Parts List

Inspiration

- http://eskateboard.huu.la/
- https://vesc-project.com/
- https://esk8.news/?p=1363

Skateboard hardware

- Investigate hardware kits that bundle hardware so we know it works together

Deck

$35
https://www.skateshred.com/wholesale-blank-longboard-decks/31-5-x-8-mini-kicktail-blank-decks.html

Trucks

https://www.amazon.com/Caliber-Trucks-Cal-Longboard-Black/dp/B00NY3Q5Q8?th=1&psc=1

Wheels

https://diyelectricskateboard.com/products/90mm-epower-flywheels-black?variant=712256126999&currency=USD&utm_medium=product_sync&utm_source=google&utm_content=sag_organic&utm_campaign=sag_organic&gclid=Cj0KCQiA09eQBhCxARIsAAYRiylY-FUuTg0m-dWiROaWDRHUUcqgb_k1D026x0TSnUa7_YgzCaMNtlwaAltKEALw_wcB

Bearings
https://www.skateshred.com/longboard-parts/bearings/swiss-whites-bearings.html

Motor pulley

Wheel pulley

Skateboard electronics

We should be able to use a PSoC 6 MCU. This will communicate over Bluetooth with the MCU in the remote to read speed input. We'll need a large battery to supply power to the motor. ESC modules are available that provide an interface for reliably setting motor speed.
- Easier to use separate batteries for MCU and motor?

Battery

36V 10000mAh?

[36V10Ah/48V14Ah Lithium li-ion Battery ebike Bicycle Scooter with phone charging | eBay](#)

Motor

$110:
https://www.mboards.co/products/mboards-6374-180kv-motor

[Flipsky Sensored Brushless DC Motor Battle Hardened 6368 190KV 2700W For Electric Skateboard Parts D Shaft Sale - Banggood USA](#)

Electronic Speed Controller (ESC)

[https://vesc-proje ct.com/](#) seems like a useful resource

[FSESC 4.12 50A Based on VESC4.12](#)

Power switch?

Battery indicator?

Screen?

ROTARY ENCODER
[rotary encoder we ordered](#)

Remote control

The remote control probably only needs the MCU connected to a battery and an input that will dictate the motor speed. The MCU for class supports Bluetooth so it should be able to communicate with another MCU in the skateboard.

LSM0805452V Visual Communications Company - VCC | Optoelectronics | DigiKey

We need a single pmos transistor to provide reverse battery protection like in the dev board schematic
TSM500P02CX RFG Taiwan Semiconductor Corporation | Discrete Semiconductor Products | DigiKey

LTST-C171KGKT Lite-On Inc. | Optoelectronics | DigiKey

We need to set up a voltage supervisor
BU46K292G-TL Rohm Semiconductor | Integrated Circuits (ICs) | DigiKey

Housing

3D print? -> https://making.engr.wisc.edu/3d-printing-the-makerspace/
Needs to securely seat the trigger so it doesn't wiggle when the user inputs.
Stretch goal

Speed Input

Dial (rotary encoder)? With a knob you don't have to be constantly holding it to output a speed. On the other hand, there's a safety aspect to having to hold a trigger constantly. With a dial, maybe some sort of capacitive sensor somewhere else on the remote to detect presence?

Fingerprint sensor / capacitive sensor?

Could potentially check for ownership, or just presence
Probably better to use something physical to deal with gloves

AT42QT2120-SU Microchip Technology | Integrated Circuits (ICs) | DigiKey

RNCP0805FTD10K0 Stackpole Electronics Inc | Resistors | DigiKey

ERJ-6ENF5620V Panasonic Electronic Components | Resistors | DigiKey

Battery

Battery holder
[1043 Keystone Electronics | Battery Products | DigiKey](#)

Voltage regulator

NOT THIS [ADP1714AUJZ-3.3-R7 Analog Devices Inc. | Integrated Circuits (ICs) | DigiKey](#)
[ADP1713AUJZ-3.3-R7 Analog Devices Inc. | Integrated Circuits (ICs) | DigiKey](#)

PCB for MCU

[CY8CPROTO-063-BLE](#) again? 20 bucks
Then we have to design a PCB so that can connect to power, programming

BLE module -> can find footprint for bluetooth from snap EDA

Peripheral devices can only communicate with one device
Server is PSOC6 since we are serving the data - server device would be the skateboard motor

Light? GPS?

Part	Model	Quantity	Cost estimate
Motor	[MBoards 6374 180KV Motor](#)	1	$110
Deck	31.5" X 8" MINI KICKTAIL BLANK DECKS (#C31)	1	$35
Trucks	[Caliber trucks](#)	1 set	$60
Wheels	90 MM flywheels	1 set (4 included)	$40
PCB development kit (skateboard MCU)	CY8CPROTO-063-BLE	2	$20
Pulleys and mount	[kit](#)	1	$40

Skateboard battery	36V 10000mAh	1	
Power converter		1	$15
ESC	[Mini FSESC4.20 50A](#)	1	$100
Remote MCU	[CYBLE-416045-02](#)	1	$20
Remote battery	18650 battery	2	$4
Remote battery holder	36-2461-ND battery holder	2	$8
Rotary encoder	Dial wheel potentiometer	2	$6
Pressure sensor	BPS330-AG005P-3T	1	$20
Switches	JS202011CQN	4	$2
Total			$480

[PPTC051LFBN-RC Sullins Connector Solutions](#)

MCU

[CYBLE-416045-02 Cypress Semiconductor Corp | RF/IF and RFID | DigiKey](#)

Cables

[PRT-12796 SparkFun Electronics | Prototyping, Fabrication Products | DigiKey](#)

[PRT-12794 SparkFun Electronics | Prototyping, Fabrication Products | DigiKey](#)

[How to control FSESC(base on VESC) with Arduino ? | Flipsky.net](#)

Fix pin types for symbols in schematic?
Test points on serial interface
- ADD UART header for debug to remote PCB
- [PPTC061LFBN-RC Sullins Connector Solutions](#)

Are the 0603 caps fine? Yes
Do we need to change 2.2uF caps to 10uF?
- Add for MCU (0805)

I was looking at the schematic for the Cypress MCU and I can't find any references to 5V
- It comes through the programmer

Add larger cutout around antenna
Add power switch
- [JS202011SCQN C&K | Switches | DigiKey](#)

Bulk cap

UX for power on: start at 0 speed

Do we actually need the UART 6 pin header? Yes, UART gets cut

Overlapping labels on fab layer?
Circles on adhesive layer for battery holder?
18650 charger?
Bulk cap from battery voltage or regulator output?
Trace width for 3.3V via?