

# Specification and Design of Video Chat Controller

Project Presentation

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- Introduction
- System Functional Description
- System Specification
- Components Specification
- Feasibility Study
- Controller Analysis
- Simulation and Testing

# System Functional Description

- Basic phone functionalities (Mode 1)

Like any other phones, it can transfer voice messages over standard telephone lines.

- Answer machine functionalities (Mode 2)

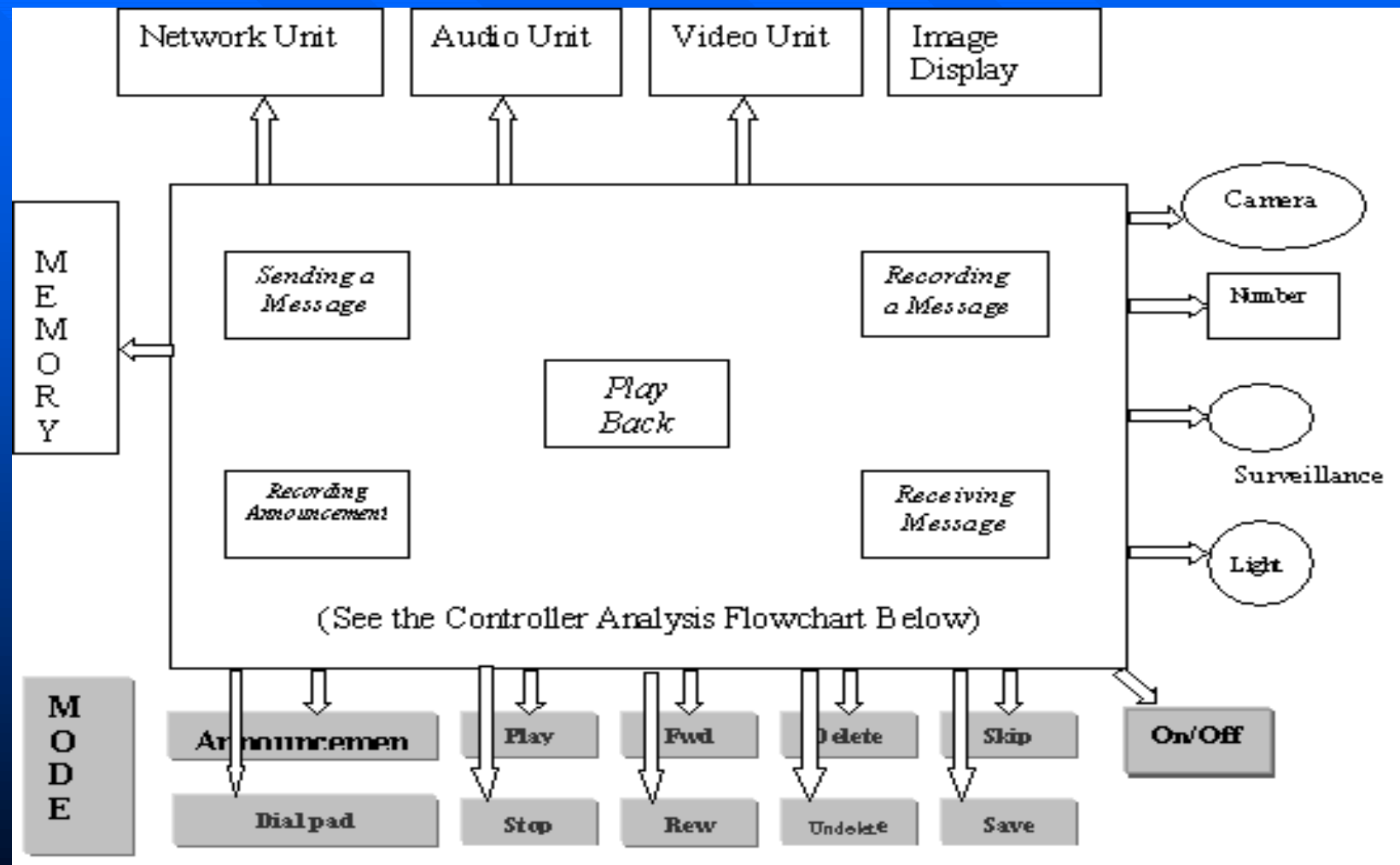
Not Like other answer machines, it can save both voice messages and video messages in memory.

The message stored in the memory can be traced.

- Video transmission (Mode 3)

Continuous high-speed transmission of entire monitored scenes.

# System specification



# Components Specification

- Memory Unit
  - Compact Flash 64MB Memory Card (Crucial)
  
- Audio Process Unit
  - Microphone → AD → Audio Compression
  - Decompression → DA → Speaker
  - SONY - Omni directional Microphone
  - Motorola DSP's 24-bit DSP56321T
  - Shihpei speaker

# Components Specification Cont'

## ■ Video Process Unit

- Camera → Image Compression
- Decompression → LCD Display
- V-1245 1/4" color board camera (CCD)
- MC149570 Multi-Standard Video Processor
- LCD: Model # ED10020TRU (Emerging Display Technologies).

## ■ Network Internet Unit

- APTIVA 56K MODEM ISA (IBM)

## ■ Control Unit

# Feasibility Study

Memory Unit	Compact Flash 64MB Memory Card (Crucial)	\$ 34.19
Audio Process Unit	Omni directional Microphone (SONY)	\$ 9.58
	Digital audio processor : DAP-712i (Miranda)	\$ 30.99
	S-15B11 speaker (Shipei )	\$ 5.16
Video Process Unit	V-1245 1/4" color board camera (CCD)	\$ 55.00
	DSP56321T (Motorola)	\$ 15.00
	LCD: Model # ED10020TRU (Emerging Display).	\$ 43.00
Network Internet Unit	APTIVA 56K MODEM ISA (IBM)	\$ 15.00
Control Unit	Engineer Design Cost	\$ 4.50
	Manufacturing Costs	\$ 7.50
Others	Other parts	\$50.00
Total Price		\$270.92

