
Automatic Telephone Answering Machine

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Abstract

The research paper is based on the following sections. The first part briefly elaborates the basis and the significance of the Automated Telephone Answering Machine in our daily life. Telephone answering machine actually triggers the counting of the incoming ring signals and when the number of ring signals exceeds a preset number set by the user, it stops the counting. The machine is programmed in such a way that if the user does not pick up his telephone within a certain time period which is the function of number of ring signals, the call is answered automatically and the message to the caller is played back as well as the caller is asked to leave a message. In the second phase, pros and cons of the system are defined concisely. In the end of the paper, certain recommendations are proposed along with the prospective future works to be implemented in the concerned domain.

Keywords

Answering machine, answering system/device, ADPCM, encoding, decoding, DTMF.

Introduction

An automatic telephone answering machine is basically a device which is used for answering one's telephone and plays a prerecorded message. This is an electronic device by which a telephone call is answered automatically and the caller is enabled to leave a recording message. These systems usually consist of remote access message playback, automatic dial up, seize calls, automatic answering data entry system, record an announcement, receiving an alarm etc. The microcontroller peripherals or components actually control the devices such as LED and LCD, a DTMF receiver and an audio controller.

An automatic telephone answering machine must be capable of being remotely activated and therefore must have the following features and capabilities:

- Mode of operation depending on a switch which can decide the mode whether it is normal or automatic mode.
- When on automatic mode, it must automatically receive the calls.
- Provision for recording the message to be delivered to the incoming user and also record his message.
- Storage capacity for the message.
- Microcontroller to deliver control signal as per the mode of operation.

Generally the answering machines are used for reliability, simplicity and portability which help us when there is too much of outstanding functionality.

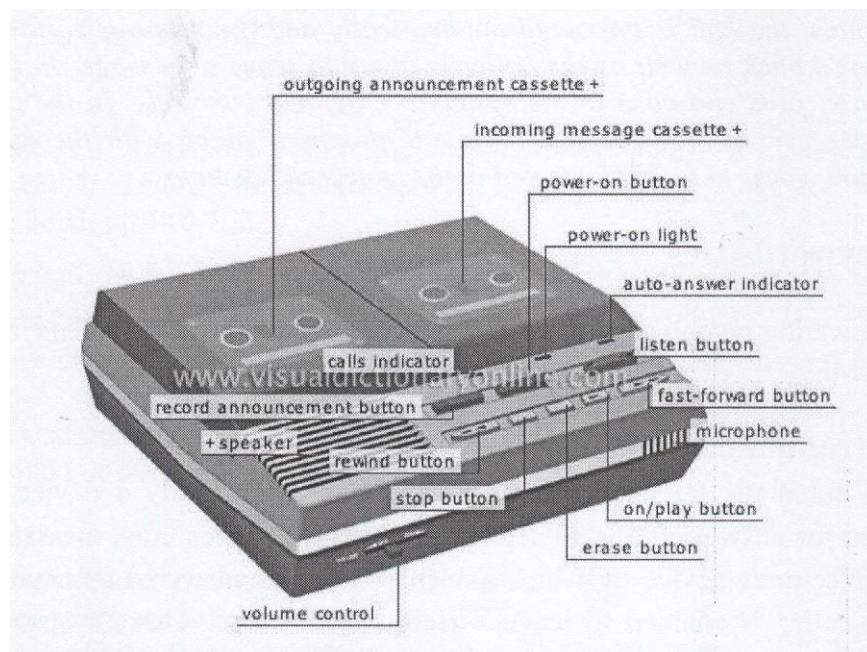


Figure: 1 (telephone answering machine)

(Source: Wikipedia.com)

Scope

In the development of new technologies era, world the automatic telephone answering machines embodiment in a very wide areas. Initially in the early days, they are just been used for the household purposes but nowadays by the arrival of interactive voice response(IVR) the modified version of it made a huge boost in the industries, companies and all the other fields whom are supposed to use for benefits so, with that we can easily say that it holds a very wide scope and it is still an ongoing process with different additional features are being added.

Features

A telephone answering machine with digital storage capacity of prerecorded messages can in fact increase the message playback features.

Telephone answering devices usually consists of various features that allow users to check the appearance of a call, seize calls, playback prerecorded messages, record an announcement etc.

When an incoming call is found out, the line is seized and a predetermined outgoing message is placed upon the telephone line. The outgoing message responds to the caller to supply a telephone number, a priority code, or any other information. It can be input through a telephone DTMF keypad.

