

UBC Studios

AN INTRODUCTION TO THE DO-IT-YOURSELF HOME KIT

**A collaboration with UBC Audio Visual
and Learning Technology Hub**

Suggested Essentials

Single 720p Webcam

A Single Webcam is the bare minimum for any online course. Whether through Zoom, other video conferencing software, or recorded content—students need a clear visual image of the instructor to maintain engagement the course lecture duration. Most modern laptops should have a decent webcam.

Lamps should also be used to brighten up your working area.

External Microphone

An External Microphone is highly recommended given the limitations of a laptop computers microphone. Most built-in options produce “tinny” or noisy sounds, causing fatigue for students over long periods of time. A good mic offers more control and a more comfortable listening experience for students.

Stable Internet Connection

A good stable internet connection is needed so that the lesson proceeds smoothly without unexpected drops or lag in the connection. The most optimal way is to “hard-wire” your connection via Ethernet. Speeds over 5mbps should suffice. For Laptops without a ethernet port, an USB-A or USB-C to ethernet adapter will work.

Optional Secondary 1080p Webcam

A Second Webcam is a nice-to-have option that may enhance your course content. Depending on what is needed, a secondary webcam can capture many different things. Perhaps a whiteboard, a close up of a particular physical object, be transformed into a DIY Doc Cam or used as a lightboard feed (featured later in this document).

Suggested Products

A curated but non-exhaustive list based off of reviews and experience.

External Microphone

Recommended Products:

Tabletop: USB Mics from Blue, Audio Technica or any other mic brands with good reviews.

Having any type of external mic would be a big improvement over the default onboard microphone. With both tabletop and wired lavaliere mics, any highly rated 4+ star one at a local electronic store or online vendor should do the trick.



Dual Webcam | Webcam 2

Recommended Products: Logitech C920, C922, C922X, Logitech Brio.

A webcam that can be placed at an alternate location and/or sub as your main webcam. There are a few presentation ideas that are attached in this document. Going with the Logitech brand allows you to use their useful Logitech Capture software.



Programmable Clicker

Recommended Products: Logitech R500, Spotlight

A programmable clicker allows users to advance powerpoint slides and switch cameras with the push of a button. They are also able to use different hot keys to streamline and make content more seamless by controlling it from a distance.



Tabletop Boom Arm

Recommended Products: Neewer, Rode
Alternatives: Camera Tripod.

A tabletop boom arm saves space and also allows users to use the secondary webcam in different positions. Allows more flexibility as opposed to a normal camera tripod. If a sturdy surface to clip on is not available, then a tripod or micstand would do the trick. (3/8" to 1/4" adapter needed for both options).



