ELE700 / ELE800: Project Design 2004/2005

Topic:

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

Title: **BABY 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 baby video-monitoring system on a base of PC. This system can call parents to their cell phones and inform by voice message about any event pointed out in the event list. Parents can then access via Internet to the video-monitoring system to see what is going on at the baby room. This system should provide also the ability to control remotely via Internet specific home devices or toys and even speak via telephone or Internet to their baby.

Objective:

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

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 WEB-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;
    - Utilize USB Web CCD cameras for video-monitoring LAN

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 DTMF telephone message system and integrate it with the PC.