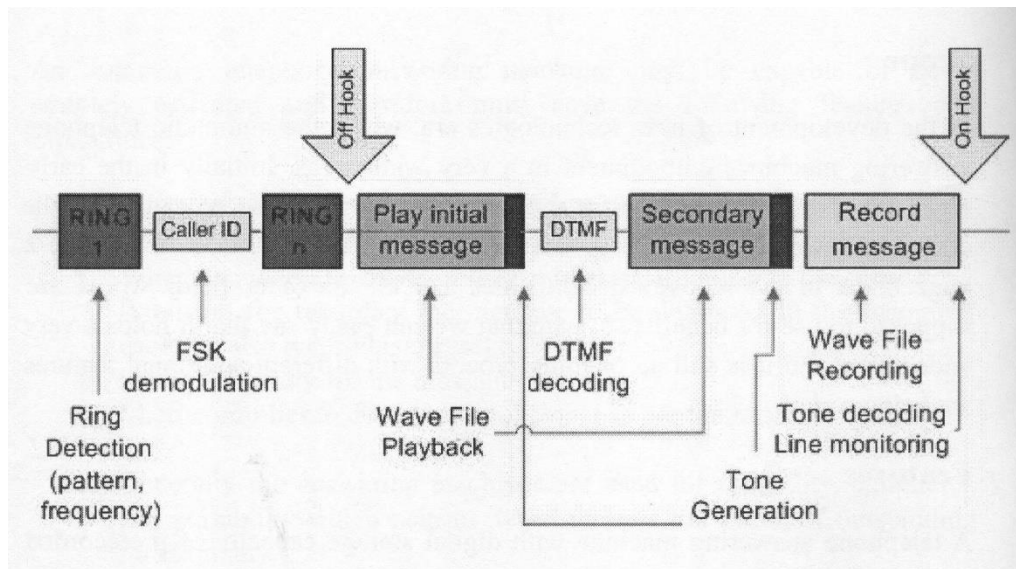


Figure 2: Operation Flow Diagram of Answering Machine

(Source: mkipedia.com)

Multiple devices provide a "toll saver" feature, whereas the machine responds to only after four rings if there are no messages left, but answers after two rings if there are messages. Most modern automatic telephone answering machine comprises of a number of features that are caller ID information, voice time and date stamp for easy playback or deletion, live recordings of incoming calls with voice-mail storage, answers telephone line automatically, play all recorded messages left on a machine by pressing few buttons, produce auto recognition of voice modem/telephony device at the time of installation, it uses a wav format to store incoming messages, helps a user to adjust number of rings before responding, set incoming message recording time in seconds, make remote call to your phone number after inputting a PIN, alert a user of a message if an incoming message is available and messages are sorted chronologically and are played in the order it is recorded.

Automatic Telephone Answering Machine

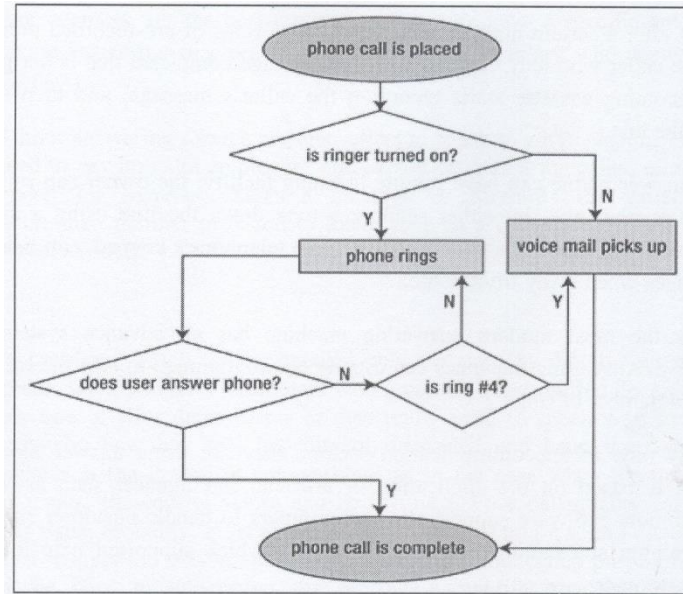


Figure 3: Flowchart of operations of answering machine
(Evolved by the author)

Limitations

The idea of generating such device through which the message can be recorded through telephone was originally invented by the Valdemar Poulsen in 1890. The idea to invent such device was also given by Thomas Edison. This device as named as telegraphone. Today it is known as the answer machine.

The first magnetic recorder by the Poulseri "telegraphone", the automatic answering machine, which operates much like a modern tape recorder, but it, had no outgoing message. Answer machine operates by using two cassettes, an outgoing cassette usually a special endless loop tape on earlier machines,

which after a certain number of rings plays a pre-recorded message for the caller who may call. As soon as the message is completed, the outgoing line starts recording the caller's message, and then stops once the line is cut.

The answering phone can have a remote listening facility; the owner can ring the home number and, by either sending a tone down the line using a special device, or by entering a code on the remote telephone's keypad, can listen to messages when away from home.

Today the most modern answering machine has an advanced system for greeting. Answering machines can usually be programmed to take the call at a certain number of rings.

Mostly now in telecommunication sectors, they are using an answer machine which is based on the application of artificial intelligence, such as voice recognition. Software support allows computers to handle customer support, text mining and natural language processing which supported help to deal with customer.

PROS

An answering device is still the easiest, comfortable, portable and most cost-effective way to collect messages on your home land-line phone. Unlike voice mail, there is no complicated programming involved. They can also record important telephone calls for future reference, provide caller ID information and allow separate mailboxes for each member of your household.