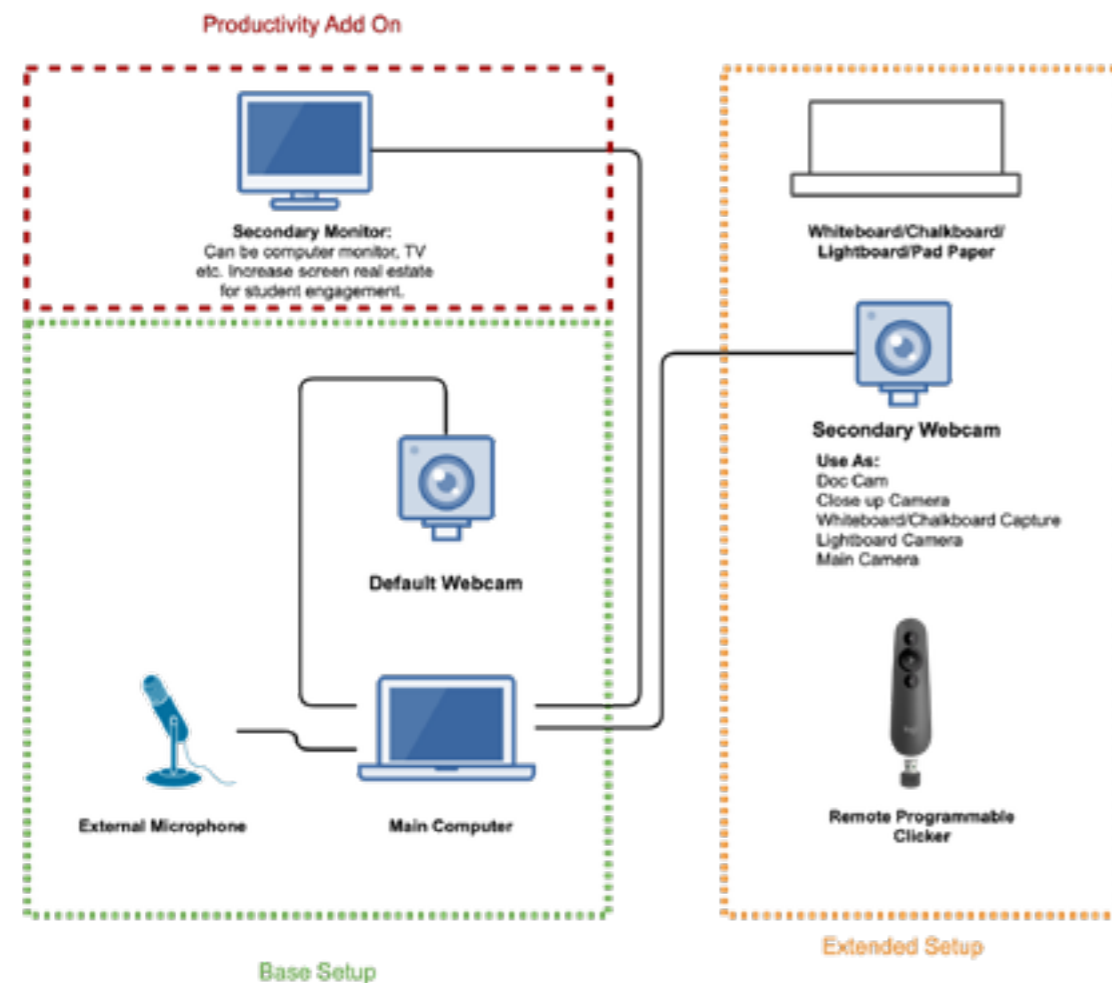
A Home Studio Setup Example

Showing both the basic and add on components to a setup.

Please note that that is an example setup and not exhaustive. There are other creative ways to present content, including pre-recorded lectures, augmented and virtual platforms and alternative apps.

This diagram shows an overview of the way a “live studio” can be setup within a home office, with

minimal equipment. The flow chart is divided into 3 different areas: the base setup, a productivity add-on and the extended setup. The extended setup features a second webcam that captures mostly analog ways of presentation, or acts as an additional feed to display close-ups of experiments or demonstrations from a different angle and perspective.



Base

The base setup is the default and recommended minimum for any online course. Clear audio, and a webcam for the class.

Productivity

An additional monitor added so that you can view and engage students better, and place/find other content while screensharing for additional real estate.

Extended

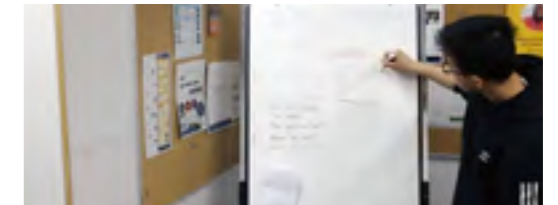
A secondary webcam setup offers more options to use whiteboards and analog ways of teaching, providing more familiarity and perhaps a clearer way of explaining concepts and ideas.

Ideas for the Second Webcam

Some creative ways to use the second camera angle.

