Scientific Journal of Impact Factor (SJIF): 5.71

e-ISSN (O): 2348-4470

International Journal of Advance Engineering and Research Development

Technophilia-2018.

Volume 5, Special Issue 04, Feb.-2018 (UGC Approved)

One to Many PC Communications using TCP/IP protocol in Text and Voice format.

Text to speech & speech to text conversion

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Abstract:*When 2 or more computes are connected for exchange of information it is called as Computer Network. Computer Networks may be of types LAN, MAN, WAN. LAN is used in school, colleges and offices. In LAN, one user can send single message to multiple users and receives reply from that users in text and voice form using Transmission control and Internet protocol. Using TCP/IP protocol we can also play single audio or video from single PC on multiple PCs.*

***Keywords**: Text to voice conversion, Domain specific conversion, Phonemes base synthesis, Unit selection synthesis, Digital Signal Processing.*

I. INTRODUCTION.

When more than 2 computers are connected for exchange of information it is called as computer network. Communications between 2 or more pcs are based on tcp/ip model. Tcp/ip model uses mainly three protocols which are ipTCP and UDP.
Ip: ip stands for internet protocols. It is lower layer protocols. It is used for breakings data into little numbers of packets. It sends these packets across a network. It is unreliable protocol because it does not give guarantee of data transmission.
Tcp: TCP stands for transmission control protocol. It is upper layer protocol. It is connection oriented protocol. It is reliable protocol because it gives guarantee of data transmission. It is used for string together the packets,sorting and storing packets,retransmitting undelivered packets.
Udp: udp stands for user datagram protocol. It is connection less protocol. It is unreliable protocol because it does not give guarantee of data transmission. It is faster as compare to tcp protocol.
In school, colleges and offices usually all the computers are connected in lan. We can use this terminology for chatting between faculties, employees. It is also used for sending single message to all the employees using tcp/ip protocol.
In lan we can play at a time at many pcs using tcp/ip protocol.

II. METHODOLOGY.

A. Text to speech conversion has 2 parts Natural language processing and speech conversion digital signal processing).

B. Natural Language Processing (NLP) NLP produces phonetic transcription together with prosodic feature of the input text. In this TTS system, NLPcomprises of three main components such as text analysis, phonetic conversion and prosodic phrasing.

C. Text Analysis In this TTS system, the input sentence is segmented into token. After tokenization, each word each word is determined as part of comparison with other methods. In this TTS system, sub-types of concatenative synthesis such as unit selection speech synthesis, phoneme based speech synthesis and domain specific synthesis are applied.

D. Socket are called as a end point communication in networking communication.

E. TCP/IP model uses sockets for establishing connection between client and server.

F. 1.Server

Server is anything that has some resources that can be shared.The types of server is Web server,Diskserver,Compute server,
Print server
Web server: It consist of webpages and it provide the information to the client in the form of webpages.
Disk sever:It provide the disk space to the client eg.google drive.
Compute Server:It provide computing power to the client.eg. Website generating online barcode.
Print Server:It manages the collection of printer.
Sever is permanently available resources.Server always in listen mode until client is connected to it. Server will aceept number of client connection for specific purpose at a single port.
Each server ports is multithreded port.so number of client connection are unique.

2,Client

Client is a entity who gain resources from the sever.Unlike sever client is not always available.it may be plugged or unplugged at any time.

3.Reserved Sockets

Lower 1024 port is reserved for specific protocols are called Reserved sockets.
Port 21 is for FTP
Port 23 is for TELNET
Port 25 is for Email
Port 80 is for HTTP
Port 119 is for net news.

4.Internet addressing:

Internet address is a number that uniquely identified each computer present in a internet.It having 2 types ipv4 and ipv6
IPv4:
IPV4 stands for Intenet Protocol version4, it is a 32-bit address.
IPv6:
IPV6 stands for Intenet Protocol version6, it is a 128-bit address.

5.TCP/IP Client socket:

TCP?IP sockets are used to implement reliable,bidirectional,point-point connection between host on the internet.
Socket class is used as a TCP/IP client socket.
serverSocket class is used as TCP/IP serverSocket.

