

Assisted Video Editor (AVE)

Presented by...

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Motivation

To improve video editing...

Easy for averages user

Accessible for all users

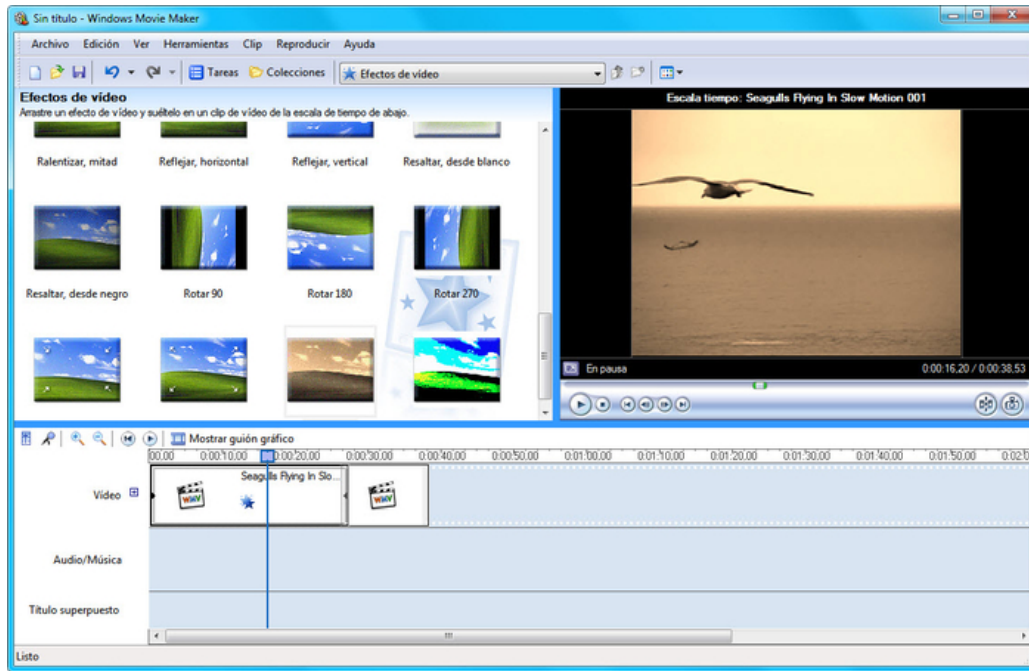
Software Designed For Tommy

- Attends **Howell High School**
- Has **cerebral palsy**
- Has full control of **right foot**
- Interacts with his **iPad**
- Loves his friends and **family**