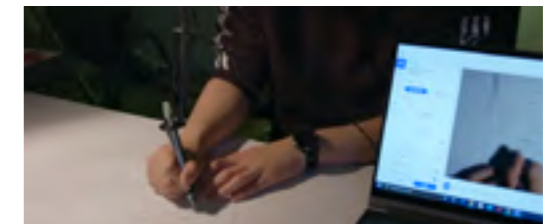
1. Large Format Presentation Capture

The second webcam can be placed further away from you, resulting in more screen real-estate for the user. You can use this angle to capture writing on a whiteboard, blackboard or pad paper that you have available.



2. Do-It-Yourself Doc Cam

Putting the webcam in a birds eye view position gives you a DIY “document camera” that could be useful for writing equations and highlighting points. It also offers instructors the familiarity of using a document camera, just as they would in class.



3. Mini Tabletop Lightboard

The Lightboard is an innovative tool that allows instructors to maintain eye contact while writing content on an invisible piece of glass in front of them. The special effect from the light hitting a neon marker gives a floating text effect. There are many different uses, builds and implementations that we will go in-depth in this document.



4. Alternative Angles

These angles can be useful for a variety of reasons. Maybe a wider angle so that you can demonstrate a scientific concept using colourful objects, or a close up so students can look at your 3D printout of a skull. There are countless possibilities.



The Lightboard



Shown above is the first prototype of the tabletop lightboard by UBC Studios.

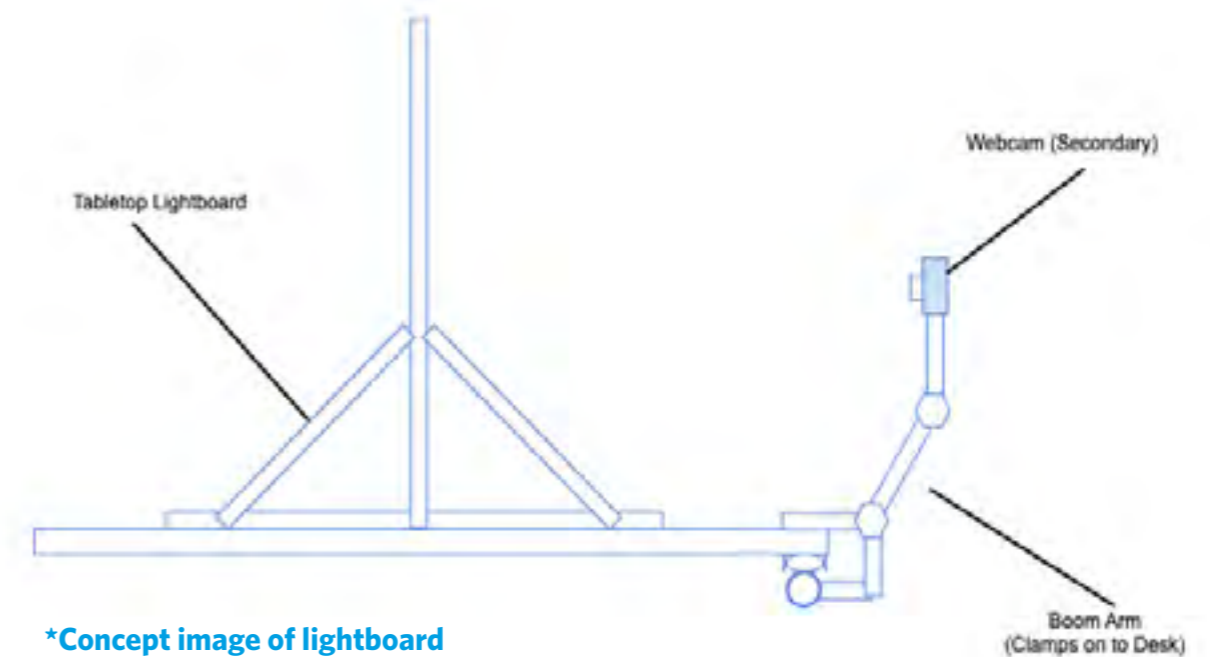
The technology in a lightboard is straightforward. A piece of glass that has good refraction properties, and LED strips to activate the phenomenon.

