



Electronic Private Automatic Branch Exchange

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Abstract:

A private branch exchange (PBX) is a telephone exchange that serves a particular business or office, as opposed to one that a carrier or telephone company operates the many businesses or for the general public. PBXs are also referred to as private automatic branch exchange (PABX), electronic private automatic branch exchange (EPABX). If possible the counter measures are described by the system control. In some other cases, the software patches is required from the manufacturer. PBX design is a large and complex area and some of the technology is fixing.

Keywords: PBX, PMBX, PABX, PSTN, DTMF.

I. INTRODUCTION:

Any business cannot survive without the telephone. Communication is very important in today's business world. If any business is small, the single telephone line is sufficient for the communication.

Now days, any large business must have required at least two lines, one for telephone calls and the other for personal computer. When more than two lines are required then the extension lines are being too used.

The earliest PBX is where manually switched, so it known as Private Manual Branch Exchange (PMBX).but now a day's PBXs were automatically switched it called as the Private Automatic Branch Exchange (PABX).

II. PROBLEM STATEMENT:

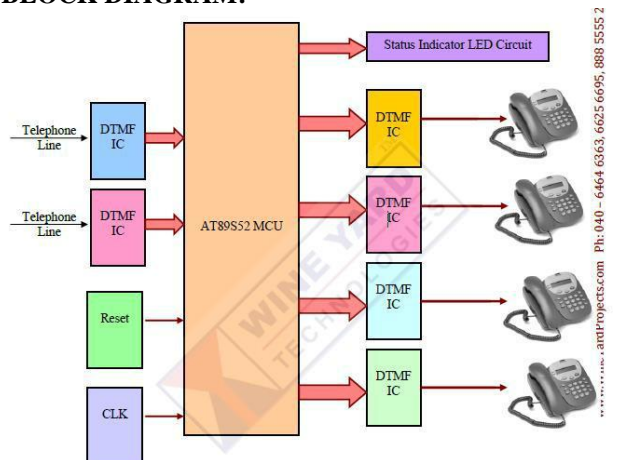
The Problem square measure physical science non-public Branch Exchange system the value of wiring for the extensions were enhanced furthermore because it is unable to extend the extensions and not versatile for users?

III. WORKING:

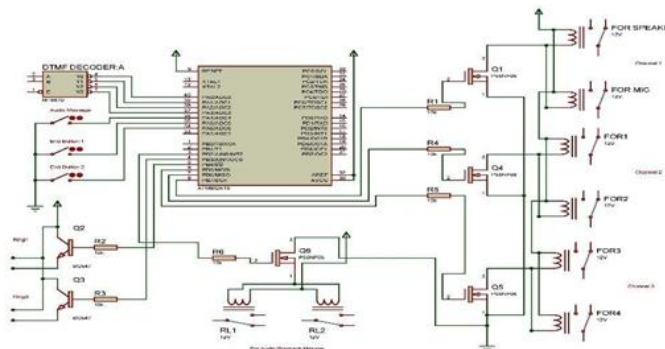
In this project one can talk to another person of other department from his desk without moving from his place. The reception can transfer the outside call to any of the extensions if needed. This project is designed for eight line telephone systems and the dual tone multiple frequencies. The eight telephones are connected to the Switching devices and common line.

The Atmega16 microcontroller is Utilized to control tone, ring relay and on/off switch when the telephone is used. Tone generator is used to get dial tone, busy tone, and ringtones. Ringing is generated at the receiving end of the phone being called Ring relay is used to get tone and ring processes. DTMF is the basis for voice communication control.

BLOCK DIAGRAM:



CIRCUIT DIAGRAM:



DTMF Signals and Caller identification:

DTMF stands for "Dual Tone Multi Frequency". This frequency represents different digits with the tone frequencies, and it transmits them over an analog communications network. In telephone networks, DTMF signals are used to encode the dial tones and other information. DTMF encodes the digits from 0 to 9 and the characters from A to D, and */E and #/F are combinations of two frequencies:

Table.1. DTMF Frequencies

FREQUENCY	1209Hz	1336Hz	1477Hz	1633Hz
697Hz	1	2	3	A
770Hz	4	5	6	B
852Hz	7	8	9	C
941Hz	*/E	0	#/F	D

All DTMF signal frequencies is shown in above Table. The user dials a number so DTMF audio signals are sent over the power lines and need to be identified and processed by the PABX in order to establish the solicited communication. All records are stored in a database for further billing processing. Something similar occurs with caller identification signals. These tones are used to transmit short messages in American Standard Code for Information Interchange (ASCII) character code form. The transmission of message occurs between the first and the second ringing signal. The information sent includes the date, time, and calling number. In order to minimize cost, which is one of our premises for this design, the caller ID signal generation is conceived as part of the software designed for the microcontroller. The PCI based PABX board needs both, a Caller ID generator and also a detector because of the link with the incoming PSTN line

IV. CONCLUSION:

Thus from this system we can communicate by using laptop, computer via softphone and also using mobile phone having Wi-Fi facility, internet. This system is mostly beneficial for colleges or business. This system has many advantages like it uses our on LAN, lowers operation cost over time, easier to configure and install and simple management. Moreover along with calling other facilities are also available like interactive voice response and ring group. In future scope necessary additional features can be code and included according to the need.

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