

## **Electronic Display Apparatus in Accordance with GSM**

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### **Abstract:**

*We are living in a digital era of uncertainty, where every information is available on the click of a button but there is less certainty of the data being true. The data in two sources can entirely contradict each other and so can the information on scheduling due to unforeseeable circumstances and definite uncertainty. This paper deals with this concept of uncertainty in schools and colleges about scheduling and timetables. The main objective of this paper is to guide students about their schedule in real time. Students will be able to see if there is any change in their regular schedule and what lies ahead in real time without much confusion. Hence the paper focuses on development of a scrolling notice board which will help in development of the same*

### **Keywords**

*LED, SMS, Notice Board, Static Display Board, Arduino, Message, GSM Model, Power Supply, LCD Display, Microcontroller, Register, Capacitor.*

## **1. Introduction**

The paper deals with the idea of an Electronic Display Board. It is made up of 100's of 1000's of LED's which can be used to display/flash any message. One of the major advantages of this notice board or display board is the adaptability. Since it can be coded to change the message to any desired message with the help of short message service (SMS). This broadens the scope of the project as it is

**1.1. Not Static:** This refers to the display not stuck to a single message but can be changes at will.

**1.2. Prank Unfriendly:** Since it accepts messages from one source only, not everyone can change it but only required authority.

**1.3. Ease of Relocation:** since it works on short message service (SMS), which is indeed done on a mobile phone, it does not require a constant connection with a computer workstation/system. This makes it relocation friendly.

## **2. Object**

This project consists of two parts:

**2.1. Static Display Board:** This is the first part of the project. We begin with making static display boards as alternative placards for room numbers and locations. This will be done simply by connecting all the LED's in parallel and providing the alternating current with appropriate resistance.

**2.2. Scrolling Display Board:** This is the major part of the project. Here using arduino as the embedded system, we can alter the message in real time using short message service. This will create an accommodating environment for the user as well as increase the ease of use. It will eradicate the problem of anti-social elements tampering with message as the message or the notice can only be changed by a message from the authorized personnel's mobile phone only.

### 3. Block Diagram



**Fig 1. Block Diagram**

The architectural design as shown in fig.1 observe board includes admin, who has the privilege to[2] create an account, update note and delete an account while the recommender/approver endorse the notice of authorized person and approves the awareness of

authorized person. Authorized consumer creates the attention and publishes the awareness once you have approval from the recommender or approver. Viewer has privileges to view notices and download updated notices from the legal person. The viewer is anyone who intends to read observe on the aware board and request for updated Notice. The viewer is attached to the E-note board via sms and assessments for updated notice and the up to date note. The User is everybody who intends to study be aware at the ENB and request for updated Notice. The User can see the display board, he reads the up to date word and also can shop the awareness from his person region[1]. The following are the steps taken by using this module..

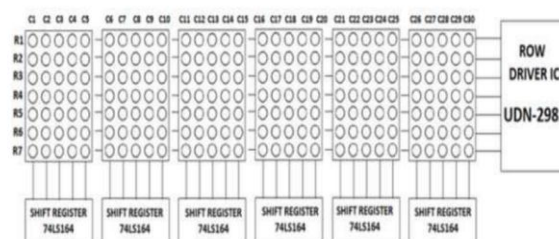
**Step 1:** Admin will login by way of giving his user call and password.

**Step 2:** Only the admin has the privilege to feature and alter the departments and classes.

**Step 3:** User desires to subscribe by way of selecting their fascinated classes and departments.

**Step 4:** Admin has the authority to insert, update and delete the notices.

**Step 5:** Once the attention is uploaded with the aid of the admin, registered users will receive the notifications through SMS.



**Fig 2: Block Diagram of The System**

#### **4. GSM Modem**

A GSM modem is a wireless modem which fits with a GSM wireless community. These prolonged AT instructions are defined in the GSM[3] requirements. Extended AT instructions come up with the following options:

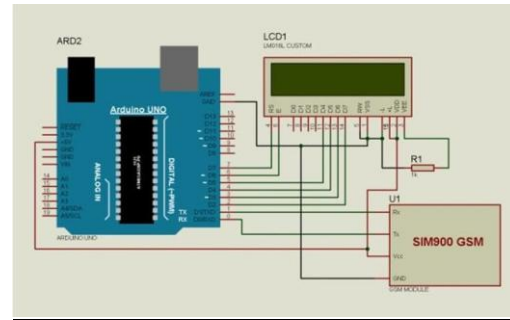
- 1) Read, write and delete messages.
- 2) Send messages.
- 3) Signal energy monitoring.
- 4) Battery charging and tracking reput.
- 5) Read, write and seek phone e book entries.