Despite this, current commercial offerings are limited and often expensive. The team at UBC Studios have been working on developing a solution with UBC ECE and local vendors to bring this teaching option to faculty and instructors for a lower price.

For updates on the progress, questions on availability, please contact UBC Studios at ubc.studios@ubc.ca.

Tabletop Lightboard Layout

A view of the imagined build within a home studio.



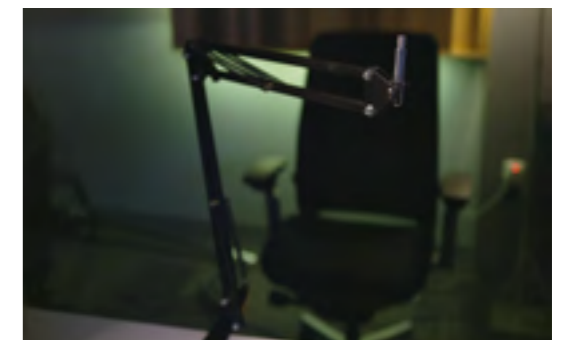
The Basic Layout of the Tabletop Lightboard

The tabletop lightboard will sit upon the top of a desk. Users would be behind the glass, while the webcam can be situated on a tripod or a boom arm clamp (pictured above) behind the glass.

A few notes about the attachments

The boom arm is attached to the table from the side. This allows the webcam to freely move and adjust in order to capture the entire lightboard, without capturing any part of the boom arm. Some webcams have 1/4" threads to mount on the tripod. An (additional) 3/8" thread to 1/4" was added to the boom arm to make the system compatible.

Only use this method if you have a sturdy table or shelf available—otherwise the image may be unstable. Inf the surface is unsteady, a seperate mounting system such as a microphone stand or tripod would work better.



Cost Breakdown

Specification and approximate cost breakdown of the mobile build.

Prices are approximate and subject to change.

Lightboard Core Build

▪ Plexiglass cut 37x17 at 6mm thickness with Flame polished edges.	\$100
▪ 1000 mm Aluminum 20mmx20mm Extrusions (Quantity: 4)	\$70
▪ 640mm Aluminum 20mmx20mm Extrusion (Quantity: 2)	\$20
▪ 500 mm Aluminum 20mmx20mm Extrusions (Quantity: 2)	\$20
▪ 360 mm Aluminum 20mmx20mm Extrusions (Quantity: 2)	\$15
▪ 250 mm Aluminum 20mmx20mm Extrusions (Quantity: 2)	\$5
▪ M4 Screw at 8mm length (Quantity: 82)	\$20
▪ M4 Screw at 25mm length (Quantity: 4)	\$2
▪ Nut for M4 Screws (Quantity: 86)	\$60
▪ 90 degree External Bracket for 20mm Extrusions (Quantity: 6)	\$5
▪ Steel Pin at 5m mx 40mm (Quantity: 6)	\$5
▪ Bearings (5mm x 13mm (11mm also fine) x 4mm)	\$15
▪ 2 C- Clamps to secure lightboard	\$10
▪ 39" (approx 1m) LED Strip (Daylight)	\$20

\$347

Accessories and Adapters

▪ Logitech Webcam C922x	\$130
▪ Basic External Microphone (USB or Audio Jack Lavilier Mic)	\$30
▪ Simple Tripod and or/ Boom Arm to mount Webcam	\$40
▪ 3/8" to 1/4" thread converter (if needed to mount webcam onto Boom)	\$10