# Components Specification

## - Control Units

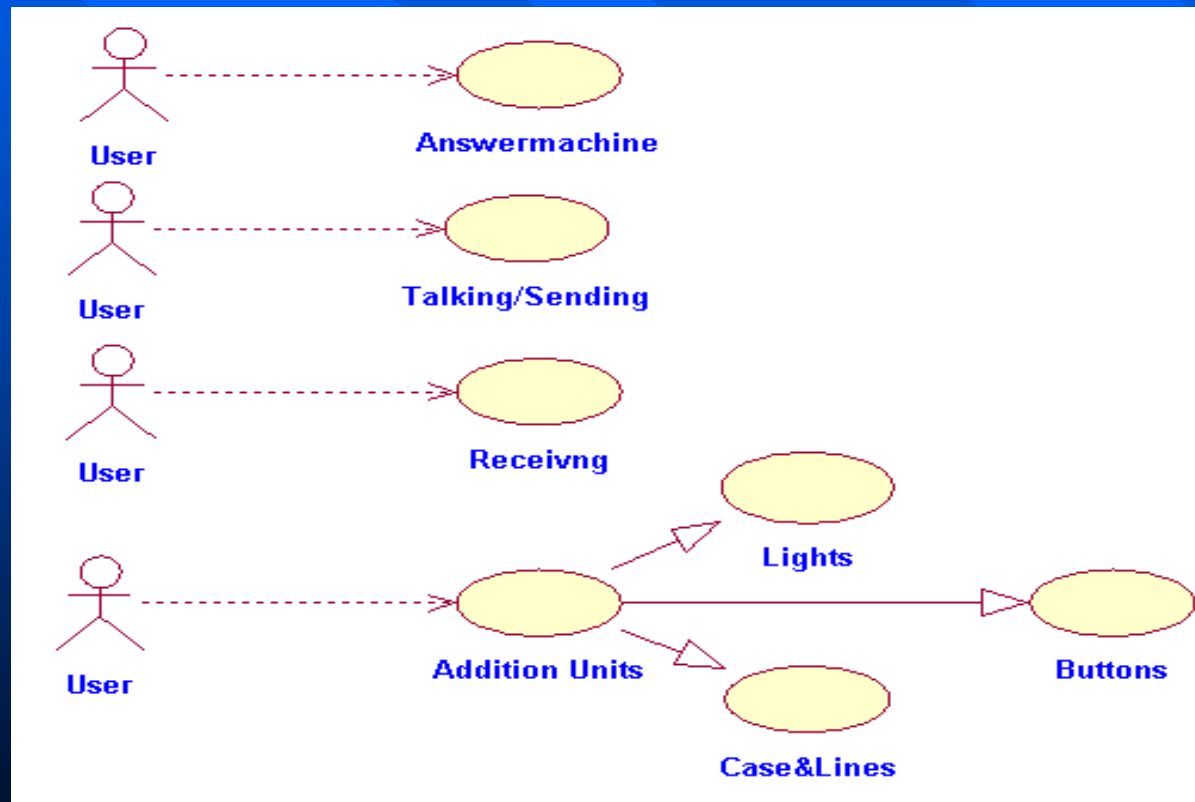
- Software design Using UML
- Socket programming using Java
- Hardware level programming using C
  - Memory Management
- Software Simulation and Testing using Java & C
  - PC based simulation
  - Peer to peer
  - GUI program
- Connect C with Java by JNI