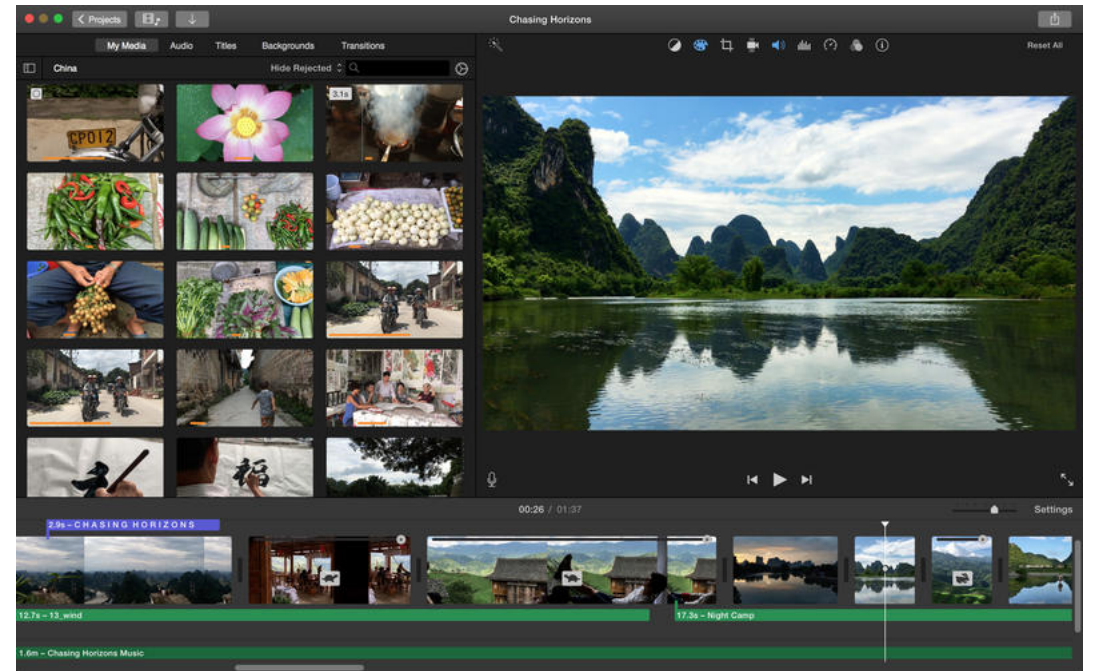
Understanding Video Editing

- Studied existing editing *weaknesses*
 - Most time is spent combining
 - Many videos later end up on social media
- Studied video editing *techniques*
 - Synchronize video and music

Understanding Video Editing



Windows Movie Maker



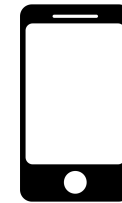
iMovie

Design Goals

- Create a desktop solution with...
 - automatic content arrangement
 - options to upload to social media
- Create an iOS solution with...
 - video capture
 - file transfer to desktop
- *Simple* and *intuitive*



AVE Desktop



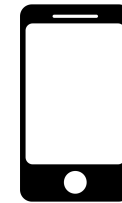
AVE Mobile

Why the desktop *and* the mobile app?

- Desktop application provides...
 - video processing tools (ffmpeg)
 - **scalability** for the future
- Mobile application provides...
 - user convenience
 - video and audio **capture**



AVE Desktop



AVE Mobile

Plan To Accomplish Goals

- **Alpha Release**

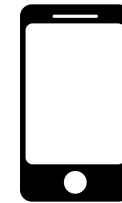
- Video processing functionality
- Desktop interface



