

Smart Combined Video Tool

Mrunalini Sinnarkar, Vidya Shinde, Sayli Sonje, Shweta Shinde

External Guide-Mr. Sushant Ghige Internal Guide-Miss. Nutan Deshmukh Cummins College of Engineering for Women Pune-52 Computer Department

Abstract: In today's world there are many tools for video editing, video compression, video conversion. But they require more time which is not affordable by today's modern applications. And also there is no facility for video authentication and notification. There is no combined tool which provides all this facilities in one tool. So to solve this entire problems Smart combined video tool is develop which provides all this facilities.

A simple UI application which will allow user to add the videos and preview them is created. These videos can be put on a storyboard kind list where arrangements are done as per need. Software will provide basic video editing facilities like adding video effects, transitions, audio enhancement. Software will allow user to save the editing so that it can be easily continued next time from where it was left. Preview window will allow user to see the effects, transitions applied and allow user to add appropriate effects for videos. Once all editing is done a movie of all the editing is stored as a single video. This will allow seeing entire editing/event in a single go with more fun. After editing the video will be converted into number of video formats so that it will be open in any format and on any system. Compress the videos so that it can be send/transferred it with minimum cost and storage size.

Videos can be uploaded on the cloud. User name and password can be provided for authentication. Updates of the video like number of downloads, number of viewers, number of likes etc can be obtained.

Keywords: Editing, Compression, Conversion, Authentication, Storyboard, Video Upload.

I. INTRODUCTION

Multimedia has found so much application in various and varied fields specifically in video domain .In our system we are designing various features of video like editing, compression, conversion, upload, authentication etc. Video editing will provide basic editing features like importing, splitting, trimming etc. Video compression will provide ability to store the video in compressed form. Video conversion will convert video from one format to another supporting format. Video authentication and notifications will be provided for security purposes and video upload will upload the video on cloud.

A. Literature Survey

Table I: Comparison of General information and System Requirements.

Name of tool	Developer	Year of latest version	Latest version	Windows
Adobe Premiere Pro	Windows, Mac	2012	CC(7.0.0)	Yes
Adobe Premiere Element	Adobe System	2012	11	Yes
Media Composer	Adobe System	2012	7.0	Yes

Table II: Comparison of Compression Tools

Name	Latest release date	Compression method	Compression format	Operating System
Schrödinger	2012	Lossy/Lossless	None	Windows, Unix
FFmpeg (libavcodec)	2012	Lossy/Lossless	MPEG-1, WMV	Windows, Unix
VP8	2012	Lossy	VP4,VP5,VP6	Windows

Table III: Video Conversion Comparison

Name of Tools	Format Supported	Audio Conversion	Extract Audio from video	Full Compatible with Win-7
Video Converter 3.1	All Formats	Yes	Yes	Yes
Video Converter 3.2	Almost All	Yes	Yes	Yes
Video Converter 3.3	Not All like FLV,MKV	No	No	No

B .Limitations of existing system:

Video upload from tool does not provide Authentication. The tool is not efficient and understandable by the novice user. Video conversion require more time. There are no combined tools for video editing, compression, conversion, share, and authentication.

II. Proposed System

System include following modules:-

1. Video Editing

This module will take video as input and will able to give different effect to video like Speed changes on clips, video transition with real-time previews ,title creation, Advanced timeline (including Drag & drop, scrolling, panning, zooming, and snapping),trimming, Clip resizing.

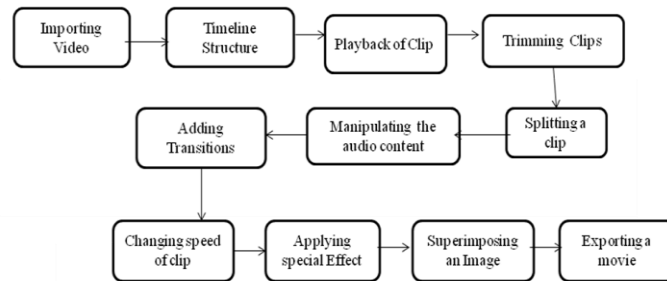


Figure 1: Video editing flowchart

2. Video conversion

It handles most of the popular formats, including MP4, H.261, H.263, Xvid, Mov, WMV, MPEG4 AVI, amr audio. The conversion time will be different for each task. The conversion time will depend on the file size and format.

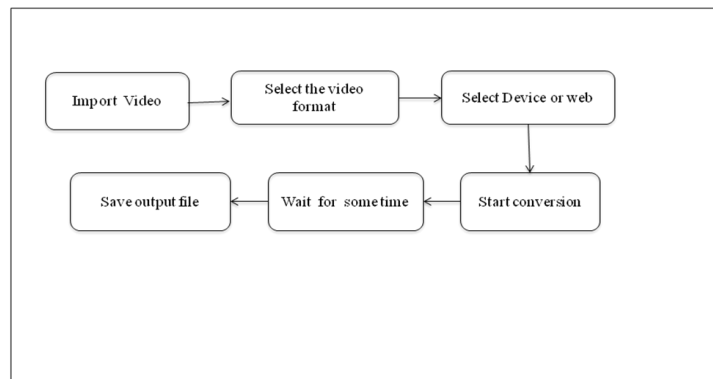


Figure 2: Flowchart for video conversion

3. Video compression

Video compression algorithms 'codecs' manipulate video signals to dramatically reduce the storage and bandwidth required while maximizing perceived video quality.

4. Video uploads

In this module video can be uploaded on the cloud using upload algorithms.

