

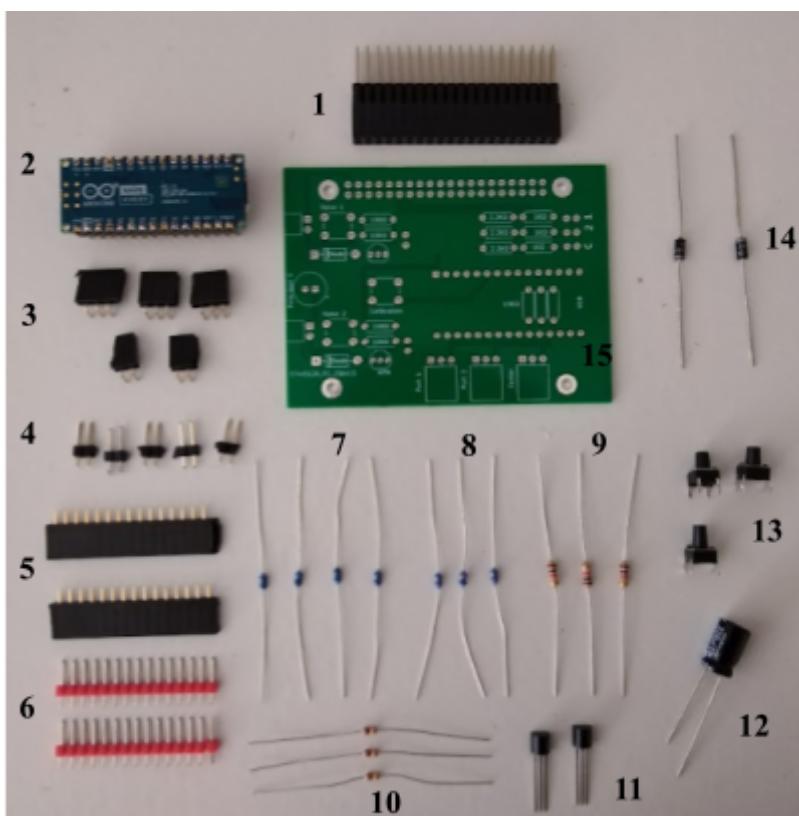
EthoPy Controller Board and Arduino

Arduino is a microcontroller that converts the analog signal from the lick and proximity ports to digital, and a Controller Board ensures the communication between the Arduino and Raspberry Pi.

Parts list

#	Item	Qty	Part #	Vendor	Ind. Price	Notes
1	Arduino Nano Every	1		https://store.arduino.cc/products/nano-every?srsltid=AfmBOooybjmD9E3Ek9i5ffclJ4FCZAH71edlutPHJ09_QGAqlFubebp4	14.5	
2	1x2 female pin header Right Angle (2.54mm)	2	05-00011 907	https://grobotronics.com/pin-header-1x6-female-2.54mm-right-angle.html?sl=en	0.20	
3	1x3 female pin header Right Angle (2.54mm)	3	05-00011 907	https://grobotronics.com/pin-header-1x6-female-2.54mm-right-angle.html?sl=en	0.20	
4	1x15 male pin header (2.54mm)	2		<i>Included in Arduino Nano Every kit</i>	0.08	
5	1x15 female pin header (2.54mm)	2	19-00011 915	https://grobotronics.com/pin-header-1x40-female-2.54-mm.html	0.201	
6	Tactile Push Button Switch (6x6x6)	2	TS02-66-70-BK-160-SCR-D	Same Sky https://gr.mouser.com/ProductDetail/Same-Sky/TS02-66-70-BK-160-SCR-D?qs=A6eO%252BMLsxmSIGoKqInTj7Q%3D%3D	0,10	
7	Tactile Push Button Switch (6x6x9)	1				
8	BC547B Transistor	2	BC547B	Onsemi https://eu.mouser.com/ProductDetail/onsemi-Fairchild/BC547B?qs=UMEuL5FsraB3zD25tclGGQ%3D%3D	0.352	
9	Diode rectifier	2	1N4005-E3/73	Vishay https://gr.mouser.com/ProductDetail/Vishay-General-Semiconductor/1N4005-E3-73?qs=N4vtoAxH%2FSopWuUOO7Mrlg%3D%3D	0,17	
10	1x2 male pin header	5	19-00011 916	https://grobotronics.com/pin-header-1x40-male-2.54-mm-black.html	0.20	
11	Metal film resistor 2.2 KΩ, ½ W 1%	3	MFR25S FTF52-2 K2	YAGEO https://gr.mouser.com/ProductDetail/YAGEO/MFR25SFTF52-2K2?qs=gt1LBUVyoHmhPZen3OYKBQ%3D%3D	0,10	