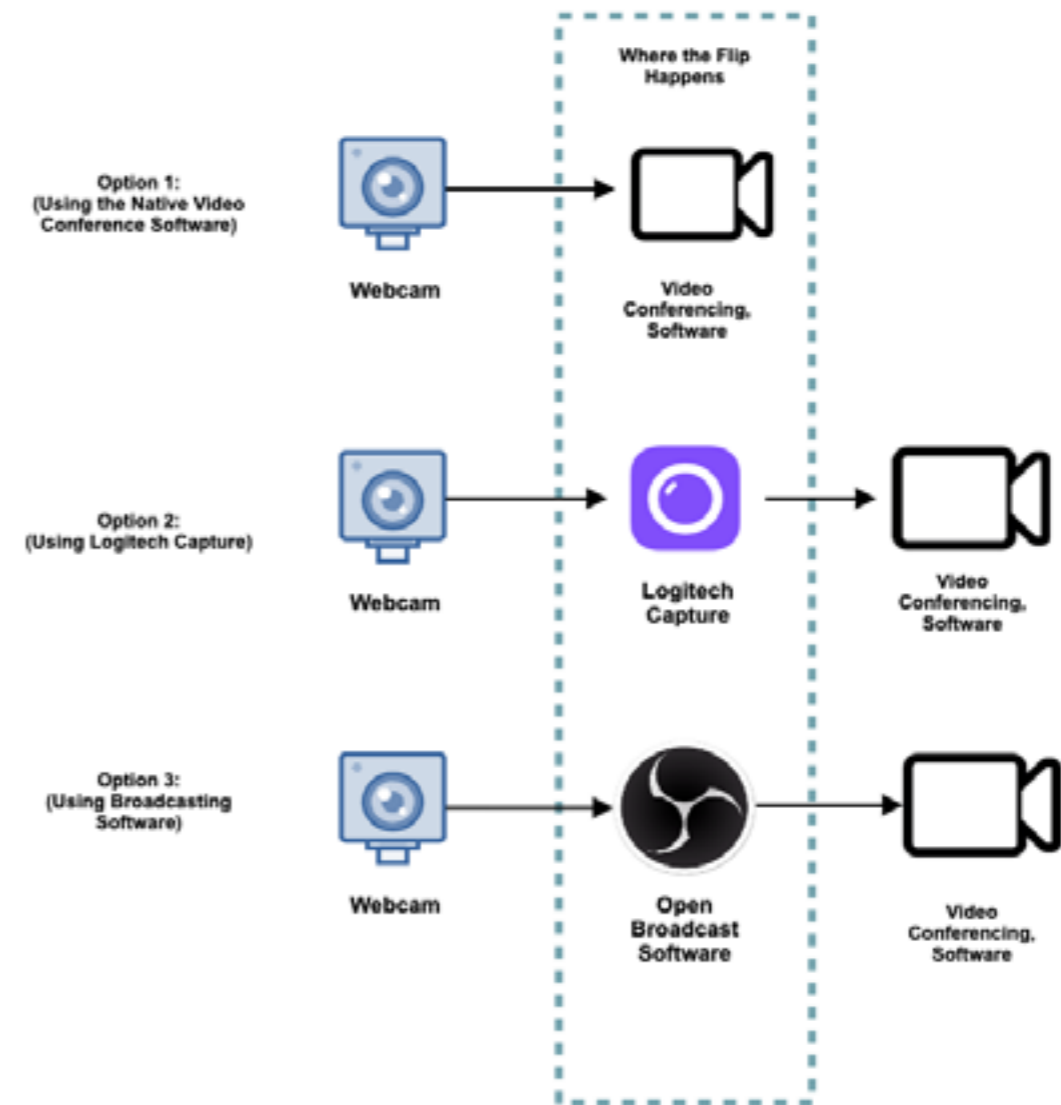
\$210

The Software

Integrating into your lecture application.

How the system works.

The main difference between using the lightboard and other tools is that the visual image needs to be mirrored for the viewer to see the text the "correct" way, as the instructor is writing on the backside of the glass. If the text isn't mirrored, all the text will appear backwards. There are a variety of ways to mirror—the easiest would be through software. This diagram will briefly highlight a variety of ways on how this is done.



