

# DIGITAL NOTICE BOARD USING IOT

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## ABSTRACT

In day to day life the notice board is primary thing in many places like educational institutions, public places i.e., bus stops, railway stations, colleges, malls, etc. But sticking various notices day to day is a tedious process and also a separate person is required to take care of it daily and manually. This project is about advanced wireless notice board. The GSM is used for data transmission. At any time we can edit the data according to our requirement. At transmitter, authorized PC or mobile is used for sending a notices or messages. When an authorized user sends a notice from his system, it is received by the receiver. The message may be a voice note or image. Wireless communication is a popular technology that allows an electronic device to exchange data wirelessly over a computer network, including high speed wireless connections and so the data is received from authenticated user.

Keywords: Embedded concept, PIC16F877A, GSM and electronic components

## 1. INTRODUCTION

In this modern world, people needs a comfort living life these days. Technology plays a vital role in doing any work easily at their place. So Man has researched, developed, invented and implemented different technology for his need. In today's world of full of connectedness, people are becoming habitual to easy access to information. Whether the information is received through the internet or television, people want to be informed and up-to-date with the latest events happening around the world. Wired network connection such as Ethernet has many drawbacks depending on the need and type of connection. Now a day's people like and prefer wireless connection rather than wired connection because wireless connection can interact with people easily and it require less time.

The main objective of this project is to construct an internet based graphical notice board system using PIC16F877A which display message sent from the user to the notice board. This can also design a simple, easy to install, user friendly notice board, which can receive and display notice in a particular manner with respect to date and time so that the user can easily access or know the latest notices or messages. This notice board also helps the user to view the old messages which were received already since EEPROM is used for memory

purposes. GSM is the wireless technology used in this project. Updates are enabled automatically as default and can be disabled later whenever we want to disable it. This paper is organized as follows: In first part we discuss the literature survey of various systems. In the next part we discuss the proposed system, process flow and then its application. In the last section we draw a conclusion out of all the discussion followed by a list of references.

### 1.1 Internet of Things (IOT)

The IOT is mainly based on the network of physical equipments, home appliances vehicles and other items which are embedded with electronic items, soft ware's, sensing element which helps to connect with the respective connected devices and helps to exchange data. Each and every things connected are uniquely identified via the Embedded Computing System but it is possible to inter-operate only within the existing Internet infrastructure. The IOT helps objects to be sensed or controlled even from remote places. This helps for direct integration of the physical world into Computer-Based systems which also helps in improving the Efficiency, Accuracy and Economic beneficial in addition to reduced human interference.

## 2. LITERATURE SURVEY

In this part, we summarized some existing system papers and its drawbacks which are given below. GSM based notice board in this creative technique the user can able to display the latest information and also the contents of notice can be changed any time. The concept is to design a SMS based automatic display board. Even though the information can be altered or changed it has some drawback which is given in the following review table.

Wireless E-Notice board using GSM and blue tooth technology, in this paper the authors focusing to display the desired message of the user through an SMS using GSM module and Bluetooth connected to it. Android Phone Speech Recognition Sensed Notice Board Display in this paper, the main objective is to convert voice data to text. The text is send over the microcontroller via blue tooth for displaying on notice board. It also has many drawbacks to implement.

Standard	Bluetooth	Zigbee
Application Focus	Cable replacement	Monitoring and control
Frequency band	2.4 GHz	868.915MHz; 2.4GHz
Max signal rate	1Mb/s	250Kb/s
Nominal Range	10m	10-100m
Channel bandwidth	1MHz	0.3/0.6MHz; 2MHz
Data protection	16-bit CRC	16-bit CRC
Max number of cell nodes	8	More than 65000

Figure 1. Comparison of Zigbee and Bluetooth

GSM provides higher data rates for multimedia access and audio communication as compared to both zigbee and Bluetooth which provides lower data transfer rates. It also covers the area of 100m but the Bluetooth covers only for 10m.