# Components Specification

## - Control Units UML Design

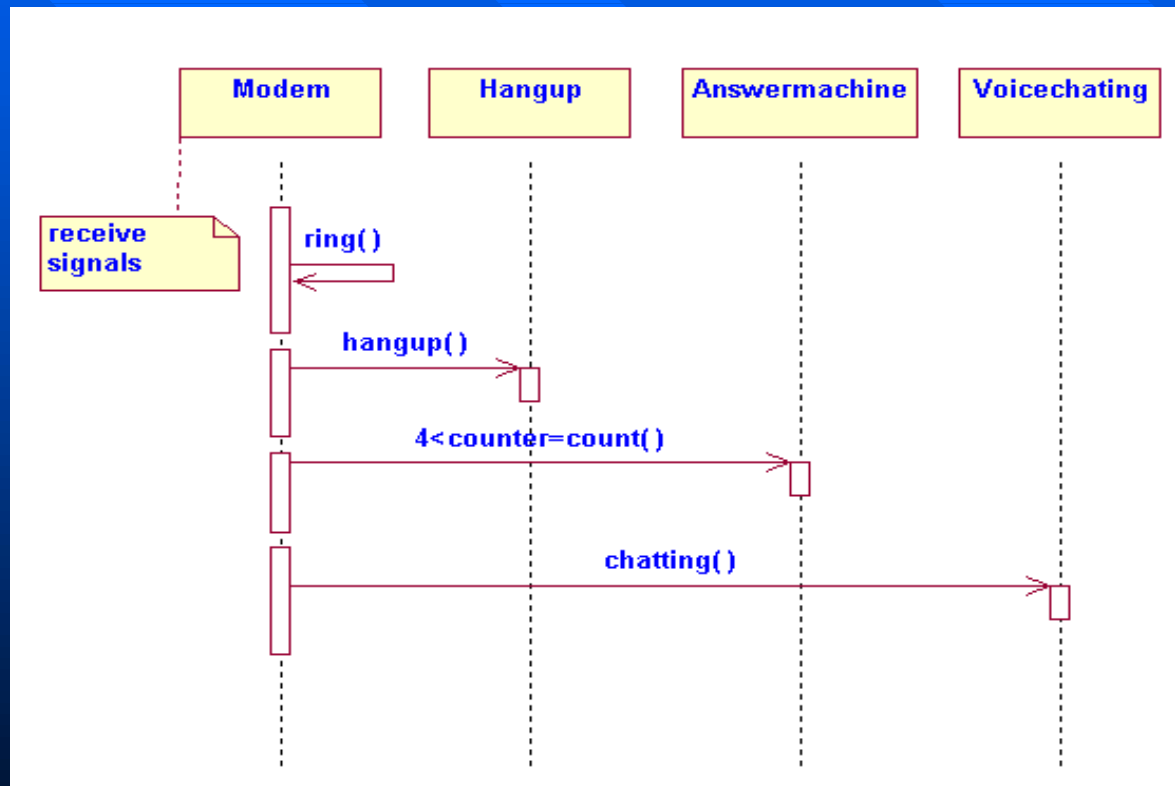
- Use case diagram



# Components Specification

## - Control Units UML Design Cont'

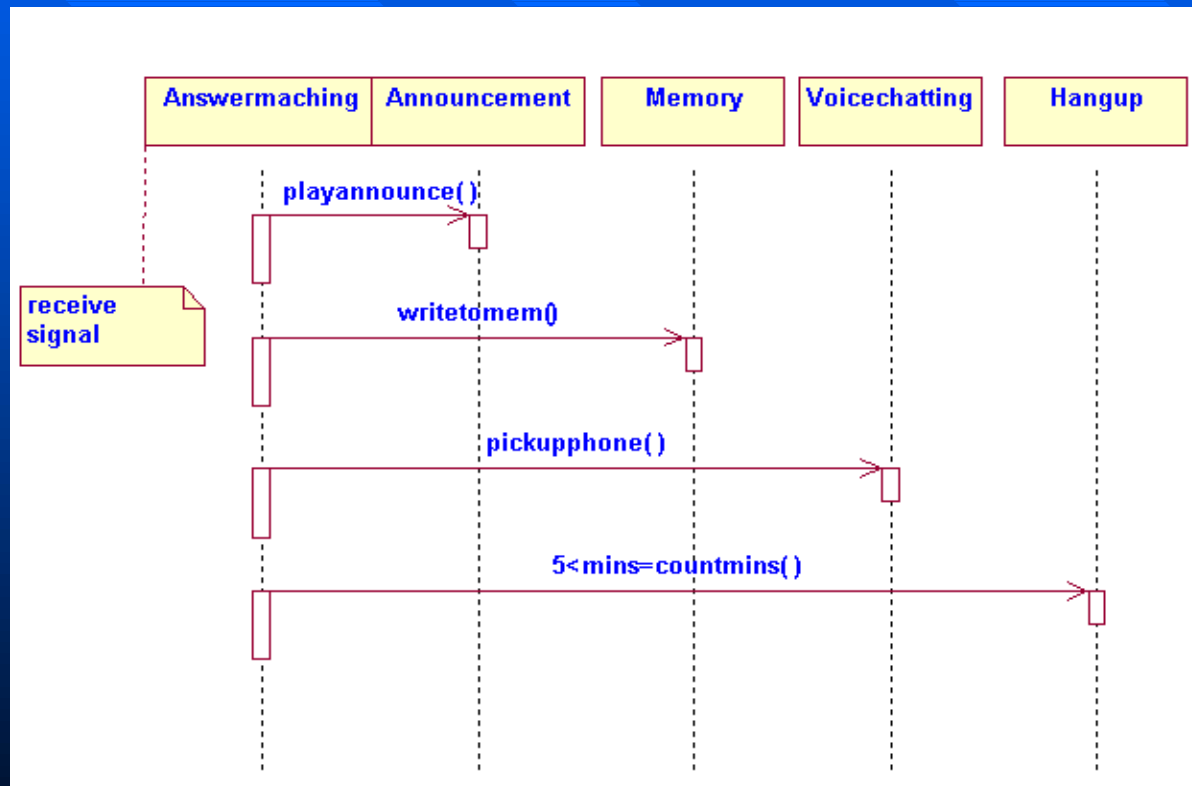
### ■ Sequence Diagram-Receiving



# Components Specification

## - Control Units UML Design Cont'

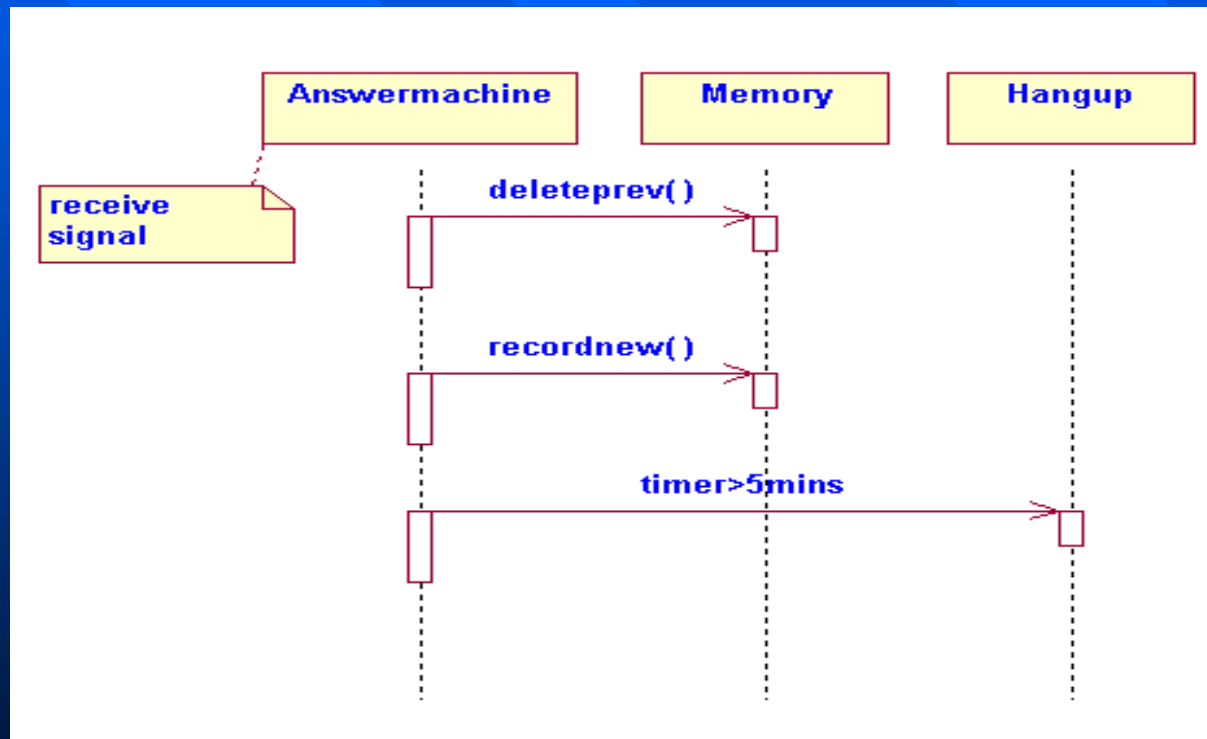
### ■ Sequence Diagram-Answer machine (1)