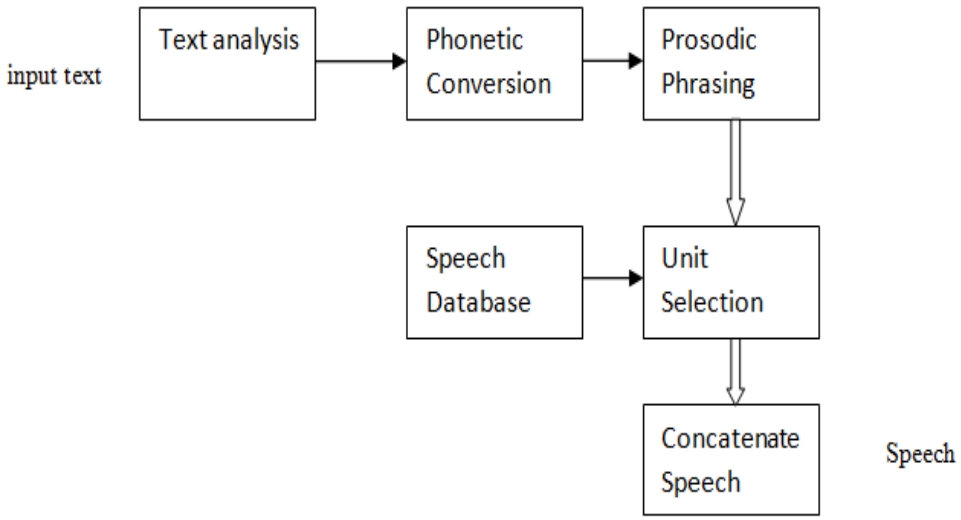

Figure.: Block diagram of Text to Speech using Unit Selection Synthesis.

III. IMPLEMENTATION.

A. when we have to send single message to many pcs at a time i.e. broadcasting, we should use tcp (transmission control protocol).
For this we should use following steps

1. Create server on a pc using serversocket class of java.
2. Create a client on number of pcs using socket class.
3. Establish connection between server and no of clients using tcp.
4. Create inputstream and outputstream from server side.
5. Create inputstream and outputstream from client side.
6. Send messages from server to many clients using write() of outputstream class from server
7. Receives messages from server by client using read () of inputstream class from client.
8. After receiving messages on client side convert into voice format.

B. Two clients can communicate with each other in text and voice format using udp protocol.
1. Create socket on both pcs using datagramsocket class.
2. Information to be sent is converted into byte array.
3. Create datagrampacket object
4. While creating datagrampacket object mention the information in byte [] and destination inetaddress object
5. Send this datagrampacket object using send () of datagramsocket object.
6. On the receiver's side, create datagrampacket object.
7. While creating object pass empty byte[] object as a parameter.
8. Call receive () of datagramsocket object on receivers side.
9. Now received data will be stored in byte data [].
10 . Now convert data into string format using string constructor.
11. Now convert this message into sound format.
12. Same step no 3 to 11 are used for sending data from others side to original side.

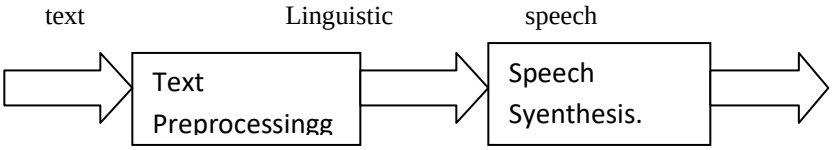

Figure: general block diagram of TTS.

C. Single audio file/ video file can be played at many places at a time
1. Store the audio/video files that you like into the centralized database stored on server.
2. Play the files by retrieving the files from the database stored on server and on the client also using rmi.

IV. CONCLUSION.

A. designed a simple and attractive GUI.
B. In this that, text to voice system is developed for numbers, words and sentence. For numbers (one or more digits), the output speech is actual and easy to listen.
C. It is necessary to remove delay in speech when speech is generated have done concatenation.
D. Speech transformations is advantageous for people who are visually handicapped. It helps them hear to the written works.
E. This research paper develops a new security framework that can be suited for text as well as voice data with minimum overload in processing.
F. ICMP protocol was enhanced with authentication to provide outstanding protection over the old one protocol.
G. The proposed of these protocol can be used by the network admini to troubleshoot the network without any fear of security breaches.
H. For communication between client and server.
I. For improving communication skills /.knowledge

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