## 3. PROPOSED SYSTEM OVERVIEW

In our project there are two parts one part is transmitter and another part is receiver.

### 3.1 Transmitter

Android Phone (AP) is used as a transmitter part. Only the authorized PC is used here.

### 3.2 Receiver

It consists of following sections.

#### 3.2.1. GSM Module

GSM stands for Global System for Mobile Communication is a digital mobile telephonic system which is used all over the world. It uses a variety of time division multiple access, this is most widely used for the three digital wireless telephonic technologies are TDMA, GSM, CDMA. SIM 800 GSM module could accept a sim of GSM network operators, which can also act like a mobile phone with a unique phone number. The significance are SMS control data transfer, remote control

#### 3.2.2. GLCD

It is used to display the notices or data of any form like text, images, audio voices and multimedia etc. GSM will check the authorization of the user entry and the PIC16F877A will convert the messages that will be displayed into GLCD.

#### 3.2.3 PIC16F877A

The PIC16F877A Model incorporates a number of enhancements and new features. Improved power consumption, increased connectivity and greater IO are among the improvements to this powerful, small and lightweight.



Fig.2. PIC16F877A

## 3.3 BLOCK DIAGRAM



Figure 3. Block diagram of digital notice board

The above figure shows the block diagram of our proposed system. The block diagram of our project design is given below and its components description is mentioned earlier. The main components of this block are PIC16F877A, GLCD, Android application or web application, GSM module.

#### 4. DATA FLOW DIAGRAM AND THREE TIER ARCHITECTURE

##### 4.1. Data Flow Diagram

User can send the text through PIC16F877A using android application or web application. Only the authenticated user can able to access or send the text. If user is not authenticated then he/she will not send the information or notices. So only the authorized user can send the information is an advanced one in this project. The following flow chart explains the outline of our project and data flow diagram.

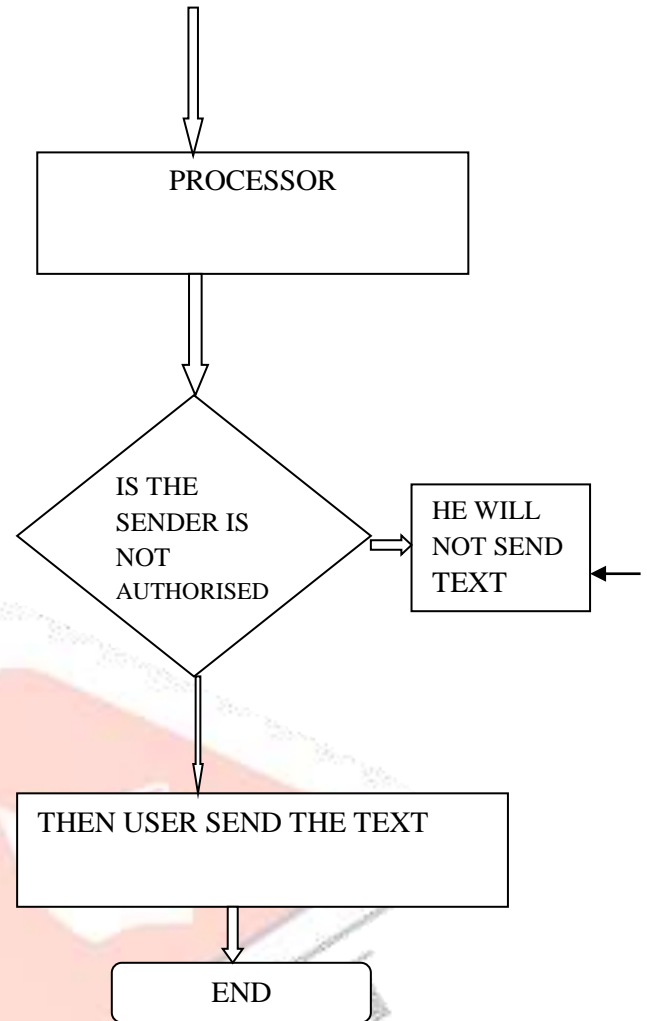
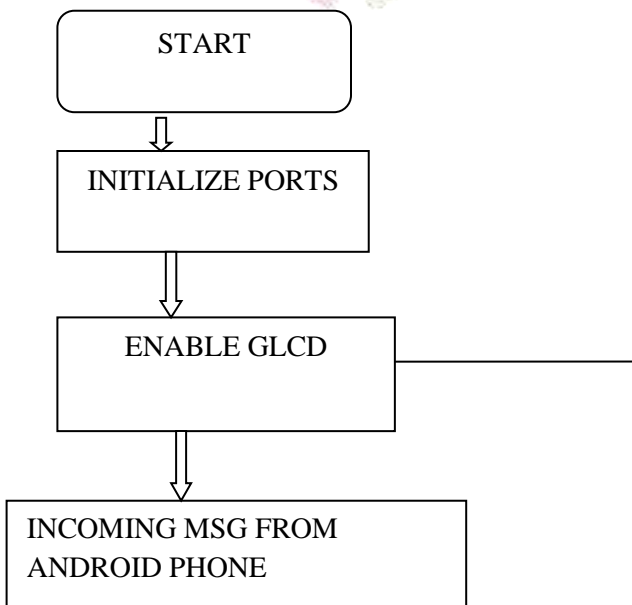


