



Softage video projects profile

Technologies summary:

- Video Conferencing (ITU-T H.323, H.263 protocols). Own H.263 codec
- Video/audio recording and streaming from Windows OS using Microsoft Multimedia Services
- Video/audio recording and streaming from Windows and Mac OS using VLC open project
- Video/audio recording and streaming from Windows and Mac OS using DSS (Darwin Streaming Server) open project
- Video processing using Macromedia Flash Communication Server FX / Macromedia Media Server
- Image processing (character recognition) on Windows and Pocket PC
- DirectX
- OpenGL

Main projects details:

Vehicle number plate recognition system

Solution description

Automatic vehicle identification system that reads number plates of the passing vehicles in real time and instantly checks them against database banks without disturbing traffic.

Possible solution applications include: Parking, Traffic Monitoring, Law Enforcement and Automated Site Security, etc.

Solution strengths:

- Number plate on the frame can be as small as 1/20th of the frame size. Not only large plates can be read, but also smaller plates for smaller vehicles.
- Image grabber has very high capture rate. Vehicles moving at high speed can be identified.
- The solution effectively recognizes number plates, even if a vehicle is approaching the camera at an angle.

Technologies:

C++

Traffic control system

Solution description

Our customer needed a software system allowing automated road traffic monitoring and facilitating finding stolen cars. The system was requested by police department of a European Union country. An ideal solution would support a large network of video cameras installed across the country.

According to the customer's specifications, Softage Inc. has developed an automated traffic control system which allows:

- MPEG4 video encoding from a camera
- Storing of encoded video on Hard Drive
- Broadcasting and playback of encoded and stored video
- Transmitting of recognized license plate numbers inside the media stream
- Transmitting of a sound alarm when the number belonging to a stolen car is recognized
- Updating of the archive of stolen cars
- Downloading of all license plate numbers recognized by the plate recognition software
- Searching for data by date and time

Also a Web-base application was designed consisting of the following:

- Thumbnails of all cameras installed
- Camera image page - clicking on a thumbnail displays an image of the camera
- On the camera image page an operator can explore a number of pre-set camera positions or move the camera manually in a desired direction. Zoom-in and zoom-out functions are supported.

Tools and technologies: Microsoft Media Encoder 7 SDK, Borland C++ 5, MS VC6, ATL, ActiveX, DCOM

Digital Video Recording system

Solution description

Real-time video recording and playback software with motion detection for site security. The solution is the next generation of the Digital Video Recording systems produced by Softage experts.

Key solution features:

Motion detection. To prevent false alarms, the system starts video recording only after the motion detection triggers. Motion detection sensitivity level is custom defined by the system users.

MMS capabilities. The system produces multiple alarm signals, including transmitting alarm signals to mobile phones as MMS notifications.

High scalability. The system handles the data collection from up to 16 cameras. Video recording system can easily be scaled up to a larger number of cameras upon customer demand.

Multiple recording modes. Video recording method is custom set by a software operator: from continuous recording to recording on motion, on alarm or on custom schedule. Different cameras can work independently in different recording modes.

Effective video compression. By compressing video into MPEG format, a customer receives high quality image, while saves up to 70% of disc space.

Advanced search. Log video files can be searched by:

- Time: date, daytime
- Camera: single camera or all cameras
- Recording time: motion detection or alarm signal.

Technologies:

C++

Distant Education System

Our customer requested a web based distant education system.

The main purpose of the project is to provide functionality, which allows users (students) to take part in educational process remotely.

Specialists of Softage have developed a system according to customer's requirements. The system consists of encoding, storing and streaming segments.

Users can watch the real-time teaching (audio and video) anywhere, any time through a public website. Administrators can control creation, storing, distributing and publishing of educational materials on server side.

The system can be widely used in schools and universities to enhance education process.

Tools and technologies: MS SQL Server 2003, MS Windows Media Services SDK, MS Windows Media Encoder SDK, MS Network Load Balancing Cluster, MS Media Format SDK, Datacenter Edition (32-bit x86); MS Windows 2003 Server, Enterprise Edition (32-bit x86), MS Visual Studio 2003 (C++), MS TSQL, Borland C++ Builder.

Flash Video Conference

Our customer needed a convenient real-time video communication tool to connect lectors and students.

Specialists of Softage have developed a system according to customer's requirements. The system is designed for distant education and communication between lectors and students.

A lector can create a video conference, view a list of connected students, and authorize a student from a list to enter into conversation. A student can connect to existing video conference and request a conversation with a lector.

The system allows students to actively communicate with a lector by means of video and voice.

The system is cross-platform supporting users of Windows, Linux and Macintosh.

Tools and technologies: Macromedia Flash MX, Macromedia Media Server, Action Script 2.0.

Cross-platform e-community solution

Our customer needed a desktop solution to connect a large community of friends.

Specialists of Softage developed a custom secure application with the following set of features:

- Secure chat
- Video streaming
- Voice messaging
- Email system supporting video files
- Application sharing

A significant amount of potential customers are using Mac and Linux.

RealBasic was selected by Softage as a development tool to satisfy cross-platform requirement. As a result, the application works fine on Mac, Linux and Windows.

Darwin Streaming Server was integrated in the application to support video streaming.

Technologies: RealBasic 2005, Valentina, Mac OS X, Darwin Streaming Server.

Multipoint videoconferencing system

Specialists of Softage have developed an advanced multipoint videoconferencing solution that enables remote sites to participate in a live conference with audio, video and document sharing. The solution is delivered using MCU (Multipoint Control Unit) and Softage proprietary H.263 video codec.

Convenient user interface and well-planned navigation make the system a perfect choice for mass videoconferencing participants.

Application areas: Distance Education and Training, Business Conferences and Presentation, Remote Problem Solving across numerous industries.

Functionality features:

- Decentralized multipoint videoconference
- Multiple video connections can be set up simultaneously

- Dynamic adaptation for video quality ensures constant bandwidth
- Terminal software is Open H.323 library-based
- Collaborative applications (whiteboard, file transfer, application sharing) are T.120 based.

Video/ Audio features:

- Stable video/ audio encoding performance with any number of videoconference participants
- Audio can be transmitted to all conference participants concurrently
- Noise suppression, echo cancellation.

Technologies:

C++.

Video codec

Video codec meets the ITU-T Recommendation H.263 Profile 0, “Video coding for low bit rate communication”. Profile 0 description is featured in ITU H.263 Annex X “Profiles and Levels Definition”.

Video codec features:

- Encoding performance at constant bit rate. Codec dynamically adjusts quality and compression rate at various parts of video files to provide equal number of bits in each compressed frame.
- High compression ratio. Compression of a 176x144 frame on PC (Celeron, 500 MHz) requires 25 ms only.
- Frame-by-frame compression mechanism enables the most effective compression control.
- Fast search for interframe motion vectors to ensure effective interframe compression.
- Time-critical algorithm delivered using Intel™ MMX technology.
- High speed quantizing algorithm used. Quantizing algorithm is 6 times more effective than the C-based algorithms.

Technologies:

C++, Intel™ MMX.