# Components Specification

## - Control Units UML Design Cont'

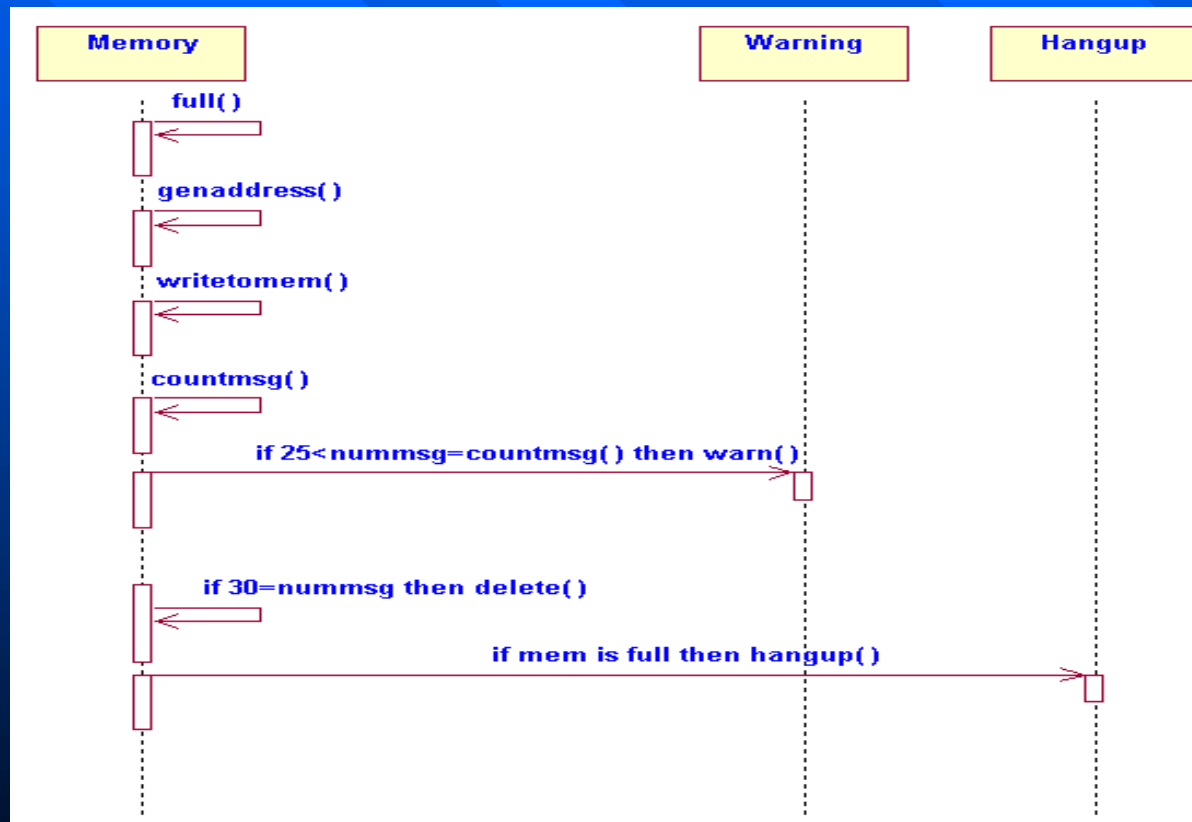
### ■ Sequence Diagram-Answer machine (2)



