Multimodal Smart Home

**Introduction**
Multimodal Smart Home is a system that allows users to view, monitor, and record live video over a network such as LAN, ADSL, phone line and even mobile network at any time. With Multimodal Smart Home Systems, monitoring becomes more convenient and various applications can be easily integrated. We combined the latest voice recognition technology to control both the CCTV system and different devices in the Smart Home environment. The Smart Mobile Device controlled network CCTV system is made up of three components: a motorized web cam, a computer server and a smart mobile phone as a control.

**Aims and Objectives**
The aim of this project is to build a Multimodal Smart Home System. The objectives of this project are:
- To build a motorized web cam.
- To build a computer server which allows connection between the smart mobile phone and other computers.
- To develop a Graphical User Interface for the above program.
- To implement Motion Detection Control and Voice Recognition Control and install the program in the Smart Mobile Phones.
- To integrate with the Smart Home System.

**Network Architecture**

**Implementation Phase**
Server Program:
Function of the Server Program:
Capture Image:
- To get image from the web cam.
- To connect to the Internet and listen to request from Clients.
Motion Detection Recording:
- To save the captured image when “Different” is found and serve as a security function.
Monitoring:
- To monitor the horizontal view of the starting point set by user.
Communicate with the Controller Platform:
- To control the Platform.

**Asr Server**
An ASR Server received the speech signal from the mobile device and performed voice recognition. The accuracy of the ASR Engine is above 80%.

**Voice Commands**

**Conclusion**
We have successfully implemented different new technology to our project, like Touch Screen, Voice Recognition Technology, Motion Sensor, Image Processing and Networking. Finally, we combined the Network CCTV system to a Smart Home System. This Multimodal Smart Home system can allow the user to do more in react than just monitoring one place.