Garmin GCU475

Instructions

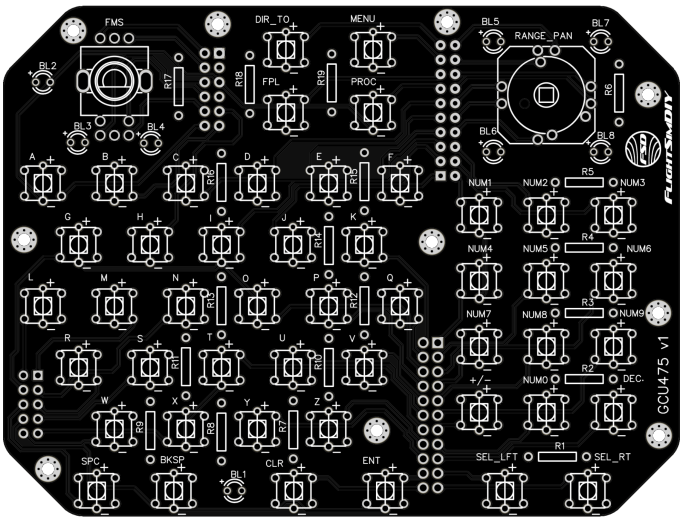
For Parts list and Mobiflight configuration information:

Please refer to the Project resource page at FlightSimDIY.com

Important Notes:

The part numbers listed on the website are the parts that these PCB's as well as the 3D print files are designed to use. Please use caution when using other components as they may not fit properly.

PCB Information



Resister Values

Please note that these values are based on using a 12v power supply.

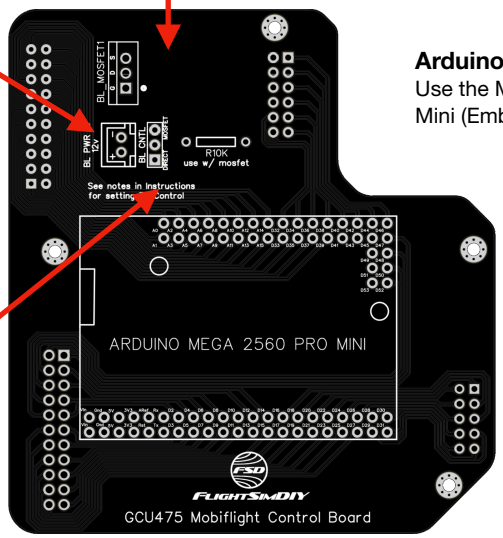
These are the Minimum recommended resistor ratings.

R1 - R18 = 240 ohm Minimum.
R19 = 470 ohm Minimum.

When using Mobiflight to control the Backlight dimming, Install a MOSFET and resistor here.
This will allow the GCU backlights to dim in concert with the G1000 unit.

Backlight Power In
12v required
Use a JST 2 pin connector or a 2 pin header

Backlight Control Select
Use a shunt jumper to choose Mobiflight control (MOSFET) or External (Direct) control



Arduino Card
Use the Mega2560 Pro Mini (Embed) card.

The GCU475 Control Board is used to connect the Faceplate PCB components to an Arduino mega2560 pro mini (embed)

Below you will find the Pin assignments you will need to use when programming your Arduino.
Note: you must use the Mini (embed) version of the Arduino mega2560 pro

