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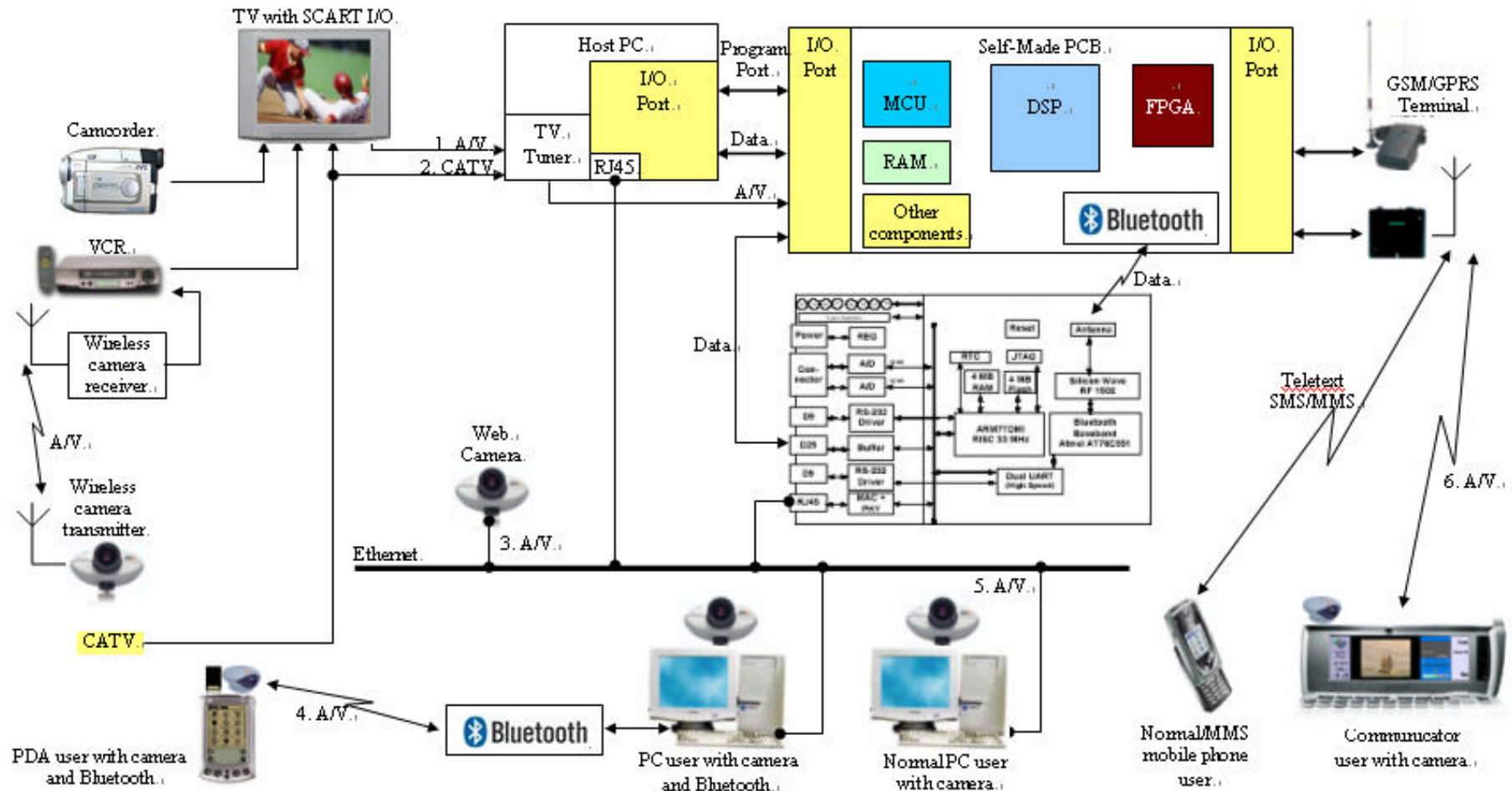
A Wireless Videoconferencing Approach towards 3G Mobile Services



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Blueprint



Abstract

- *The idea of realizing audio/video capture and transmission via wired and wireless network for wide area videoconferencing and multimedia messaging towards 3G mobile services has been validated.*
- *A prototype application has been implemented based on current 2.5G mobile network and Symbian platform mobile phones, which enables both PC users and mobile phone users to participate videoconferencing worldwide.*

