The project involves building a system for exchanging voice messages over mail using speech coding, resulting in tremendous speech compression. The sender will record his voice message and transform it into the coded, compressed file using the encoder module. The coded file is transferred as an email attachment. The receiver passes the attached file through the decoder module, which reproduces the original speech. Both the encoder and decoder will use a repository of speech segments created using the repository generator. The repository may be transported by CDs, or may be made available for download.

**Diagram:**

- **Sender**
  - Records voice message
  - Sends message with sender’s identification

- **Encoder**
  - Receives message
  - Encodes message using repository

- **Repository Generator**
  - Creates speech segments

- **Repository**
  - Stores speech segments

- **Encoded Message**
  - Sent via email

- **Decoder**
  - Receives encoded message
  - Decodes message using repository

- **Receiver**
  - Receives decoded message
  - Decoded message is retrieved

- **Internet**
  - Transports encoded and decoded messages

- **Repository Set**
  - Contains encoded speech segments
Repository Generator

1. **Message**
   - **Frames**
     - **Get MFCCs**

2. **Sender's Identification**
   - **Repository**
     - **Get MFCCs**

3. **Clusters**
   - **Cluster Centers**
     - **Representative Frames for each cluster**

4. **MFCC Table**
   - **Clusters**

5. **Code Book**

6. **Apply Windowing Function**
   - **Apply FT**
   - **Take Log**
   - **Apply FT**
   - **Sum up into bin**
Message

Frames

Get MFCCs

MFCC Table
for message

Find Distance

Repository

MFCC Table of representatives
(Code book)

Find Minimum Distance

Encoded Message

Sender’s Identification

Distance Vector

- Distance
- Distance
Ck .27
Ck .27
C1 .45
C2 .30
C3 .18
Cm .75
ADVANTAGES
- Efficient Bandwidth Usage
- Clarity Of Communication
- Easy to use package
- Reusable as a shared library

LIMITATIONS
- Single Speaker Voice allowed
- Heavy resource utilization
- Fixed Frame Length used
- Empirically decided cluster cardinality

APPLICATIONS
- Commentary Archive
- Budget Speech Archive
- News Archive
- Internet

FUTURE SCOPE
- Streaming (i.e. real time communication)
- Segmentation (Variable length frames)
- Conferencing (handling speech of more than 1 person)
- Better quality using better prosody modification techniques
- Replacement of WAV format

PROGRESS REPORT
- Analysis completed
- Designing completed
- Coding in progress
- Testing to be done

Visit us at [http://vox.sourceforge.net](http://vox.sourceforge.net)
Project Guides: Mrs. Vijayalakshmi & Mr. Chetan Vaity