Arduino Pin Assignments

Arduino Pin	Function	Arduino Pin	Function
A0	PROC	D20	L
A1	D	D21	DECIMAL POINT .
A2	FPL	D22	M
A3	E	D23	NUMBER 0
A4	MENU	D24	N
A5	F	D25	+/-
A6	DIRECT_TO	D26	R
A7	C	D27	NUMBER 9
A8	RANGE PAN DOWN	D28	S
A9	I	D29	SPACE
A10	RANGE PAN PUSH	D30	X
A11	J	D31	W
A12	RANGE PAN ENCODER A	D32	H
A13	NUMBER 1	D33	NUMBER 2
A14	RANGE PAN LEFT	D34	B
A15	NUMBER 3	D35	RANGE PAN UP
D2	V	D36	A
D3	U	D37	RANGE PAN ENCODER B
D4	P	D38	FMS OUTER A
D5	T	D39	RANGE PAN RIGHT
D6	O	D40	FMS PUSH
D7	Z	D41	NOT USED
D8	Q	D42	FMS OUTER B
D9	Y	D43	NOT USED
D10	PWM FOR BACKLIGHT MOFSET	D44	FMS INNER A
D11	ENT	D45	NOT USED
D12	K	D46	FMS INNER B
D13	NOT USED	D47	NUMBER 5
D14	NUMBER 4	D48	NUMBER 6
D15	CLR	D49	NOT USED
D16	BKSP	D50	NUMBER 7
D17	RIGHT SELECT (see note)	D51	NOT USED
D18	G	D52	NUMBER 8
D19	LEFT SELECT (see note)	D53	NOT USED

NOTE: These functions may not be available depending on your chosen sim or aircraft.

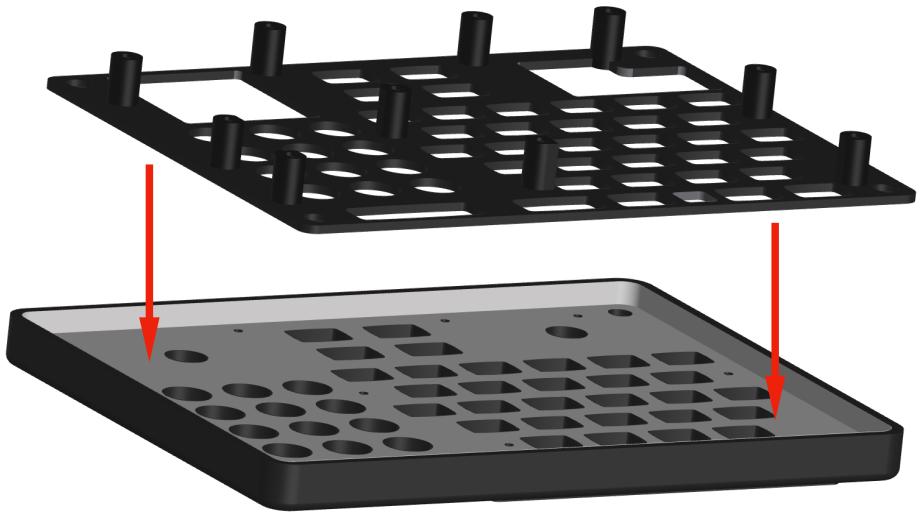
Assembly Instructions

Parts Needed:

(6) M2x13mm screws
(4) M2x25mm screws
(3) M4x22mm bolts
(1) M4x32mm bolt
(4) 4mm lock nuts

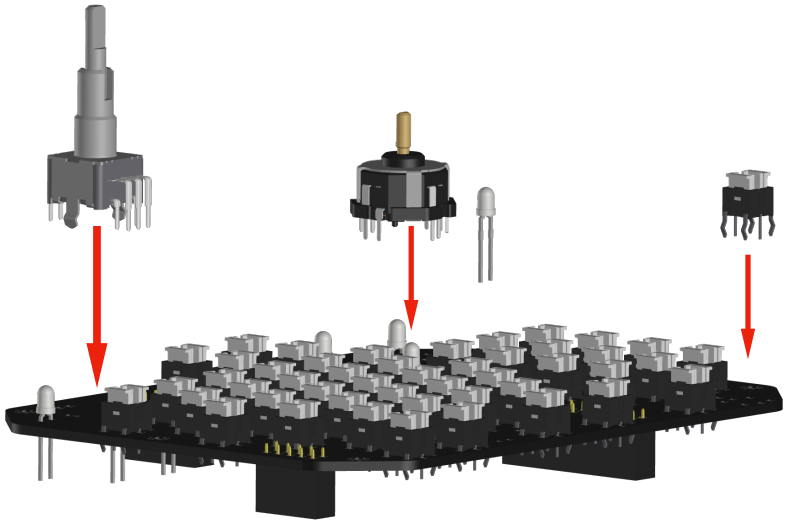
1

Begin by installing the PCB bracket into the rear of the faceplate. This can be glued onto place (although the PCB mounting screws will hold it in place).