Contribution of this paper

- *This paper presents research and development of the prototype application mainly involving:*
 1. *system architecture design,*
 2. *graphic user interfacing,*
 3. *image capture and compressing,*
 4. *data transmission,*
 5. *overcoming the network bandwidth limit,*
 6. *server and client communication,*
 7. *final implementation for Symbian platform mobile phones.*
- *There are more value-added services towards 3G using current 2.5G network can also be implemented based on the contribution of this paper.*

Development Environment

The application environment consists of the following items:

- Network – GSM (HSCSD, GPRS) for mobile phone and LAN connection for PC
- Device – PC with web cam, Nokia 9210i Communicator and further Nokia 7650/3650
- Development tools – Nokia 9200 series SDK 1.2 for Java, JDK1.1.8

The Server Part

The PC which runs server application has potential functions:

- Obtains the connected device information
- Hosts text message chat
- Retrieves the video source if available
- Provides compression and process the video
- Broadcasts

The Client Part

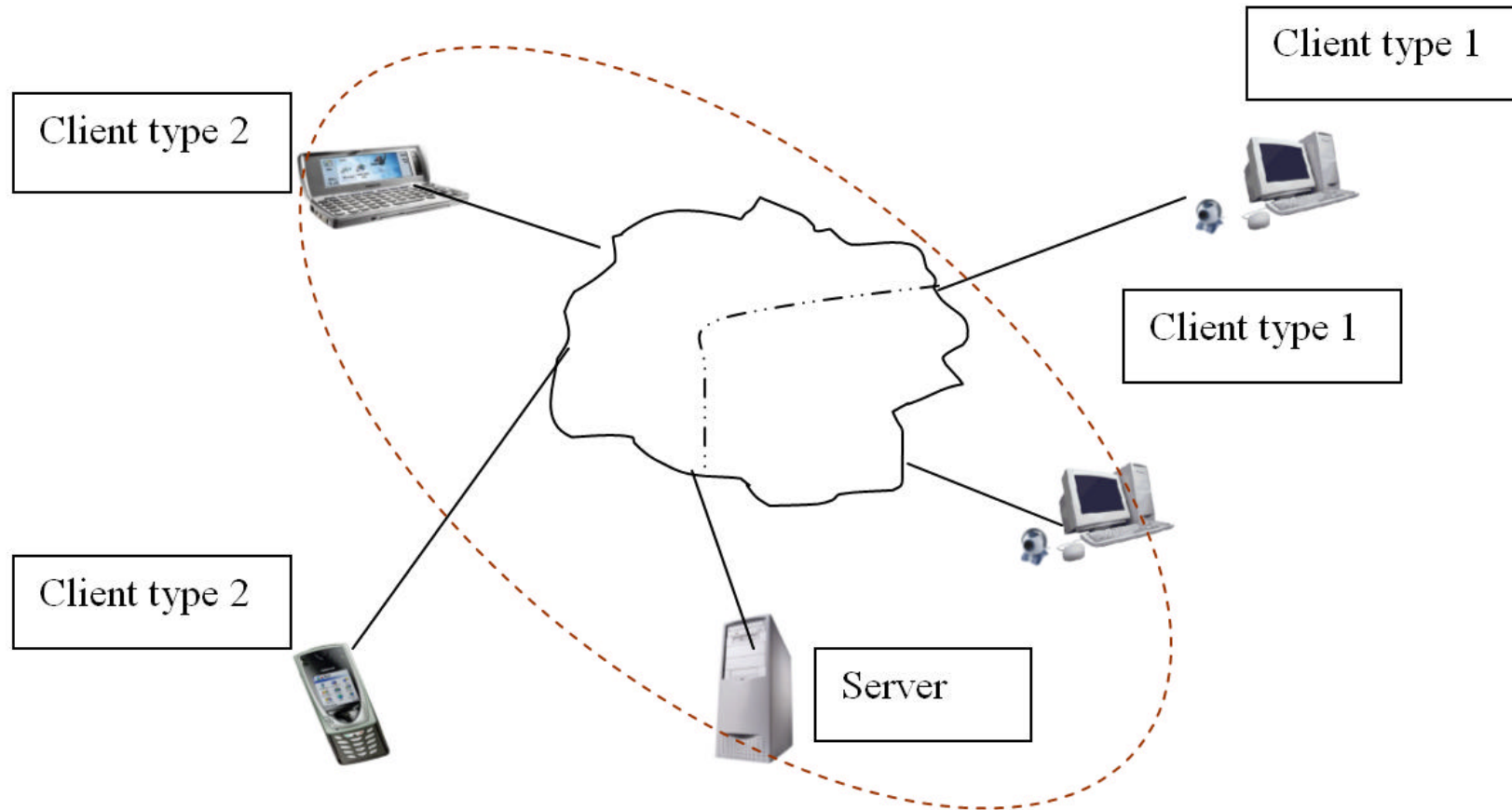
PC with web cam as clients have potential functions:

- Connect with the server
- Chat in text message with other clients
- Capture, compress and send live video
- Receive and display live video from the server

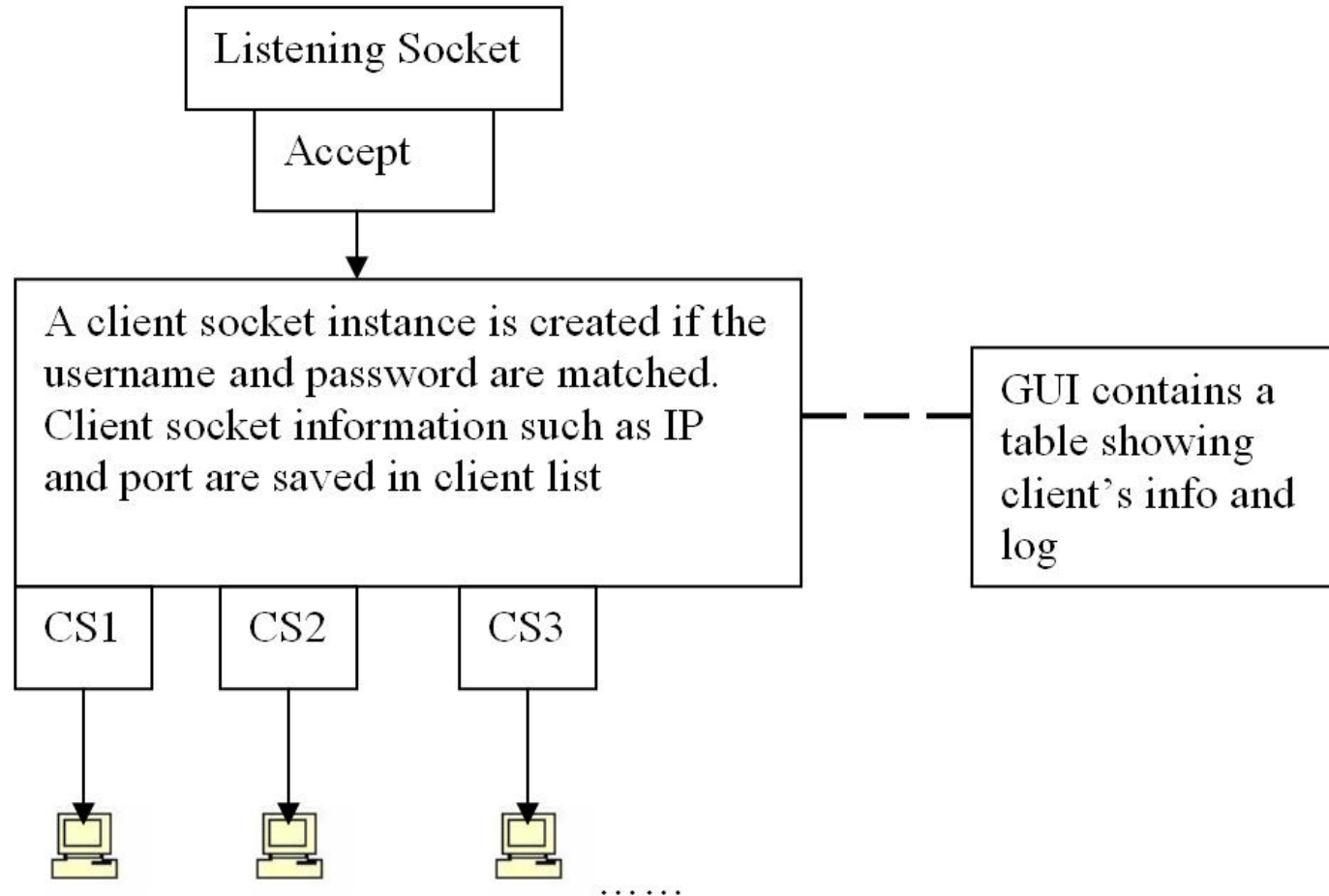
Mobile phones as clients have potential functions:

- Connect with the server
- Chat in text message with other clients
- Capture, compress and send live video (optional, only available with camera phones i.e. Nokia 7650/3650, not available with Nokia 9210)
- Receive and display live video from the server

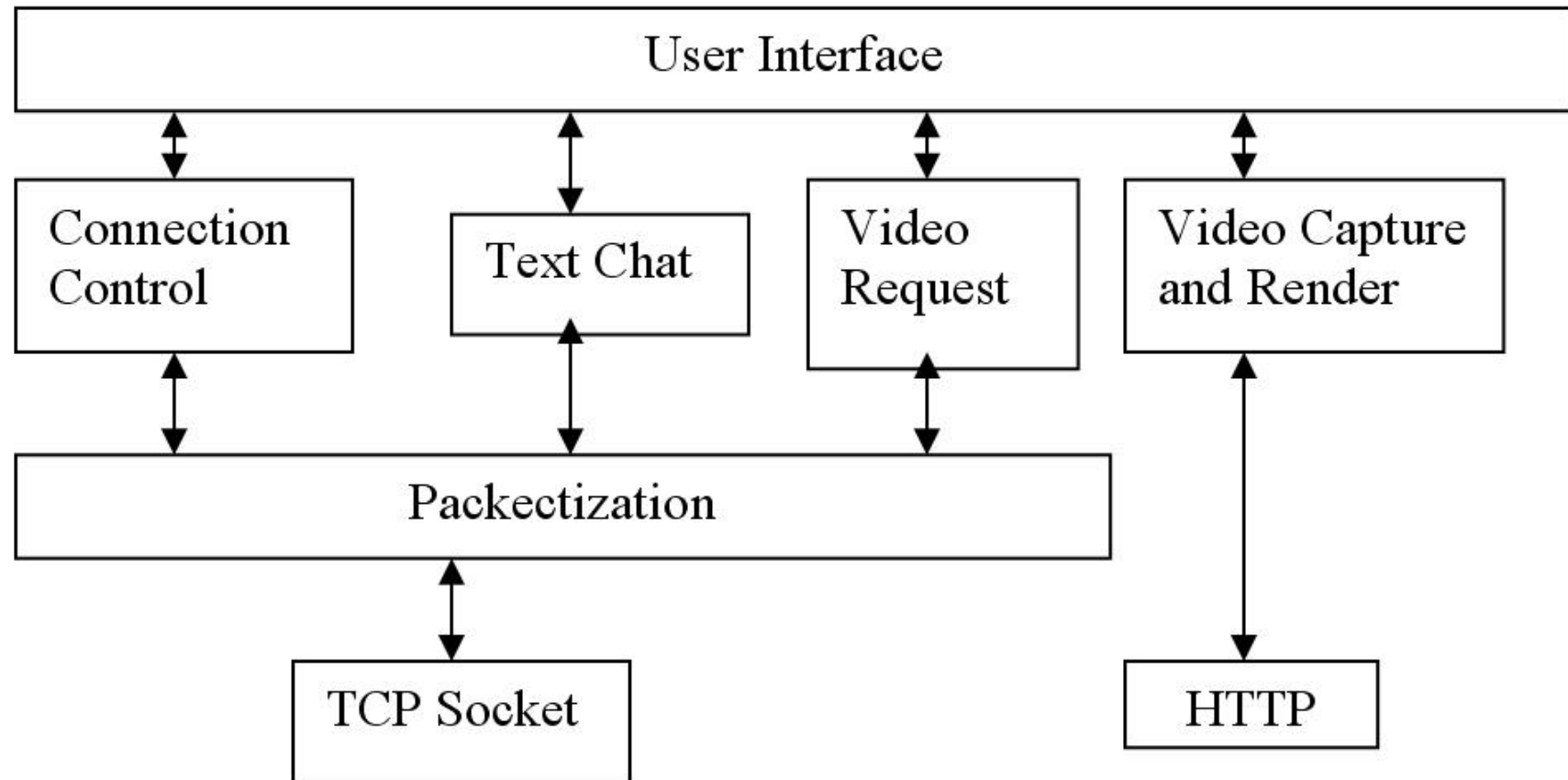
Overall Structure



Server Architecture

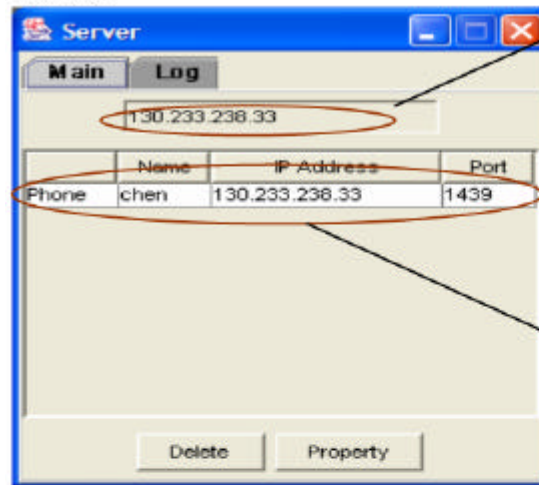


Client Architecture



Graphic User Interface