#### **5. Power Supply**

Power supply is an electrical power source to the entire device. A tool or gadget that supplies electrical[4] or other types of energy to an output load or organization of hundreds is called a power supply unit

#### **6. Circuit Diagram**

The circuit especially as shown in fig 2. Consists of ARDUINO , LCD display, GSM modem, vital resistors, capacitors, pots, crystal oscillator & an External DC Power supply .The ARDUINO used right here is primarily based on microcontroller ATMEGA328P-PU which is interfaced with sixteen\*2 LCD in addition to GSM Modem. 5v dc strength supply is given to the  $\mu c$  with vital clock pulse of sixteen MHz given using crystal oscillator. Reset button may be used to clean registers and to execute application from starting. Sixteen\*2 LCD show is used for displaying facts received through a valid SMS



**Fig 3: Circuit Diagram**

#### **7. Pros and Cons**

The largest gain of Arduino is its prepared to use structure. During coding of Arduino, you will notice a few functions which make the existence so clean. Arduino has computerized unit conversion capability. The most critical aspect which can not be denied is fee. If journey of micro-controllers is commenced with Arduino then it will likely be very tough for to make the complicated intelligent circuitries in destiny. ARDUINO is an open-source physical computing platform based on a simple arduino board, and a development surroundings for writing software program for it.

#### **8. Application and Future Scope**

1. Multilingual show in distinct areas as in keeping with the nearby language.
2. This function may be delivered by means of programming the arduino to use extraordinary encoding decoding schemes
3. The massive LED scrolling show can update small LCD panel in which a couple of messages can be displayed. Graphical display.
4. MMS generation with relatively excessive quit Arduino to hold at the responsibilities of images encoding and interpreting execute it.

5. Use of a couple of modems with presentations with reproduction SIMs to increase degree of broadcasting.
6. GSM based totally home safety machine, GSM based robotic control, GSM primarily based DC motor controller, GSM primarily based stepper motor controller, GSM primarily based vote casting machine manipulate and so forth.
7. The above concept of display boards can be used in railway stations, for commercial in purchasing malls, in educational institutes.
8. It may be used for dealing with traffic in metropolitan cities and different public utility places.
9. In recent years, the LCD has observed extensive unfold use through replacing LEDs because of their declining prices, capacity to display numbers, characters & graphics and the convenience of programming
10. The model may be applied to show temperature in case while there may be no message to be show.
11. The message may be first received display in general language, the equal message can be converted to some other language and the message may be displayed.

## **9. Conclusion**

The GSM based totally show gadget that we have created has been in sensible use in various organizations like in construction and studies region railways, faculties and many others. This machine can keep away from paper paintings, lessen human efforts in one-of-a-kind regions. After reviewing the possible answers, we determined to apply Arduino for this venture.

## **10. References**

- [i] Pawan Kumar, Vikas Bhirdwaj, Kiran Pal, Narayan Singh Rathor, Amit Mishra, *GSM based e-Notice Board: Wireless Communication*, IJSCE, ISSN:2231-2307, Volume-2, Issue-3, July 2012
- [ii] Mrs. S.P.Gaikwad , Manikeshwari Shahdeo , Meghna Priya , Prashant Kr. Raghav, *Wireless GSM Based Electronic Notice Board*.
- [iii] DarshanKumar C.Dadlani, Ninad Trivedi, Amit Kasundra, *Wireless Electronic Notice Board*, National Conference On Recent Trends in Engineering And Technology.
- [iv] S. Bhardwaj, T. Ozcelebi, R. Verhoeven, and J. Lukkien, "(1)," *IEEE Transactions on Consumer Electronics*, vol. 57, no. 4, 2011, pp. 1612-1621.
- [v] *The 8051 Microcontroller And Embedded Systems Using Assembly And C* by Janice Gillispie Mazidi, Rolin D. McKinlay, Muhammad Ali Mazidi