

ELE700 / ELE800: Project Design 2004/2005

Topic:

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Estimated cost: \$250	Project rating: Complex	Date: September 2004

Title: HOME VIDEO-MONITORING SYSTEM WITH THE INTERNET ACCESS

Preamble:

Recently most households have one or more computers, which are equipped by USB port(s) and have Internet access. This allows development of low-cost home video-monitoring and remote control system on a base of PC. This system could inform home owner via cell phone about any event pre-programmed in the event list and allow seeing what is going on at home via Internet. This system should provide also the ability to control remotely via Internet specific home devices and appliances.

Objective:

Develop design built and test the prototype of home video-monitoring and control system with the Internet access. This system should have a local network based on USB CCD cameras, wireless (RF) network for special devices to be controlled via Internet and DTMF telephone message system to inform the owner about situation at home.

Partial specifications:

This is a team project for two students and thus consists of two parts:

1. PC-based video-monitoring system with LAN of USB CCD cameras and Internet access;
2. PC-based home control system with wireless LAN of Internet controlled devices (TBD).
 - Use Microchip PIC16F8xx and PIC12cxx RISC –controllers for control system;
 - Use USART and RF-transceivers for wireless network for Internet controlled devices;
 - Apply Java for GUI and application software development;

Suggested approach:

- Conduct literature survey on USB and wireless LAN organization,
- Research and develop the Local Area Network for home application based on RF-modems;
- Built the low-cost local device controllers based on PIC 16F8xx controllers;
- Interface this LAN with IBM-PC via COM-port (RS-232) and develop proper GUI;
- Develop built and test video-monitoring LAN based on USB Web cameras;
- Design telephone message system and integrate it with the PC.