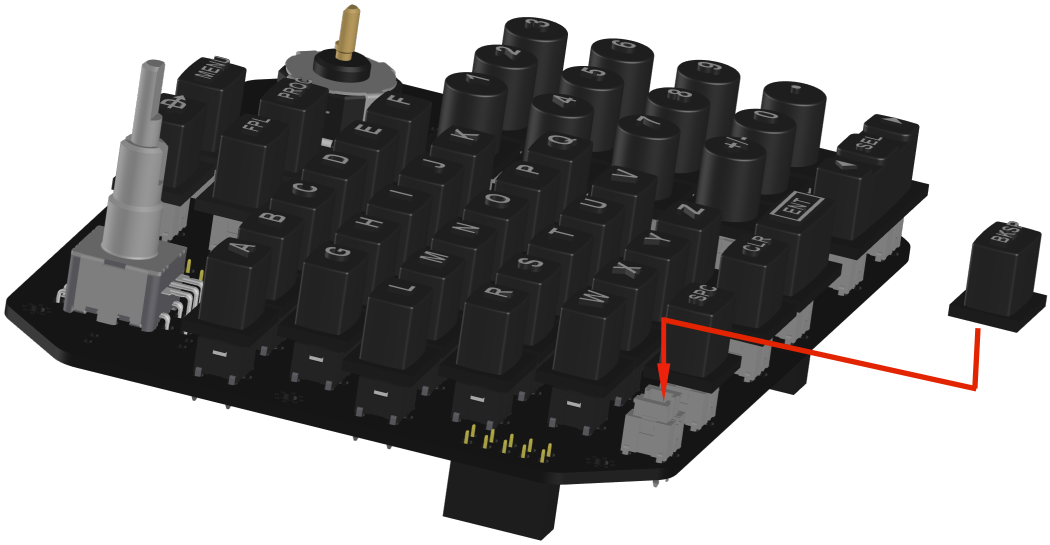
2

Assemble and solder all of the components onto both the faceplate and Mobiflight control board.



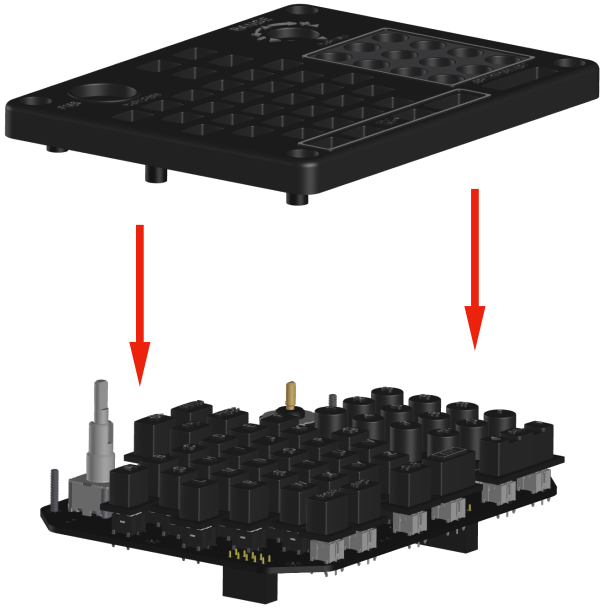
3

Place the button onto the key switches. The buttons will sit loosely on to of the switches but will stay in place once the faceplate is in place.



