ZOOM**KONTROL**

DECEMBER 2020 - MARK I - by Ian Lyman

ZoomKontrol with custom wood enclosure

OVERVIEW

ZoomKontrol connects wirelessly to any iPad, Chromebook or other Bluetooth device and provides a dedicated hardware button to control audio mute and video on/off.

ZoomKontrol uses an ESP32 development board to simulate a bluetooth keyboard and execute Zoom compatible keyboard shortcuts at the touch of an arcade-style button.

Any ESP32 development board equipped with Bluetooth LE and any push buttons would work fine. The battery is only necessary to make the box wireless. A minimum cost version could exclude parts 2, 3, 5, and use buttons recycled from something else. Project box, part 6, can be DIY built or use any old box you have lying around.

PARTS LIST

	PART	PRICE
1	WEMOS LOLIN32 ESP32 Board	$7.25
2	3.7v 500mAh Lithium Battery	$5.35
3	Micro B Round Panel Mount Cable	$4.95
4	30cm Arcade Button x2	$11.90 ($5.95 ea)
5	JST PH 2.0 2 Pin Connectors	$6.99
6	Project Box	$7.99

7	A Micro USB Cable for charging - you probably already have several.	N/A
	Total Costs	**$44.43**

BUILD INSTRUCTIONS

1. Mount buttons (part 4) on your project box (part 6).
2. Install Panel Mount Micro USB (part 3) to project box (part 6).
3. Solder ESP32 Pin 2 and a GND pin to one of the push buttons.
4. Solder ESP32 Pin 15 and another GND pin to the other push button.
5. Solder a female JST connector to the matching red / black leads on the battery and shrinkwrap or tape the connections.
6. Connect the battery to the male JST connector on the ESP32 board.
7. Connect the Micro B Panel Mount cable to the Micro USB connector on the ESP32 board.
8. Tuck everything into the project box.
9. That's it. Now you're ready to program the ESP32.

   NOTE: if using lighted push buttons as linked above, make sure you're using the 2 switch pins, not the two pins for the light (those remain unused).

PROGRAMMING INSTRUCTIONS

1. I used PlatfromIO and Microsoft Visual Studio Code as my development environment. First install Visual Studio Code, then PlatformIO.
2. Download the code from http://github.com/teknikolor/zoomkontrol
3. In VSC, Click the home icon to access the PlatformIO home screen, then import the ZoomKontrol project.
4. Select the ZoomKontrol code file in the SRC folder.
5. Click the compile icon.
6. Click the upload icon.
7. If there are no errors, then you're ready to start using your ZoomKontrol! See the next page for basic use instructions.
8. In iOS / Apple devices you'll have to remap the OPTION key to be the COMMAND key (see user manual on the following page).

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INSTRUCTIONS

1. Plug ZOOMKONTROL into power via any micro-usb cable (the same type used by many gadgets, phones, etc.). ZOOMKONTROL may be used immediately while plugged in, but allow to charge for 30 - 60 minutes before using it unplugged.

2. Open the Bluetooth settings on the device you typically use with Zoom and add or browse for a NEW bluetooth device. You should see a device called "ZoomKontrol." Select the device and wait for it to connect. You will probably encounter a pop-up window asking if you want to pair it. Select YES.

3. For iPads, continue to step 4. If you're using a Chromebook or Android-based tablet, setup is complete.

4. To complete ZOOMKONTROL setup on an iPad, open SETTINGS and select GENERAL → KEYBOARD → HARDWARE KEYBOARD → MODIFIER KEYS → OPTION KEY. Select COMMAND from the list. That's it, setup is complete.

BUTTON FUNCTIONS

- RED BUTTON: MUTE / UNMUTE AUDIO
- WHITE BUTTON: VIDEO ON / VIDEO OFF

FAQ / PROBLEMS

How long will the battery last?
I don't know. Keep it plugged in if you expect to use it regularly.

Continued...

My iPad or other Apple device can't seem to find it in Bluetooth setup!
Older Apple products don't play nice with ZOOMKONTROL, but there is a workaround. Go to the app store and install Bluepixel BLE Scanner (free). Run the app and it should allow you to see and pair with ZOOMKONTROL.

I just can't get it to work, what should I do?
There are certain devices that just won't work with ZOOMKONTROL. I'll gladly take it back and pass it along to someone else.

This stupid thing broke my iPad, got my kid in trouble with their teacher, gave me a splinter, and allowed hackers to steal all my money!
This is a totally home-built project I made with parts off ebay and tinkered together in my garage. As such, there's no warranty of any kind and I make no promises regarding it's safety, fitness, legality, or anything else. Use at your own risk!