Figure 4. Flow chart for Three Tier Architecture

##### 4.2 Programming part

The three tier architecture of our project design is given below.



Figure 5. Three Tier Architecture

The architecture that we adopted for our application is Android application, web service and database is the three tier architecture, which is a stack of three levels. The first level is a presentation of data that we send the request to the server. The second level is a Treatment

business data and access to persistent data is a third level. i.e., client, application server and data base server.

### Embedded C programming

Embedded programming is a specific type of programming that supports the creation of consumer facing or business facing devices that don't operate on traditional operating systems the way that full-scale laptop computers and mobile devices do. Embedded C programming possesses cross development in nature. It depends on hardware architecture (micro controller or other devices).

### 5. OUTPUT

The output screen of receiver side is given in the following figure.

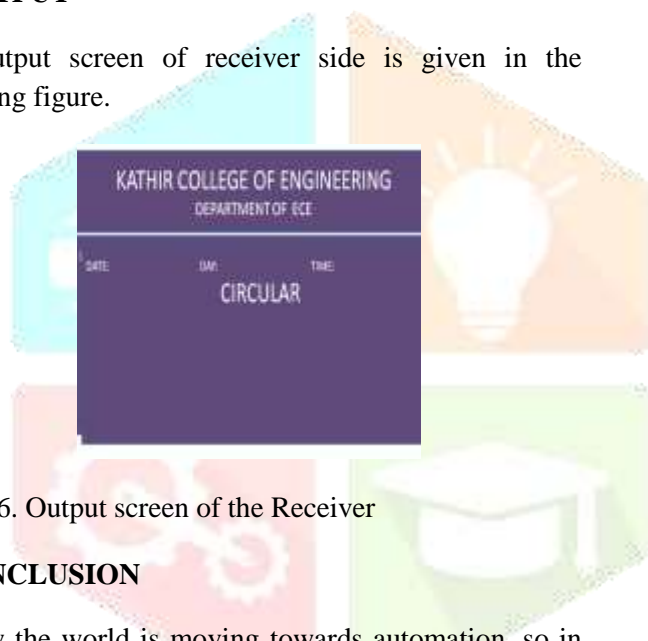


Figure 6. Output screen of the Receiver

### 6. CONCLUSION

Now 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 the new techniques. Wireless operation provides fast transmission over long range communication. It saves resources and time. Data can be sent from remote location. User authentication is provided so that unknown person cannot access this notice board is a secured one. Text messages and multimedia data can be seen whenever we want to see is an advantage of using our project. The protected text can be displayed using this notice board.

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