AVE Desktop

- **Beta Release**

- iOS interface
- Networking features

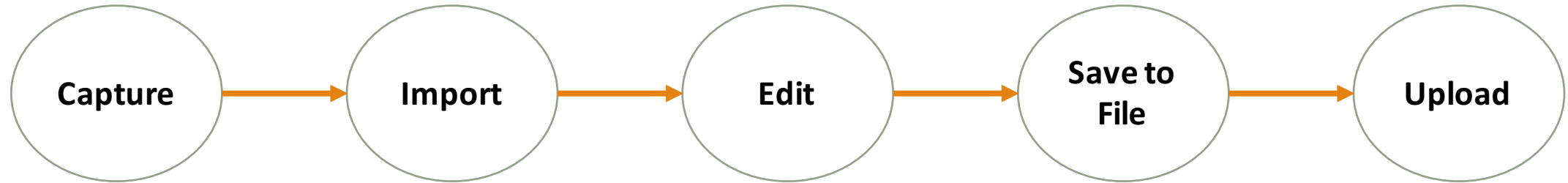


AVE Mobile

- **Omega Release**

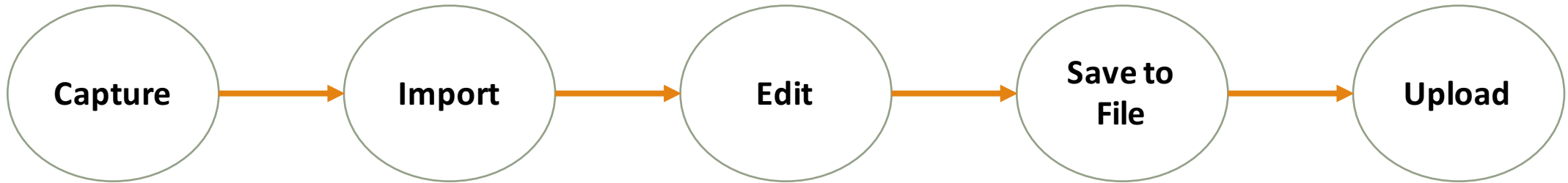
- Polishing touches

Standard Editing Process

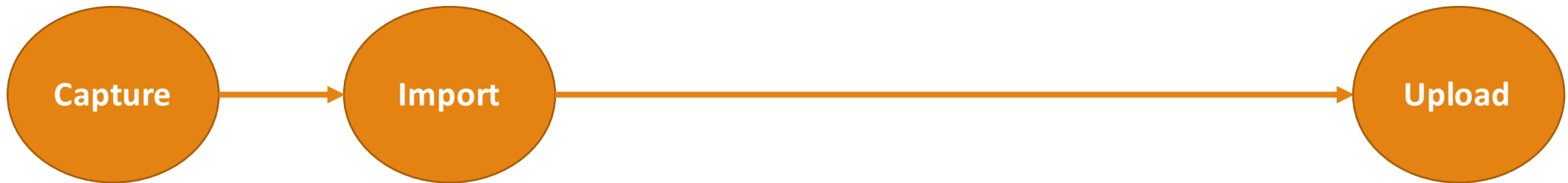


AVE Editing Process

Standard Process



AVE Process



Overview of AVE

- **Capture**

- iPad camera

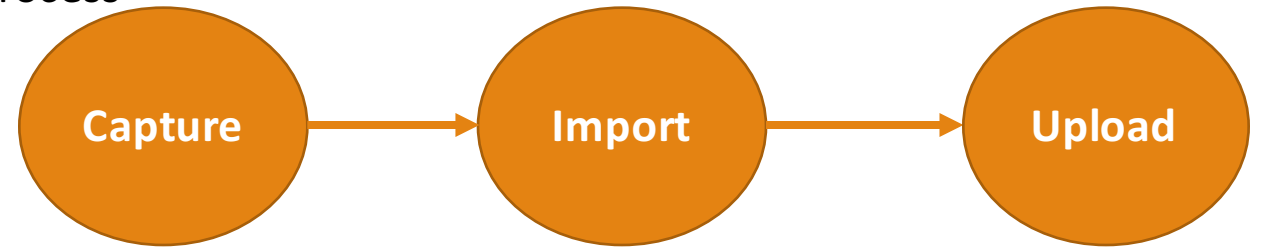
- **Import**

- Select video and music from iPad or desktop
- Transfer via HTTP

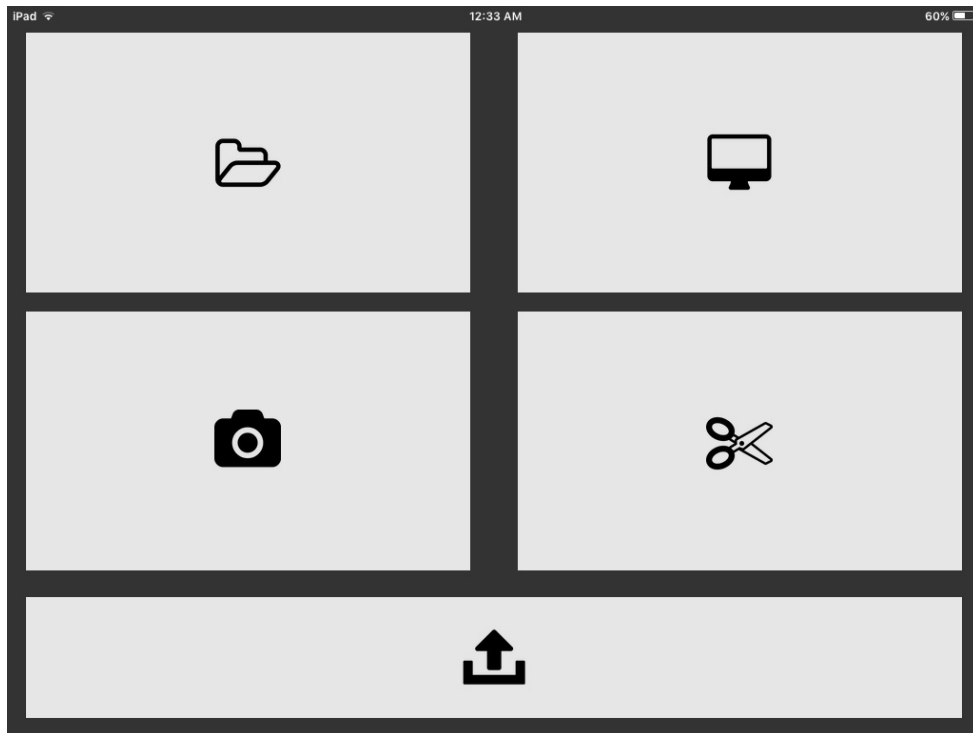
- **Upload**

- Export video to file
- Send video file to YouTube, Facebook, and Email

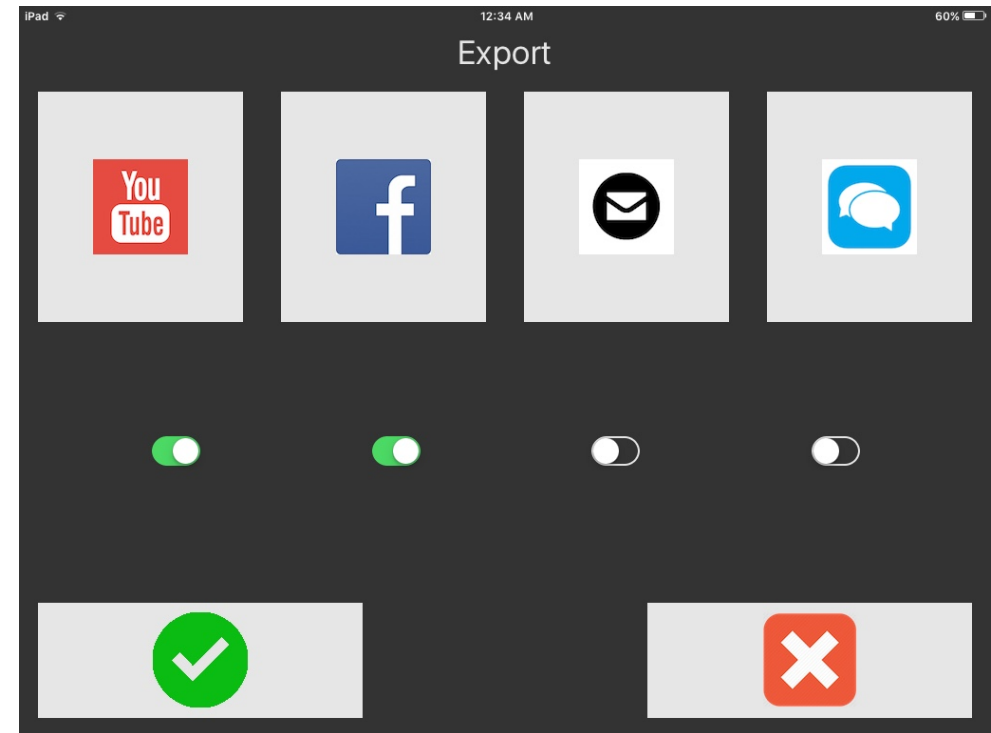
AVE Process



iOS Application

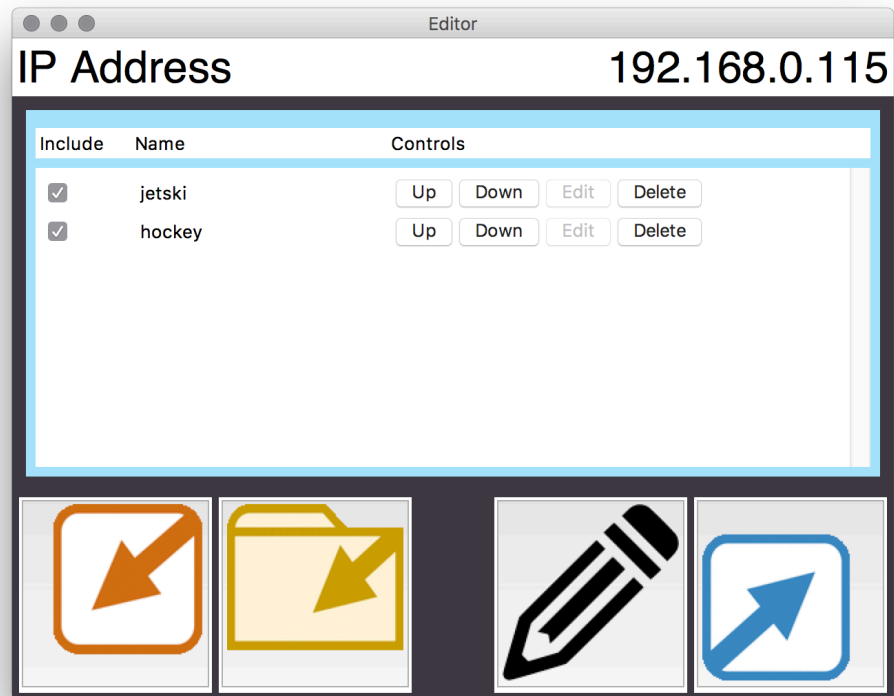


iOS Home Screen

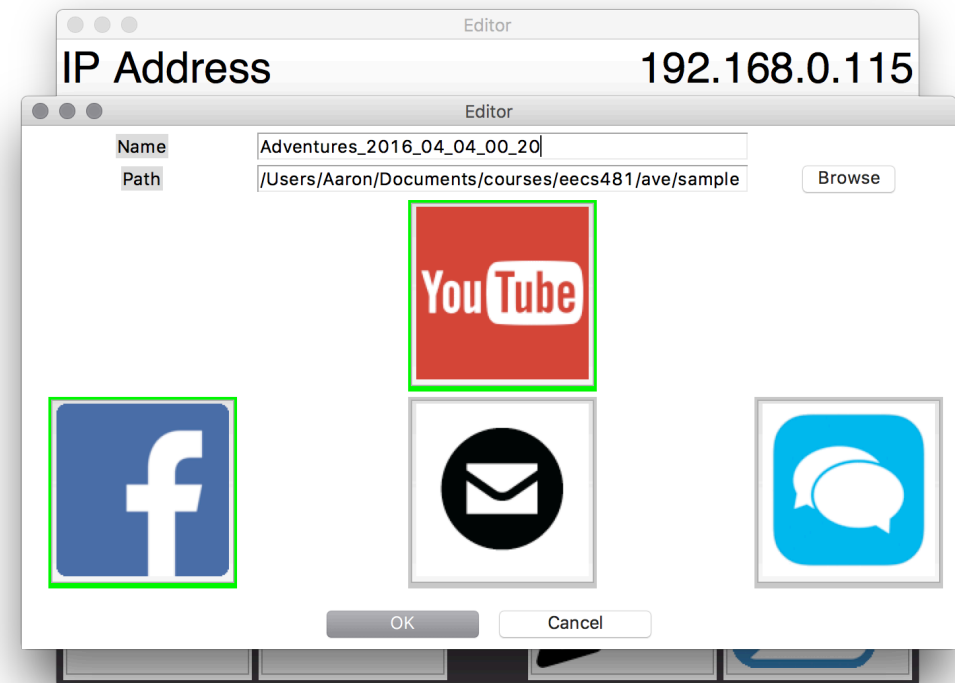


iOS Export Screen

Desktop Application



Desktop Home Screen



Desktop Export Screen

Tools Used

- **ffmpeg** for video processing