# Components Specification

## - Control Units UML Design Cont'

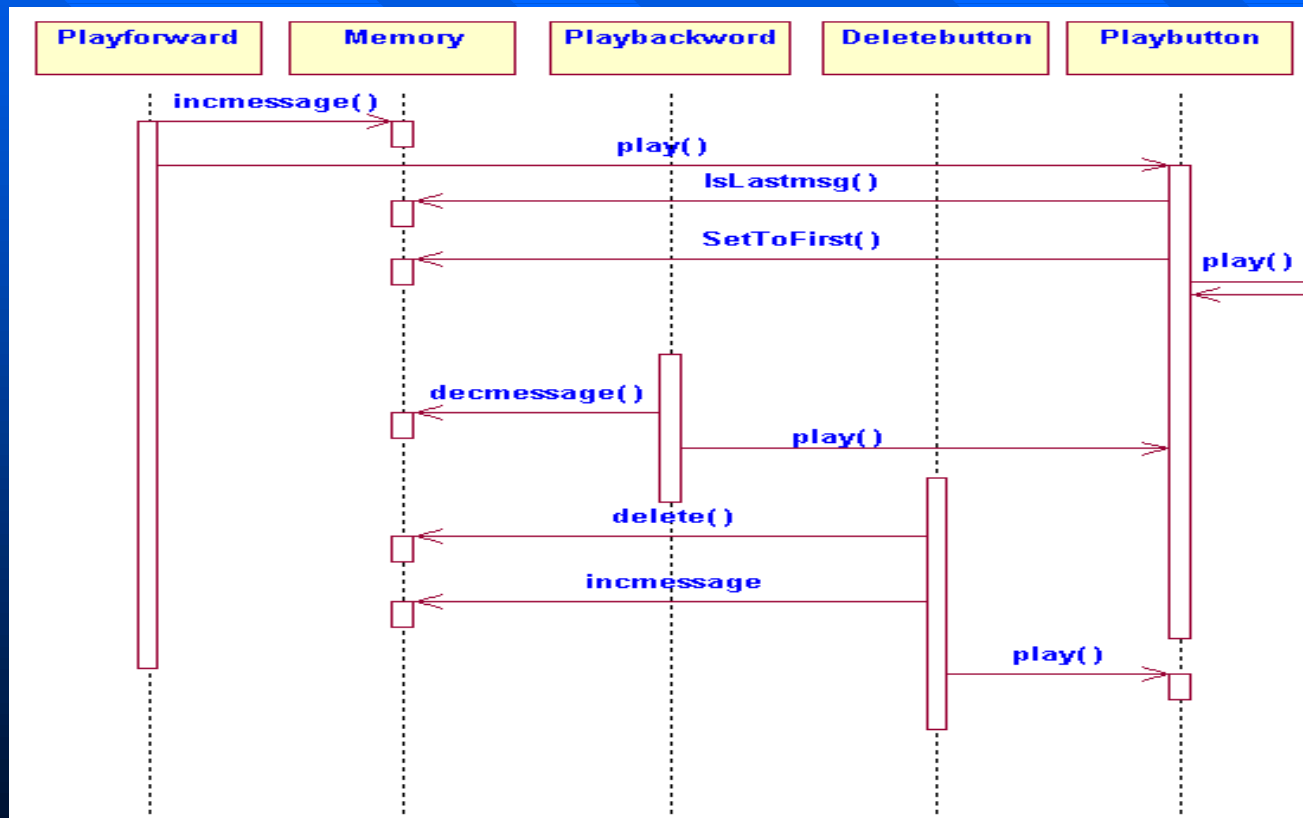
### ■ Sequence Diagram-Recording



# Components Specification

## - Control Units UML Design Cont'

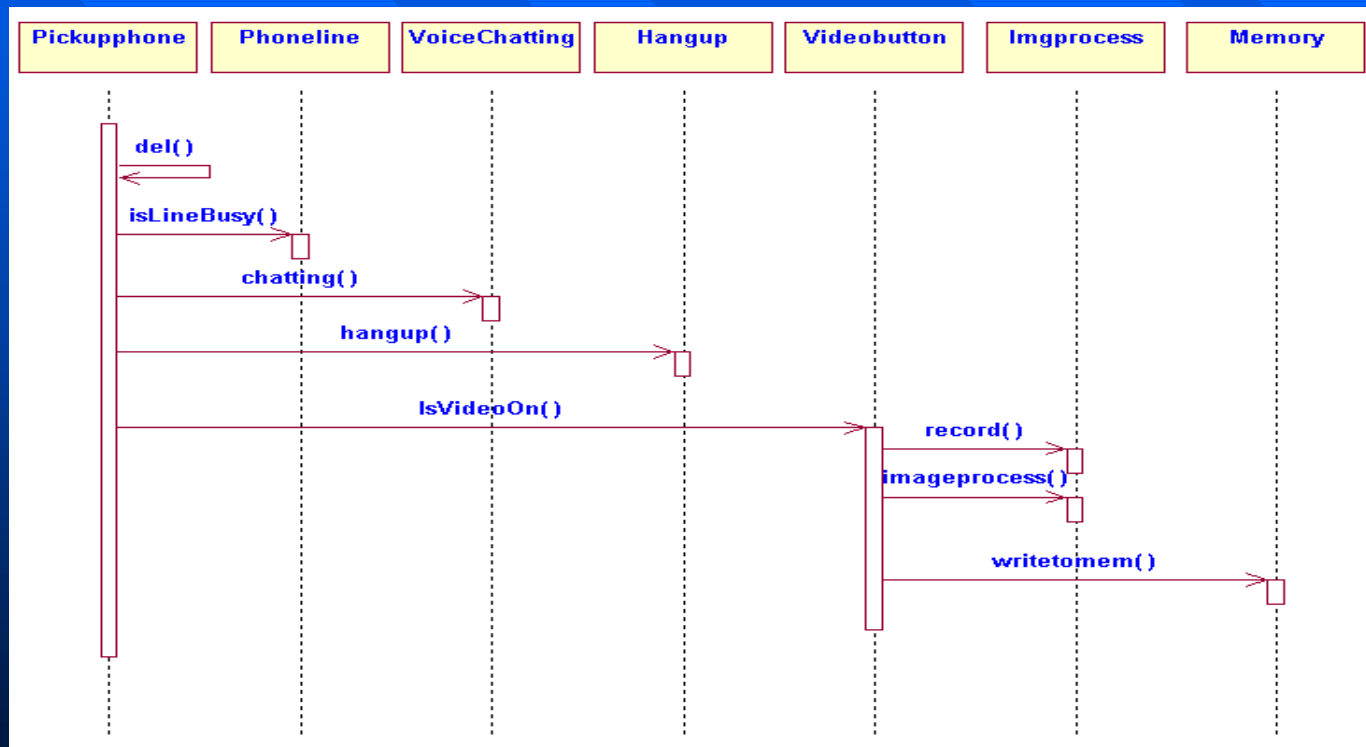
### ■ Sequence Diagram-Buttons



# Components Specification

## - Control Units UML Design Cont'

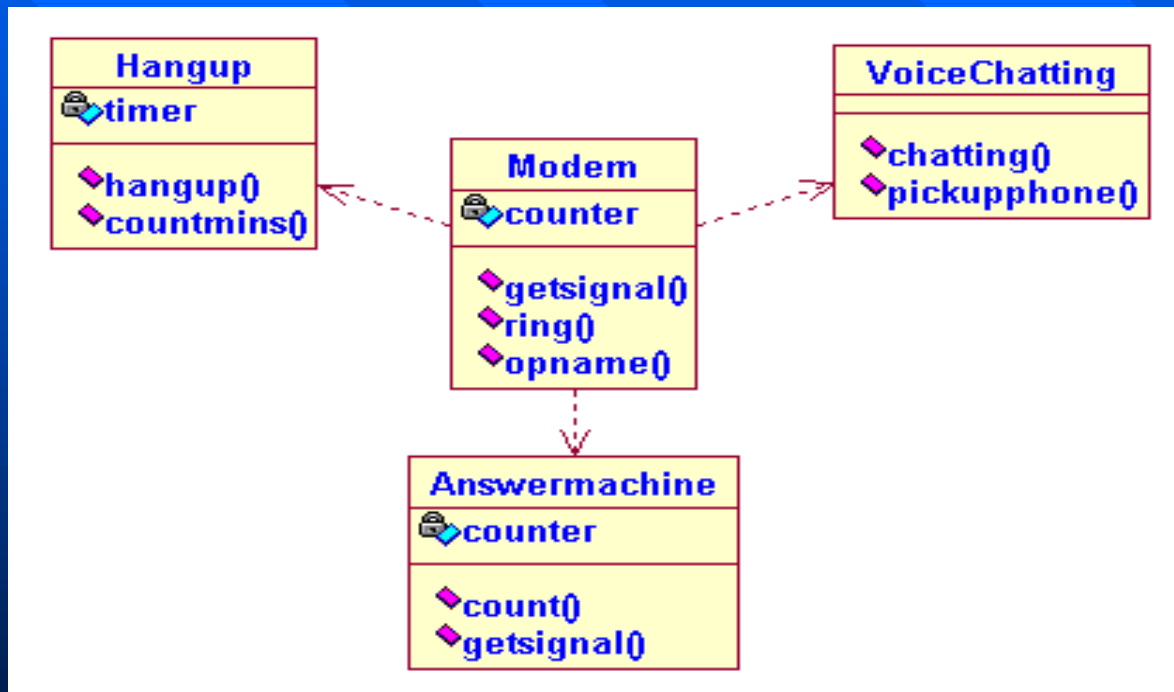
### ■ Sequence Diagram-Sending/Talking



# Components Specification

## - Control Units UML