Participant: Robbie Chung Chi Ho
Supervisor: Dr. Danny K. H. Tsang
The popularity of the Internet has accelerated in recent years. With the advance of the Internet technology, many new Internet services such as distance learning have appeared. Many on-line distance learning systems that store static materials including text and media clips currently are available. However most of these systems do not allow interactions among teachers and students. A necessity for an on-line interactive learning environment is therefore warranted.

In this project, a multimedia remote teaching system called Mr.T v3.0 was developed. The Mr.T v3.0 is divided into two parts. These are the Mr.T server and the Mr.T Client. The system block diagram is shown in figure 1.

The Mr.T Client is a web-based, multi-platform remote teaching system. It consists of five visual components: a Conference Room, an interactive Chat Room, an interactive Slide Show Board, an interactive Web Browser and a Contact List. With the system, teachers can conduct classes with their students in an interactive manner.

The system was developed with Java™ 2 Platform, Standard Edition, v 1.4.0 and Java™ Media Framework, and in the form of Java Applet. Users can use the system with web browsers.

Figure 1. System Block Diagram of the Mr.T v3.0
The Slide Show Board provides an interactive environment for teachers to present their slides. When the teacher wants to present a slide, he needs to specify a slide in the address panel. The slide will then be displayed in all clients’ Slide Show Boards.

Teachers and students can discuss the content of the slides by drawing on them directly with tools provided in the tools panels.

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The Chat Room provides an interactive environment for teachers and students to discuss through texts. For sending text messages, participants can input words in the input text pane, and select their favourite text styles in the tool panel, for the outgoing text messages. The messages will be sent to all participants. The output text pane will display all received messages automatically.
The Conference Room allows teachers and students to conduct real-time video and audio conferencing. The Conference Room can control the capture devices such as microphone and web camera of the users to capture video and audio. The captured media information will be sent to other participants. The Conference Room also contains media receivers, which are responsible for receiving and playing back the received stream media information.

The Contact List is responsible for displaying the names of participants. It is located in the right hand side of the Java applet. Three Contact Lists are shown in figure 2, figure 3 and figure 4.

The Web Browser allows teachers to forward some useful web pages to their students. When teachers select some useful web pages, they could simply enter the addresses in the address panel. The addresses will be sent to other participants. Upon arrival of requests, the Web Browser would load and display the web pages.