- **APIs** for social media exporting
- **TkInter** for python desktop UI
- **Alamofire** for iOS HTTP requests

Obstacles

- Networking latency and complexity
- Supporting the desktop and iPad
- Allowing simple controls for Tommy
- Combining videos of different resolutions

Assessment of Features **Accomplished**

- File transfer
- Video and music concatenation
- Simple automatic arrangement
- Social media support (YouTube, Facebook, Email, Texting)
- Desktop and mobile application

Assessment of Features **Unaccomplished**

- Detection of key video properties
- Advanced editing features
 - Timeline
 - Saving a project
 - Video effects and transitions



Sony Vegas – Editor Timeline

Future Work

- Networking optimizations
 - Caching
 - Asynchronous upload
- Advanced auto arrangement algorithm
- Improvements to video processing
 - Video effects and transitions
 - Controls to trim video lengths

Technical Lessons Learned

- iOS development
- Networking with HTTP
- Video processing using ffmpeg
- Interacting with social media APIs
- Various python libraries

Possibilities For Things Done Differently

- Not using python for the user interface
- Not developing two applications at once
- Concerns about HTTP security

Project Management Lessons **Learned**

- **Division of labor** should minimize overlaps
- **Universal design** is tough
- **Changing project goals** leads to delays

Summary

- **Assisted Video Editor (AVE)**
 - Making video editing easy and accessible
- Built desktop and iOS applications
 - Communicate via HTTP
- Built for Tommy and his friends
- *Questions?*

Resources

<http://www.jamviet.com/upload/2016/03/download-windows-movie-maker.jpg>

<http://www.pixempire.com/images/preview/desktop-button-icon.jpg>

http://s3.amazonaws.com/libapps/customers/1633/images/icon_52143.png

http://www.dvc.uk.com/pageimages/Vegas_interface.jpg

Demonstration