An automatic telephone answering machine allows you to screen your calls. Most modern answering machines or devices have functions like caller ID information, another way to screen calls that permits you to identify the caller even before the answering device is activated.

An answering machine can save your messages for as long as you want. It requires no more devices, physical apparatus or hardware.

In your business, for the best impression you may have a specific automatic telephone answering machine or you may have a secretary who answers the phone for you.

A 24-hour answering service permits callers to speak to a live person. There is no need to pay an extra employee. The person can assist the caller, eliminates the need for secretary, takes a message or forwards the caller to a predetermined number provided to them, such as a cell phone. Thus, it is a great cost saver.

CONS

Many problems which can be handled only and only by the live agents, for instance, when you have customers with a certain question that doesn't quite fit into one of your departments or they really need to speak with someone immediately they may feel impediment, frustrated and hang up. The time during which the device is not working, as in the case when the device is under repair, the security issues can be involved. Poor call quality can be a serious issue. Probably, most of the calls that you get might sound distorted at the best. Unless the person spoke very clearly and enunciated purposefully, it might be hard to understand the message. Answering machine messages cannot be forwarded to another person and therefore, these messages are not on a network. However, most cell phones come with automated voicemail systems and you can even subscribe to cheap voicemail systems on your telephone through your telephone company.

The Concept of the Digital Diary

Internet accessibility

All that is required in internet accessibility, which is possible from an increasing number of locations and including many cell phones. Easy to approach internet from virtually anywhere.

Electronic invitations

Digital diary can be sent and received electronic invitations. Digital diary can be send an invitation via email if it is connected to a network and person can respond at the click of a button.

Remote users

Anyone anywhere can allow viewing or managing a digital diary therefore, access can be shared with other remote users.

Automated reminders

it is a most beneficial feature for busy executives, who consumed a big time away from their desktop computer. The feature of automated reminder can be sent via text message. It notifies for appointments and meetings.

Telephone directory

Digital diary can be stored 128 KB of memory with having connectivity with a computer. It can be stored 6000 telephone numbers.

Memo pads

Digital diary can be the capacity of 3000 memos.

To do list

You can store your daily tasks, checking of items as you complete them.

Foreign language conversion function

Digital diary is very user friendly. It can be changed to 6 foreign languages.

Schedule keeper

Keep track of appointments by entering the date, month and year.

World time

Find out the current time in virtually any location on the globe.

Secret memory area

Secret memory area keeps personal data private. Once a password is registered, data is locked away until the password is used to access the secret area.

Metric conversion function

This feature is used for conversion between metric units and another measurements unit.

Currency conversion function

This feature is used for instant conversion between two monetary units.

Record of digital photographs

You can create your photo gallery with digital diary gallery and you can record your digital photographs.

Methodology

According to my idea (connect digital diary with answering machine), is the best way to facilitate many features in one device due to its outstanding functionalities.

The novel hybrid technique that combined aspects of traditional methodologies into a single, comprehensive framework. We can attach digital diary with the DTMF keypad and view from LCD interface because digital diary can come in the form of software or direct download to Smartphone, laptop or desktop.

1. We include digital diary in the answering machine along with the other features.
2. Then the owner writes an important message for the person to whom it may communicate along with (the number).
3. Then when the call of a concerned person arrives firstly the answering machine performs the routine function.
4. Now the answering machine with the help of number checks in digital diary that was there any message for such number.
6. And if any message found the answering machine automatically ring back to the caller.
7. Then when the caller receives the call the message written in digital diary automatically runs for at least three times.

The biggest advantage of digital diary connect with the answering machine is that we can email, voice mail, conversion to many languages and record of digital photographs besides other features.

Recommendations

By viewing the various models related to automatic telephone answering machine, it has been found that various innovations are being made such as additional features etc to the original one invented in 1898.

Future-Work

By paying highest regards to those people working in this field, it would be appreciated to float this idea and do hopes that geniuses would look into including "Digital Diary" in automatic telephone answering machine as well as other features which can, in fact, be taken as future work.

Working

The purpose of this device is to use it to maintain the record of important meetings and appointments in it and the record of the persons to whom we have to communicate, then if call arrives of such persons in your absence the Digital Diary automatically checks out the record to know whether any important message for him/her and if so then there is an automatic reply to the caller and the detail of the commitments is informed to him/her accordingly.

It is hoped that it will also make provision for further enhancement in the service and better features to this device.

Conclusion

With "Digital Diary" in automatic telephone answering machine, as well as other features, it would have made it an epitome. As realized, it is based on a very useful scheme which provides a huge boost in the field of telephone related hand devices that provide a lot of ease and reliable environment and convenience of many outstanding functions to an individual at home and companies in the form of interactive voice response(IVR). There were many enhancements to the original embodiment but infact there were still more functions for enhancement and betterment in the device to serve a very useful multipurpose "automatic telephone answering machine".

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