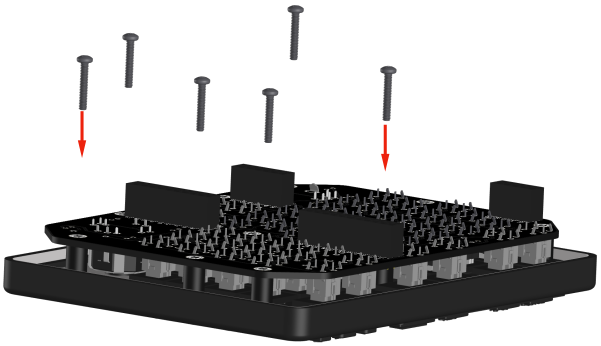
4

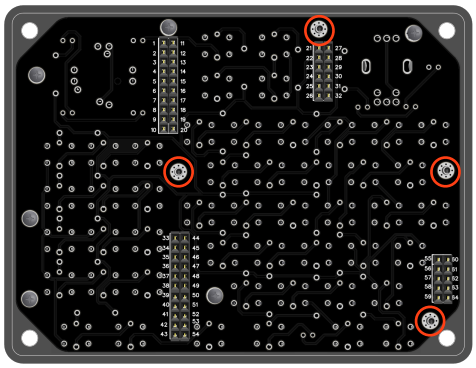
Place the faceplate assembly onto the assembled PCB. Carefully make sure all the buttons slide into the holes in the faceplate



5

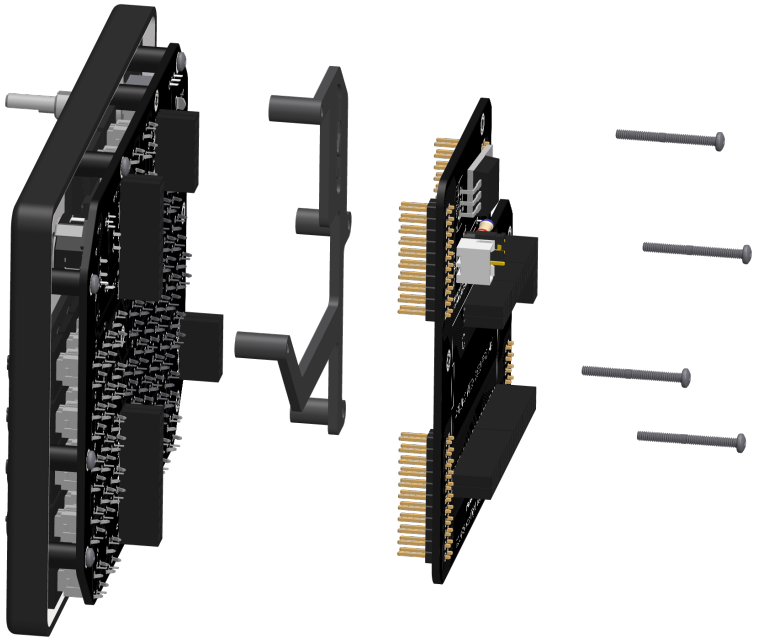
Attach the PCB to the faceplate using (6) M2 x 13mm screws. Make sure to leave the holes circled in red empty.





6

Now we can install the Mobiflight control board with the bracket and (4) M2 x 25mm screws.



