Intelligent Announcement & Bell System For Educational Institutes

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Abstract— In existing system, the bells and announcements are done manually. Delay occurs due to this and man power is needed. In the proposed system, the bell will ring automatically using the IOT based system and announcement will be done through the android application. No man power is needed and we can also switch between regular and exam time. We can change the time in case of change of schedule of college. It can be accessed by authorized person only. It is secure, safe and flexible.

Keywords— Intelligent, Announcement, Bell System, Android App, Website, Database.

I. INTRODUCTION

Earlier the bell system were manual and automatic. In automatic bell system, bell can be rang at time but can’t announce and change its time we have to again change it from program. And it can’t be accessed from anywhere. And for getting data at anywhere anytime through internet, Internet of Things System introduced.

This IOT based system works with devices that are connected with internet. It also needs a cloud to store its data taken from devices. It also have a android app so we can see data anywhere anytime. Thus in automatic bell system using IOT based platform is essential and good for now adays.

For this system, a development board is used which has a good memory, crystal oscillator & which is integrated with Wi-Fi, Bluetooth, more GPIO pins, SD card support. And have VoIP support. A RTC is needed which can provide date and time on which our bell will ring. A SD card will store the prayers which will be ringing. A router to which board will be connected to internet.

A relay is used to switch ON and OFF the amplifier. Webpage is loaded in the development board which can be accessed on Intranet within paramesis. And app from which we can announce the circulars and emergency announcements. So with this all features, system can be considered intelligent and emergency announcement system for educational institutes.

II. LITERATURE SURVEY

Huang Xujing [1] described that in each and every school bell rings according to lectures. And so for that automatic bell system have been made. In this paper he proposed that his system will have different ringing sound for different day hours activities like lectures, labs, sports, etc. His System is flexible and can be varied by direct programing or through webpage. His system lets us provide new schedule without removing old one. His system is connected directly to bell and according to the data signal will be sent to bell and it will ring.

Limitation: The bell ring only 6 days a week except Sundays.

Wang weicheng [2] invention relates to a radio broadcast bell, belonging to the school appliance technology. His invention is made to overcome the utility time gap of automatic bell system for far distance in the campus using a uses wireless communication signals transmitted from the control terminal to the bell. A radio broadcast bell, the bell from the transmitter and the receiver, which connects between the transmitter and receiver by radio, the transmitting terminal includes different modules. Than through the radio the bell is rang by giving data from the database.

Zhao jiankai [3] proposed invention that relates to a method and device for communication through Voice over internet. The method is used for a calling terminal, and comprises the steps: receiving a communication instruction for initiating the communication with a called terminal; displaying prompt information whether a VOIP call to the called terminal is carried out or not when the calling terminal is on line; and carrying out the operation of carrying out the VOIP call to the called terminal under the condition that a dialing instruction for indicating the VOIP call to the called terminal is received. Therefore, the method and device can enable a user to know and use the VOIP as quickly as possible, thereby saving the communication cost of the user.
Alexander Simon[4] proposed a system that a network communication stack running on relational processing circuitry performs control and maintenance actions on records from a database server managed by repository control circuitry. The database interaction layer of the communication stack accesses the records on the database server. The database interaction layer passes the accessed records to the data processing layer for parsing and storage as tabular entries. An operator may perform manipulations on the tabular entries using a command interface generated by the command layer of the communication stack using locally-defined interface parameters that are independent of characteristics of the database server. The data processing layer recompiles manipulated entries into an altered record. The database interaction layer sends the altered record back to the database server.

Andrew Swales[5] proposed a system that a control system includes an Internet web interface to a network of at least one programmable logic control system running an application program for controlling output devices in response to status of input devices. The Web interface runs Web pages from an Ethernet board coupled directly to the PLC back plane and includes an HTTP protocol interpreter, a PLC back plane driver, a TCP/IP stack, and an Ethernet board kernel. The Web interface provides access to the PLC back plane by a user at a remote location through the Internet. The interface translates the industry standard Ethernet, TCP/IP and HTTP protocols used on the Internet into data recognizable to the PLC. Using this interface, the user can retrieve all pertinent data regarding the operation of the programmable logic controller system.

Piyare R[6] designed and implemented a novel, standalone, flexible and low cost home controlling and monitoring system. The architecture is divided into three layers: Home Environment, Home Gateway and Remote Environment. Remote Environment represents authorized users who can access the system on their Smart phone app using the Internet. The primary function of the Home Gateway for the proposed architecture is to provide data translation services between the Internets. The main component of the Home Gateway is a micro Web - server based on Arduino Ethernet. The main task of the server is to manage, control and monitor system components, that enables hardware interface modules to successfully execute their assigned task sensors.

Hardware interface modules are directly interfaced with sensors and actuators through wires. It has the capabilities to control energy management systems like lightings and air conditioning) systems and security systems such as door locks, and gate. For monitoring Home Environment, the system supports sensors such as temperature, humidity and current.

III. PROPOSED SYSTEM

In the proposed system, we are modifying the bell system and announcement system. In our system the Bell will ring according to the time and date supplied by RTC and our program. In case of Emergency, bell will be rung through webpage or android application. We can switch between regular college time and exam time by feeding data to webpage or android app of our system. NodeMCU will be connected to Wi-Fi router for internet services. The output of system will be sent to relay to switch “ON” or “OFF” the amplifier to save power & amplifier will be connected to all speakers in institute. We can access the webpage and android app from Mobile or Pc. Circular can also be announced through mobile via VoIP. Finally, the bell can be rung automatically and can be accessed by only authorized person.

IV. BLOCK DIAGRAM
V. PROCESS FLOW

Start
Initiate Server Connection
Client Available
Start session
Receive Data from Server

Sending command from website/android app to system

Taking data from real time clock
For Announcement
Emergency bell

Matching Data from RTC and Server
Check for the VOIP module
Switch ON the relay and make announcement

Taking Tune from IF Player according to Data
Switch ON the relay and rang Emergency tone

Switch ON the Relay and rang the Bell

VI. SYSTEM DESIGN

[Figure 1: Interfacing Of NodeMCU with RTC DS1307]

[Figure 2: RTC DS1307 Serial Monitor Output]
[Figure 3: Interfacing Of NodeMCU with DFPlayer]

[Figure 4: Website Login Page]

[Figure 5: Website Dashboard]

[Figure 6: Institute schedule Display]

[Figure 7: Updating Institute schedule]

[Figure 8: Android Application Login Page]
VII. CONCLUSION

As in surveyed literature, all the bell system can just automatic ring bell according to date and time.

And some of them can announce but manually through a microphone from a old mic speaker system. So in our system we are trying to overcome that lags by making system IOT based. As this system would be automatic no delay in ringing bell will happen and in emergency no time delay will occur direct announcement can be made through app. Need of man power is not necessary. We would not need to change the program to change time according to schedule. It will be done by webpage and app. This system will work on VoIP for real time announcement. And it will be secured because of the security protocols set by us. Thus this system is fully based on latest technology and it is flexible and easy to maintain and user friendly.

REFERENCES