User Interface
Server



Server IP

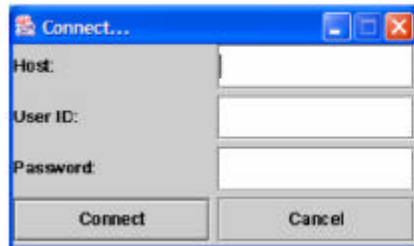
Connected Client Info
Lists: Client type (PC or phone)
Client user name
Client IP
Port used



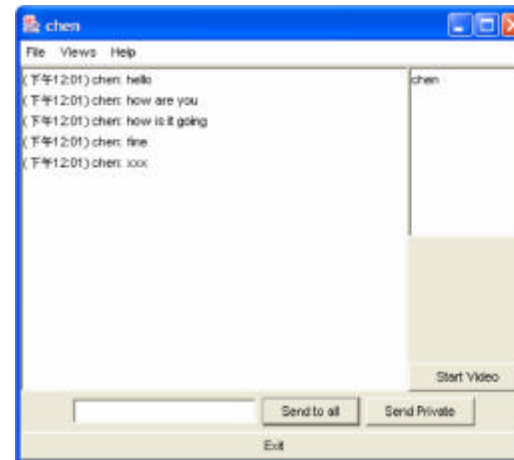
Log Information

Demonstration

PC client



Connection Dialog

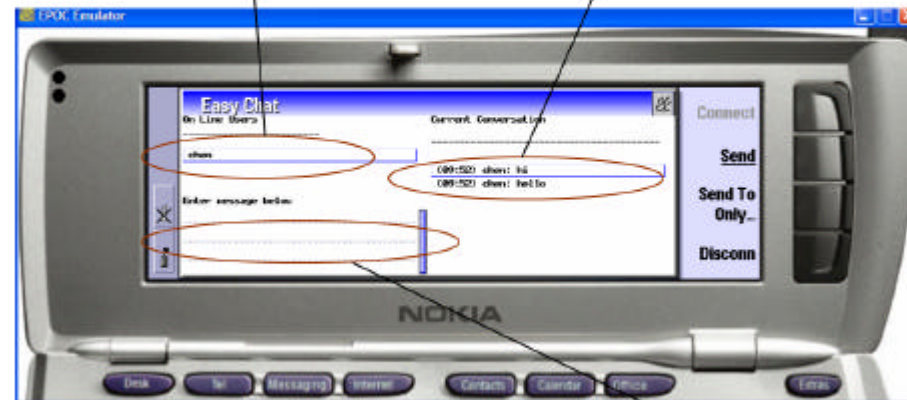


Client Main Window

Communicator client

Connected User List

Conversation Records



Message Entering place