

“A Novel Approach to Student Information Broadcasting via GSM Network”

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Abstract - Broadcasting of Student information via GSM Network is a modern approach to send the academic information to the parents in regular manner. This will be helpful for parents to receive on demand service of information regarding daily progress of student like Attendance, exam forms, Examination marks, Event in college, Placement related Info, Fees information etc. As the information world is changing into digital, it is important to transform the information stored in colleges in traditional manner into digital manner. As the information stored into digital manner will be available at 24*7. GSM network is one of the low cost technologies which is helpful to broadcast the information stored in central database in rapidly.

Keywords:- Broadcasting, GSM Network, Student information, on demand services.

I. INTRODUCTION

The traditional way of managing student information and data storing is very tedious. The availability of student's academic information is not easily accessible to the parents. We are proposing a Smart information system in which a central database will be used for storing student's information such as attendance, result, academic calendar and events in institution. All information will be provided to parents using voice calling and text message (SMS). Android app to student will also be provided for checking academic data anytime. The Short Message Service (SMS) technology is one of the stable mobile technologies. Almost all of the students carry mobile phones these days having SMS facilities and those can also be used for teaching and learning. SMS is the basic features and is available in all mobile phones. It is also one of the easiest and fastest ways of communication.

II. PROPOSED WORK

The proposed software will provide the service to the parents using Short Message Service (SMS) - Delivery of student information such as test scores and monthly attendance records. This information can also be seen by students using the Android application on a regular basis. Information Dissemination to the students on campus related events and activities. The students will have access to information such as their attendance as well as test scores on-demand. A teacher portal is also to

be created for the modification of the traditional attendance system. An android application for teacher will be created which will be connected with the database for the regular insertion of data such as attendance.

III. REQUIREMENT

To implement the proposed software, the required hardware and software are as follows-

• DTMF module and signal decoder chip.

Dual-tone multi-frequency (DTMF) technology is a signaling system that uses the voice-frequency band over a telephone line between two communication devices or switching centers. DTMF uses push-button telephones.

The new Touch-Tone system that uses a telephone keypad replaced the use of rotary dial and has become the industry standard for landline and mobile service.

• GSM Modem.

A GSM modem is a specific type of modem that accepts a SIM card, and operates over a subscription to a mobile operator, similar to a mobile phone. We can say that it is the part of the mobile phone circuitry that deals with the SIM Card.

• 89C51 microcontroller chip

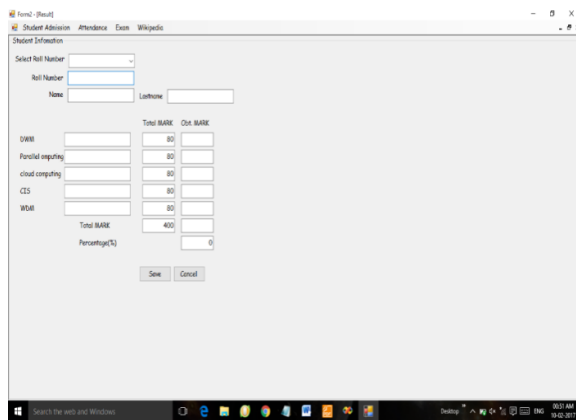
ATMEL 89C51 is a 40 pin microcontroller chip that has 4KB of Flash programmable and erasable read only memory (PEROM) and has 128 bytes of RAM. There are four ports named as P1, P2, P3 and P0. All of these are 8-bit bi-directional ports, hence they can be used as both input as well as output ports.

- Net framework API and Extended AT commands for interaction of System application with GSM modem.
- Visual studio.
- My SQL for creating/editing databases and Android Studio for the android application.

IV. IMPLEMENTATION

Software and Database :-

Software designed for the system is in Microsoft Visual Studio 2015. Vb.net is used for the creation of system application. The student application consists of various forms for the insertion and modification of data, such as addition of new student, Updating student attendance,



Hardware:-

Broadcasting:

A) The primary module of the software is used to distribute student records and notifications via SMS. The DTMF (Dual Tone Multi Frequency) decoder circuit recognises the dial tone from the telephone line and decodes the key pressed on the remote telephone. By means of which the user is directed as per its requirement. The following table will show the decoded output

Button	Low DTMF frequency (Hz)	High DTMF frequency (Hz)	Binary coded output			
			Q1	Q2	Q3	Q4
1	697	1209	0	0	0	1
2	697	1336	0	0	1	0
3	697	1477	0	0	1	1
4	770	1209	0	1	0	0
5	770	1336	0	1	0	1
6	770	1477	0	1	1	0
7	852	1209	0	1	1	1
8	852	1336	1	0	0	0
9	852	1477	1	0	0	1
0	941	1336	1	0	1	0
*	941	1209	1	0	1	1
#	941	1477	1	1	0	0

B) GSM Module :-

A T Commands AT commands are instructions used to communicate with the GSM modem. AT is the abbreviation of Attention. Every command line starts with "AT" or "at". There are two types of AT commands as described below:

1) Basic AT commands do not include the "+" operator in the syntax. For example, AT followed by D (Dial), A

insertion of exam marks and the Wikipedia which will contain the basic information of the student.

❖ **System application**

Database is the backbone of the system because it has all the data fields such as Roll no., Name, Phone, Branch and the attendance record. In this system, we are using MySQL as a database back end and Microsoft VB as front end for the user. When the data is to be fetched from the database the primary key is checked, if the primary key is present then the specified data is fetched and given back to the user. The data in the database can be inserted either by means of teachers' portal or by means of system application.

(Answer), H (Hook control), and O (Return to online data state) are basic commands. 2) Extended AT commands include a "+" operator in the syntax. All GSM AT commands are extended commands. For example, AT+CMGS (Send SMS message), AT+CMGL (List SMS messages), and AT+CMGR (Read SMS messages). In the software proposed in this paper, we would be using the extended AT commands to send instructions to the GSM modem. The software first reads the data stored in the Database, which can be in numeric form or alphanumeric form. Then, we search the database for the student's record using the roll number as primary key. When the record is found, the mobile number is extracted from the record; an SMS string is generated by inserting the result data of the respective student and the string is sent via SMS on the phone number that was extracted from the same record. The same process is carried out for delivering attendance records via SMS. The Data Table containing the attendance data (e.g. Sub1=80%) is read and the SMS is sent automatically to the students on a weekly or monthly basis.

The Final module of the software is for On-demand information services. Students can access their academic records such as test scores or attendance information anytime and from android application. SMS Keywords are used to get the particular information. For example, we assign keywords such as RES to test scores and ATT to attendance records. This software uses auto-reply features. A reply will be sent based on incoming SMS content. When an SMS containing a keyword is received from a Registered Mobile Number, the associated records are searched and extracted and sent via SMS.

V. CONCLUSION:

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By means of the proposed work attendance of the students can be maintained and their status is updated to the parents regularly. The GSM Module sends the student attendance and various other information through SMS to parents' mobile. There are several advantages of this system i.e. student's attendance record to the parents on

daily basis is available easily which reduces the overhead in the compilation of attendance. With the help of this model, the desired person can easily provided with data from any remote location via SMS, there is no need of physical contact, internet or any kind of request send by user as it is push based technique.

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