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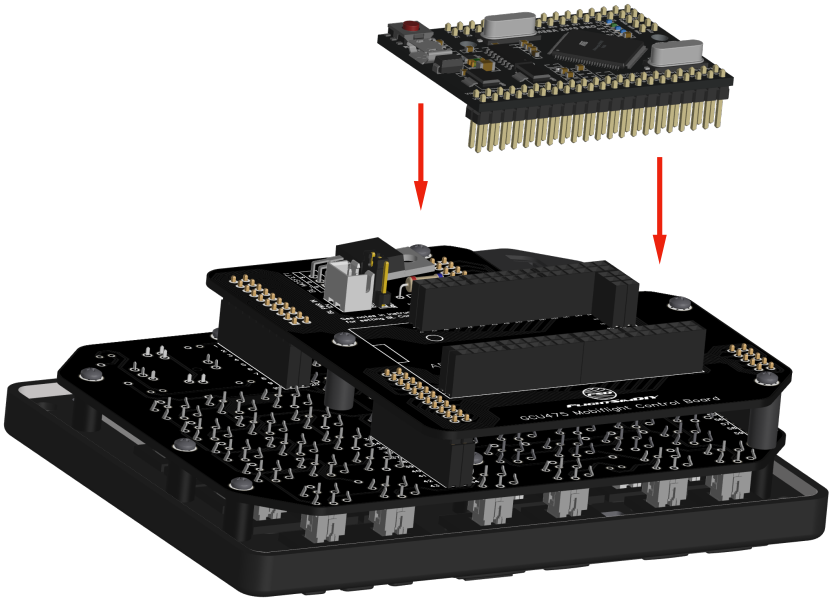
Install the Arduino card onto the back of the Mobiflight control board.

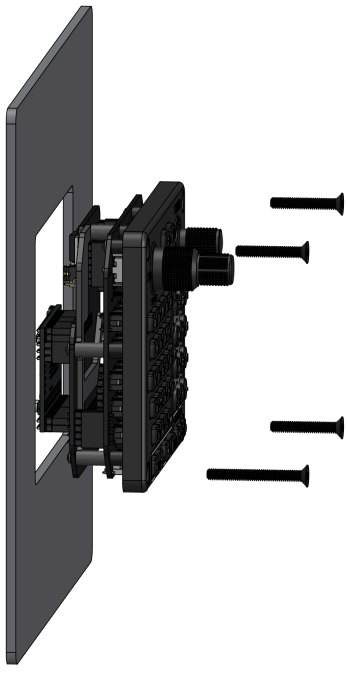


8

Attach the dual encoder knobs and the range pan knob.

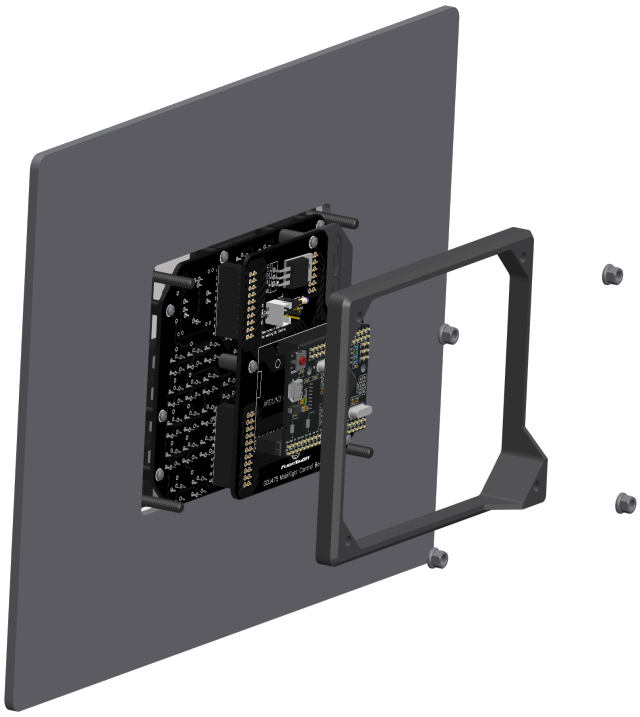
9

Install the unit into the cutout in your instrument panel and insert (3) M4 x 22mm and (1) M4 x 32mm bolts. (Note that these are minimum lengths. If your panel is thicker than 1/8 inch then you'll need longer bolts). The longer bolt goes in the bottom left corner.



10

Install the rear panel mount bracket and (4) M4 lock nuts.



11

Complete…

Now you can plug the Arduino into your pc via usb and plug you 12v power supply into the backlight power connector. Follow the Mobiflight instructions on the website for installation of the Mobiflight configuration.