Design Cont'

### ■ Class Diagram-Receiving

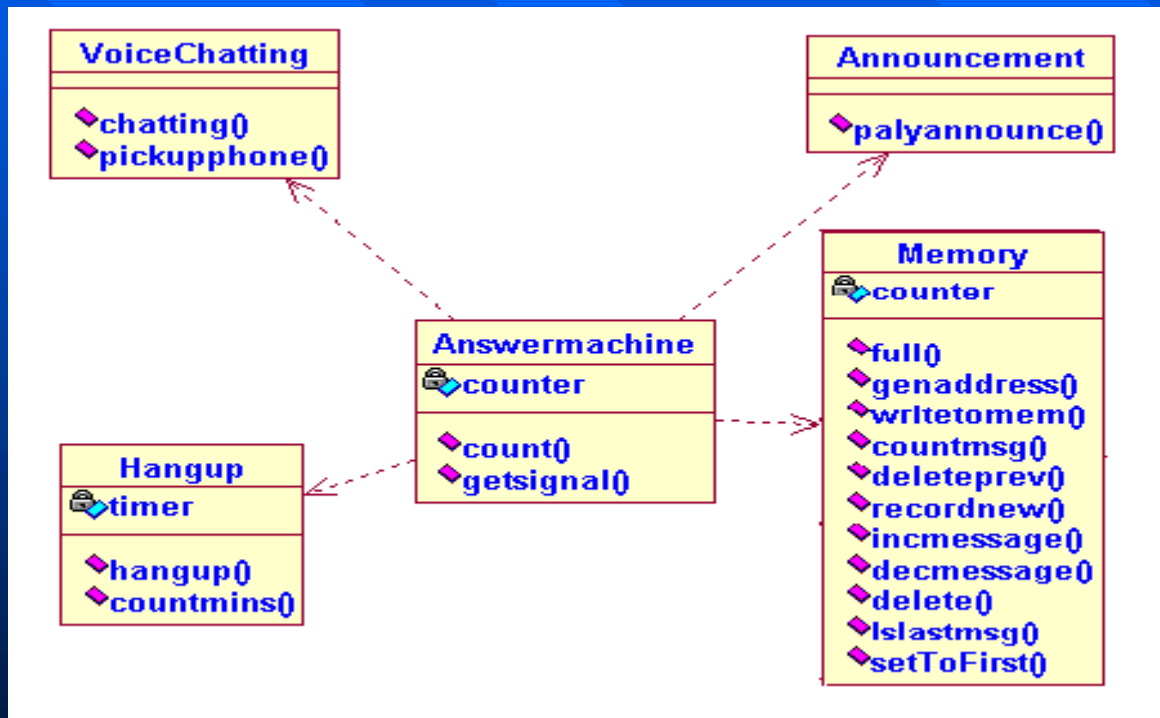




# Components Specification

## - Control Units UML Design Cont'

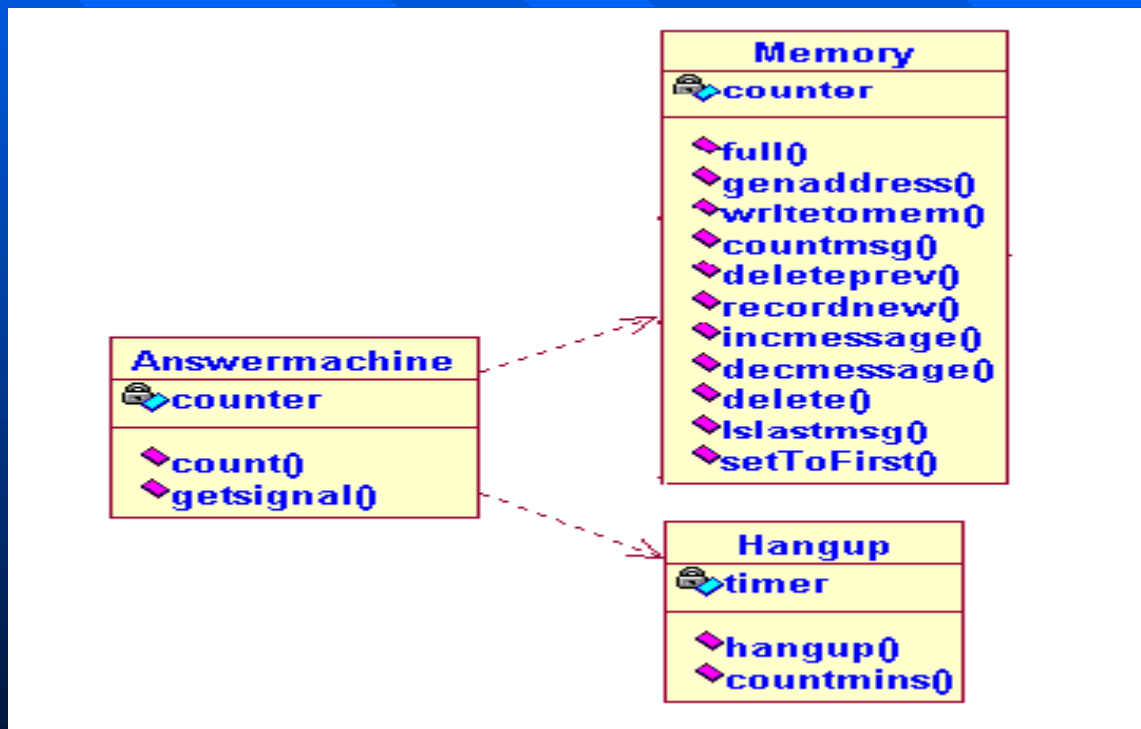
### ■ Class Diagram-Answermachine



# Components Specification

## - Control Units UML Design Cont'

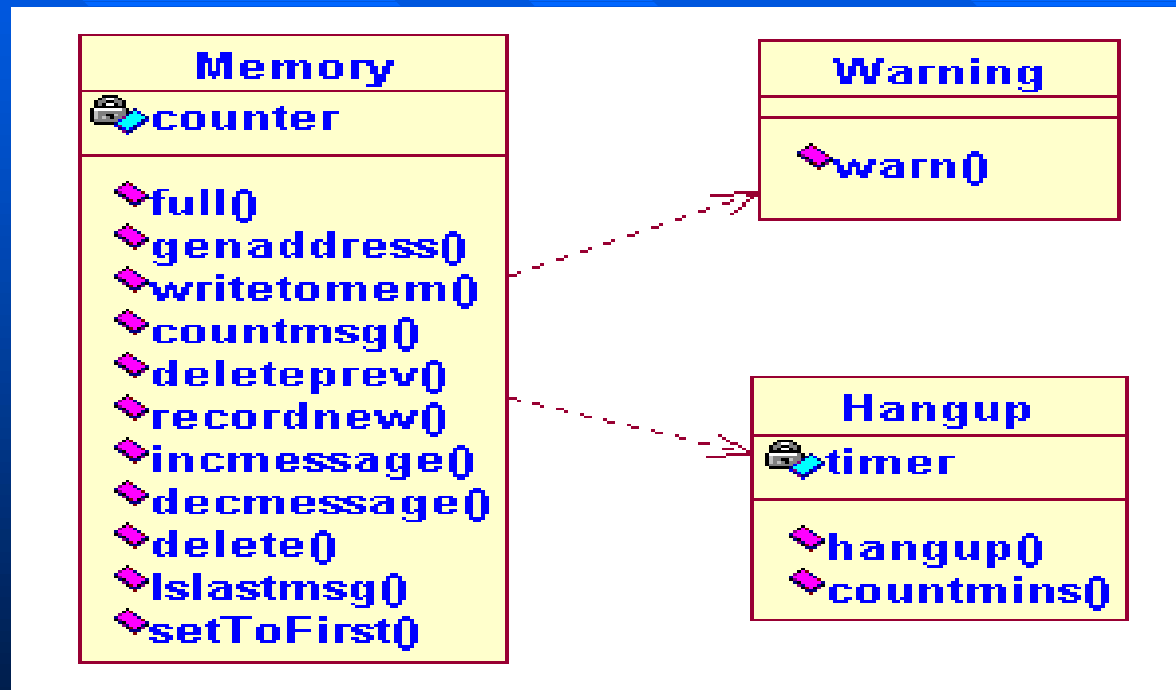
### ■ Class Diagram-Announcement



# Components Specification

## - Control Units UML Design Cont'

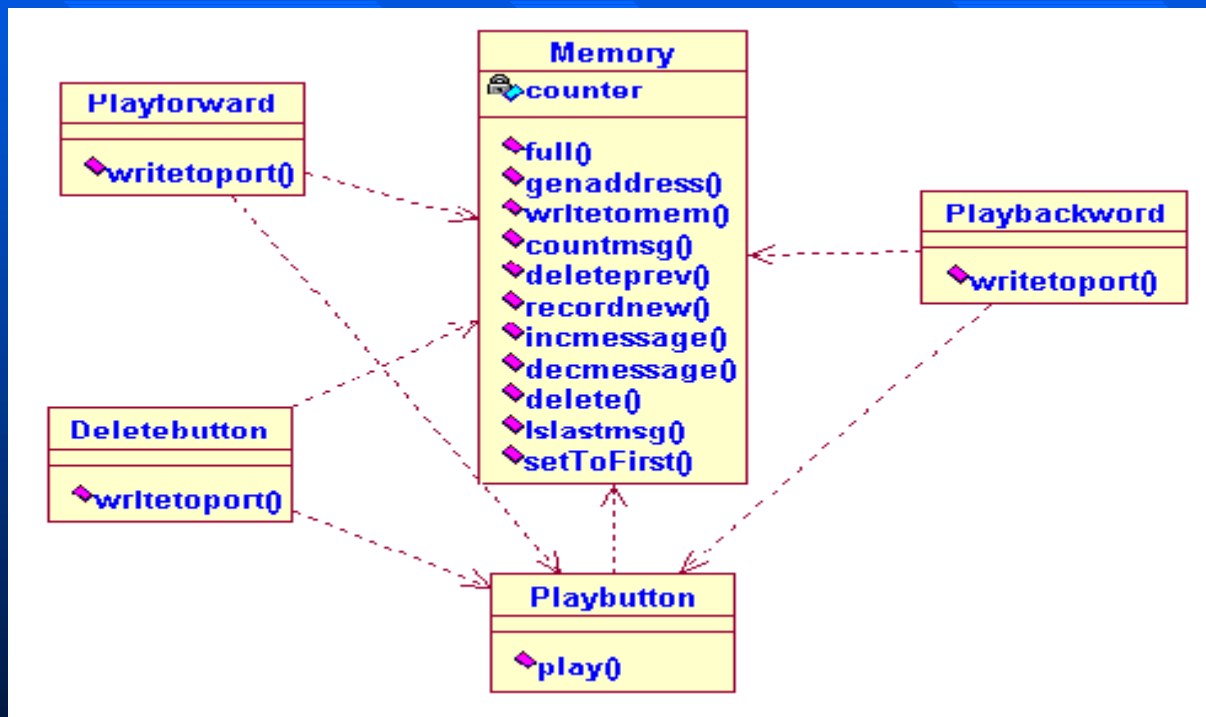