The FLIP

Methods of Integration

1

Default Video Conferencing Software

Zoom and other video conferencing software should have “mirroring” options within their apps. They can be found in video preferences -> “Enable Mirroring”

2

External Webcam Control

The Logitech Capture is a free app for purchaser of Logitech webcams. It allows users to flip their signal before the feed is sent. Select the “Source” tab-> check “Advanced settings” -> “Horizontally Flip Source”

3

Broadcast Software

Catered towards advanced users, free open source apps such as **Open Broadcast System** and **StreamLabs** offer customization before outputting a virtual webcam signal. This requires a higher spec system and deeper technical knowledge.

4

Optional Technologies

Using keyboard shortcuts, a programmable clicker, or **stream shortcut devices** like the **Elgato Streamdeck** can help with changing cameras and for more advanced users, scenes, much easier.

Distribution — Platforms

Where to host and stream your content

Zoom

Zoom is a popular video conferencing tool that is easy to use and an ideal choice for live classrooms and lecture experiences.

Where Can I Learn How to use it?

Please visit the “Deliver Real Time Lectures with Zoom” as well as videos on best practices at:

<https://kepteaching.ubc.ca/lectures/#real-time-zoom>

Kaltura

Kaltura is a video platform for instructors and students to share/host video content. Features include the ability to upload, publish, search, and embed media. Kaltura also offers the ability to record, edit and create shortened clips from existing video content and caption media

Where Can I Learn How to use it?



In addition to this introductory toolkit, in-depth information on features and how to use Kaltura can be found at the self-enroll guide: Using Kaltura in Canvas.

<https://canvas.ubc.ca/enroll/FFTMNN>

Other resources include: <https://lthub.ubc.ca/guides/kaltura/> or contact the Learning Technology Hub

Getting started with Kaltura

How to host your UBC content of Kaltura

Please note: It is recommended that you enroll into the course guide Using Kaltura in Canvas to get the full benefit of this resource as many references will be linked to it from this guide.

Getting started - How to Access

There are 2 areas where users can access Kaltura.

1. UBC Teaching & Learning Portal
 - **URL:** <https://learning.video.ubc.ca/>
 - [Login with Campus Wide Login \(CWL\) account](#)
 - An account is created upon initial login to the site
2. Canvas
 - **URL:** <https://canvas.ubc.ca>
 - Canvas Course areas (the Rich Content Editor, My Media & Media Gallery).
 - * My Media & Media Gallery can be hidden from the course navigation panel.
 - Please follow this guide on how to activate course navigation links. [Course Settings](#)

Note: There are subtle differences with the user interface between the Teaching & Learning Portal and Canvas.

View the Full PDF Guide courtesy of UBC LT HUB

<https://elearning5.sites.olt.ubc.ca/files/2020/07/DIY-Kaltura-Introduction.pdf>

Guide Overview

- **Upload and Save your Media**
- **Share your Media (options)**
- **Record Media using Kaltura browser webcam /application**
- **Edit your Media - The Kaltura Editor**
- **Other Resources/Information**
- **Captions**
- **Copyright**
- **Contact & Support**

General Resources

Comprehensive list of available online resources

keep-teaching.ubc.ca

Keep-teaching is a site that was created especially for faculty and staff moving their course online. The site features best practices on software and etiquette when using online teaching tools in the classroom.

lthub.ubc.ca

LThub provides tips, tricks and guides on supported UBC learning technologies and provides extensive support for faculty and staff moving their course content online.

mediamakers.sites.olt.ubc.ca

Mediamakers is a site created by UBC Studios that shows best practices of scripting, storyboarding and provides templates and additional resources.

Who do I contact if I run into issues?

Equipment

UBCIT AV Services
av.helpdesk@ubc.ca
 (604) 822-7956

Software

UBC LT HUB
LT.hub@ubc.ca
 604 827 4775

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