2) The processor on the Arduino Uno is weak and not that powerful to display high resolution image, string, text, etc.

VIII. CONCLUSION

Now-a-days, the world is moving towards automation, so in this world if we want to do some changes in the previously used system we have to use new techniques. It is very oblivious that it will save resources and time as well. Data that is to be send is applicable even in remote areas. Authentication of user is also provided. . Text messages can be seen whenever we want to see. Thus Arduino being a small yet powerful device can work efficiently in digital notice board connected with software. This will also reduce the efforts of people and will not need much maintained, thus it will preferred more.

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