5. Video authentication

The fundamental objective of authentication is to show that the digital video has not been changed since it was collected. User name and password will be provided so only limited no. of users can view and download it.

6. Video notifications

In this module user will get the notifications of video which is uploaded. Notifications will be how many users had view it, like it and download it.

III. TECHNOLOGY.

A. Java

Java is a object oriented programming language and specifically designed to have as few implementation dependencies as possible. Java is used to manage increasing complexity and also called as process oriented model.

Java provides portability, which means that computer programs written in the Java language must run similarly on any hardware/ or OS platform which is achieved by compiling Java byte code platform-specific machine code. Java byte code instructions are same as machine code. They are intended to be interpreted by a virtual machine (VM) written specifically for the host hardware. Users use a Java Runtime Environment (JRE) installed on their own machine for standalone Java applications. User can run their application using Web browser.

Java provides Encapsulation, inheritance, polymorphism, Abstraction etc. Standard libraries in java provides a way to access features such as networking ,threading.

B. DirectShow/Humatic

The Microsoft DirectShow is application programming interface (API) which is a media-streaming architecture for Microsoft Windows. Applications can perform high-quality video and audio playback or capture by using DirectShow.

Windows SDK provides DirectShow headers, libraries, SDK tools which supports variety of formats, including MPEG Audio Layer-3 (MP3), Advanced Systems Format (ASF), Audio-Video Interleaved (AVI), Motion Picture Experts Group (MPEG) and WAV sound files. DirectShow supports capture from digital and analog devices based on the Windows Driver Model (WDM) It automatically detects and uses video and audio.

Component Object Model (COM) is base of DirectShow so you must know COM client programming to write a DirectShow application or component. DirectShow provides the components you need for most applications, there is no need to implement own COM objects. To extend DirectShow by writing your own components, however, it needs to implement as COM objects.

DirectShow provides number of filters for decoding some common media file formats such as Windows Media Video, Windows Media Audio, MIDI , MPEG-1, MP3.

C. Java JDK

Java programming language uses **Java Development Kit** as official development kit. The Java Development Kit (JDK) provides implementation of either one of the Java SE, Java EE or Java ME platforms. It has been the most widely used Software Development Kit (SDK). On 17 November 2006, Sun announced that it would be released under the GNU General Public License (GPL), thus making it free software.

The JDK has its primary components including:

1. Appletviewer – this tool can be used to run and debug Java applets without a web browser
2. APT – the annotation-processing tool
3. extcheck – a utility which can detect JAR-file conflicts
4. Idlj – the IDL-to-Java compiler. It generates Java bindings from a given Java IDL file.
5. Jabswitch – the Java Access Bridge. provides assistive technologies on Microsoft Windows systems.
6. Java – the loader for Java applications. This tool is used an interpreter which can interpret the class files generated by the Javac compiler. Now development and deployment can be done by single launcher. Jre is old version of launcher. but now a days it is replaced by new java loader.
7. Javac – the Java compiler , which converts source code into Java byte code
8. Javadoc – the documentation generator automatically generates documentation from source code comments etc.

D.MPEG4

MPEG video compression is used in many current products. It is a important for video conferencing, DSS, DVD players, digital television set-top boxes, Internet video,HDTV decoders, and other applications. These applications have benefit from video compression so they may require less storage space for archived video information and less bandwidth for the transmission of the video information from one point to another point. It works well in a wide variety of applications. A it has popularity because it is defined in two finalized international standards. Its third standard currently in the definition process.

The basic building blocks of MPEG4 compression are discrete cosine transform and motion estimation. MPEG-2 is a superset of MPEG-1. MPEG4 is the best known lossy compression standard and widely used to compress still images stored on compact disc. It is more complicated than RLE, but it produces correspondingly higher compression ratios – even for images containing little or no redundancy.

E. NetBeans Platform

Platform for developing Java Swing desktop applications. It bundles for Java SE contains what is needed to start developing NetBeans plug-in and NetBeans Platform based applications and no additional SDK is required. Applications can install modules dynamically and any application can include the Update Centre module to allow users of the application to download digitally signed upgrades. It adds new features directly into running application. New release or a reinstalling an upgrade does not force users to download the entire application again.

Among the features of the platform are:

- User interface management
- User settings management
- Storage management
- Window management
- Wizard framework
- NetBeans Visual Library
- Integrated development tools

NetBeans IDE is a free, open-source and cross-platform IDE having built-in-support for Java Programming Language.

F. MYSQL

World's second most widely used open-source relational database management system (RDBMS). SQL stands for Structured Query Language. The MySQL has made its source code available under the terms of the GNU General Public License. Swedish company MySQL AB, now owned by Oracle Corporation. MySQL is a popular choice of database for use in web applications. It is known as central component of the widely used LAMP which is open source web application software stack. LAMP is for Linux, Apache, MySQL, Perl/PHP/Python. Mysql is Free-software-open source projects .

Features of MySQL:

- Relational Database System.
- Client/Server Architecture
- SQL compatibility.
- SubSELECTs
- Views
- Stored procedures
- Triggers
- Unicode
- User interface
- Replication
- Programming languages
- ODBC

IV. Expected Result

User should be able to take the input video and produce the output as per his choice like video editing, compression, conversion, authentication and upload. Video editing should provide all the expected effects. Video compression should compress the video in the required range. Video conversion should convert the video to any required format.

V. Conclusion

Smart combined video tool provides all the operations into the single tool. By using combined tool user can upload the video on cloud and authentication is done using the special method (using key). It provides limited no. of conversion format.

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