### ■ Class Diagram-Recording



# Components Specification

## - Control Units UML Design Cont'

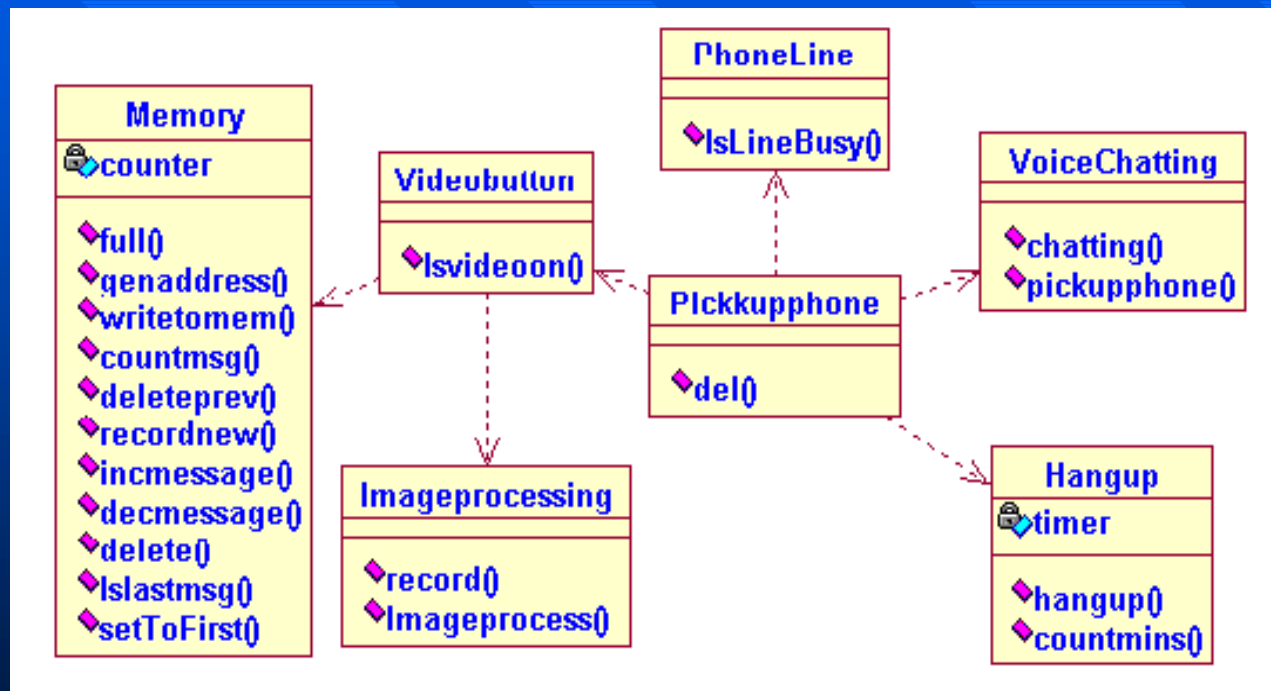
### ■ Class Diagram-Buttons



# Components Specification

## - Control Units UML Design Cont'

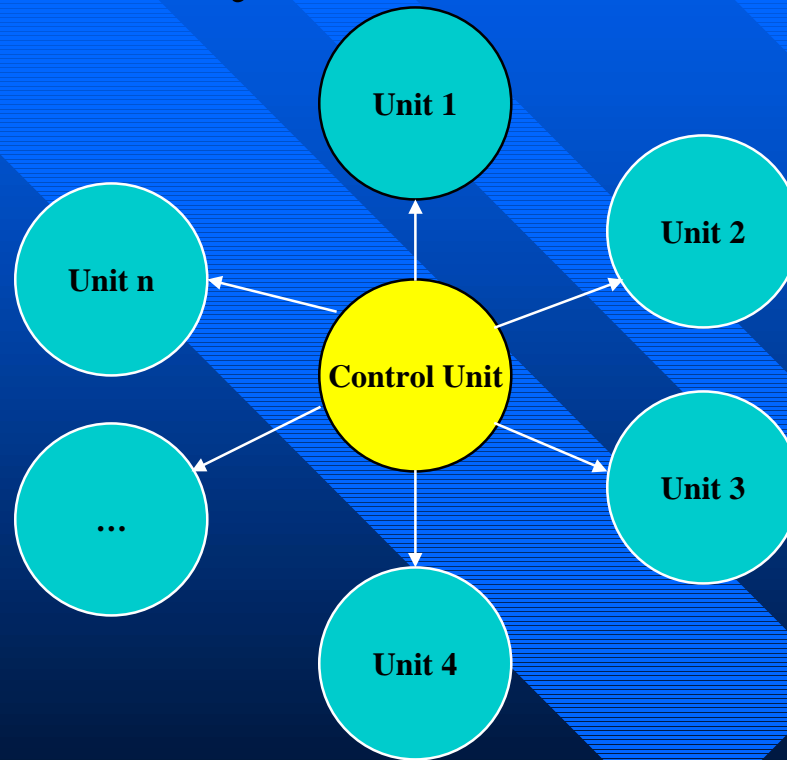
### ■ Class Diagram-Sending/Talking



# Components Specification

## - Control Units Design Cont'

### ■ System Analysis



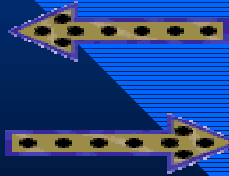
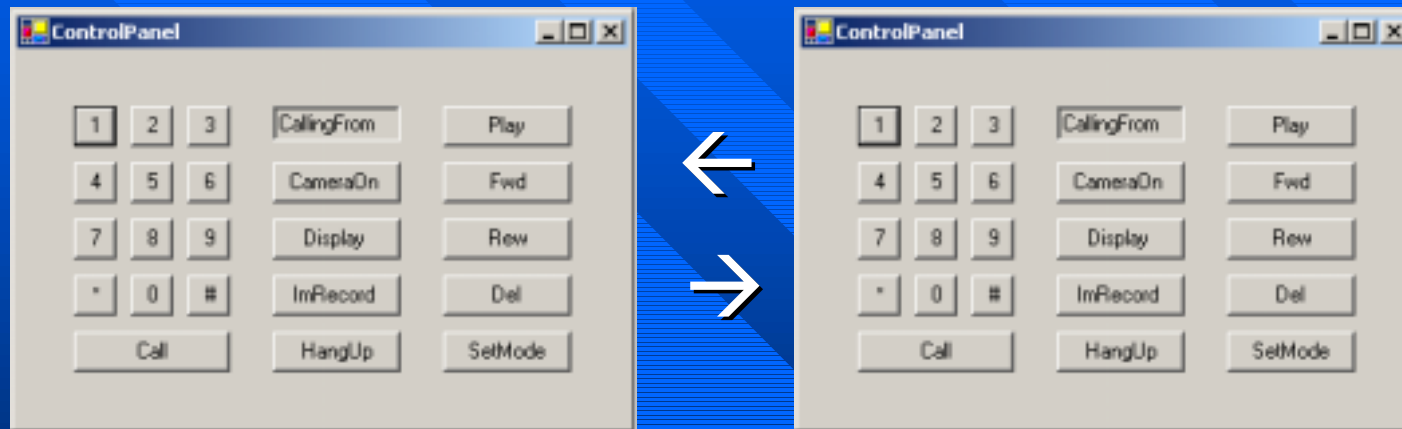
# PC Based Simulation and Testing

## ■ Port deification

- port 1255 :phone call (Mode 1)
- port 1256: answer machine (Mode 2)
- port 1257: video transmission (Mode 3)

# PC Based Simulation and Testing

## ■ Java Interface-Control Panel





# PC Based Simulation and Testing

- Peer to peer
  - both can be client and server
- Socket Programming
  - audio message transmission
  - video message transmission
  - command message transmission
  - R/W memory
  - memory management