12	Metal film resistor 1 KΩ, 0.50W 1%	3	CFR-25J B-1K0	YAGEO https://gr.mouser.com/ProductDetail/YAGEO/CFR-25JB-1K0?qs=50q%252BZR8McTFNhjnln8KDLg%3D%3D	0,10	
13	Metal film resistor 100 Ω, ¼ W 1%	4	MFR25S FTF52-100R	YAGEO https://gr.mouser.com/ProductDetail/YAGEO/MFR25SFTF52-100R?qs=gt1LBUVyoHlr8V3N7jRuGw%3D%3D	0,10	
14	Metal film resistor 10 KΩ ¼ W 1%	3	CFR25S JT-52-10 K	YAGEO https://gr.mouser.com/ProductDetail/YAGEO/CFR25SJT-52-10K?qs=H9AgUqQKbckhIFIk4pCL7w%3D%3D	0,10	
15	40-pin Stackable female extra tall header	1		https://grobotronics.com/gpio-header-for-raspberry-pi-2x20-stackable.html	1,00	
16	Printed Circuit Board (PCB)	1	Custom			

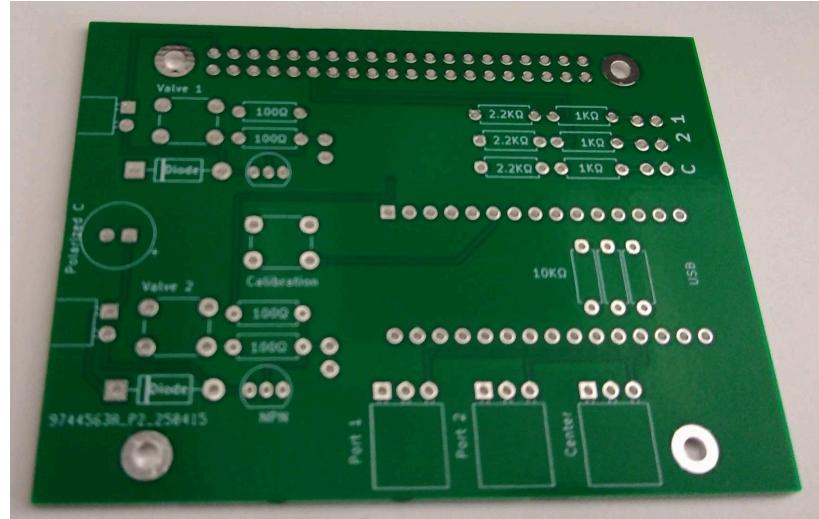


1. 40-pin Stackable female extra tall header
2. Arduino Nano Every board
3. 1x2 & 1x3 female pin header Right Angle
4. 1x2 male pin header
5. 1x15 female pin header pack
6. 1x15 male pin header pack
7. Metal film resistor 100 Ω, ¼ W 1%
8. Metal film resistor 2.2 KΩ, ½ W 1%
9. Metal film resistor 1 KΩ, 0.50W 1%
10. Metal film resistor 10 KΩ ¼ W 1%
11. Transistors
12. Capacitor
13. Tactile Push Button Switch
14. Diode rectifier
15. PCB

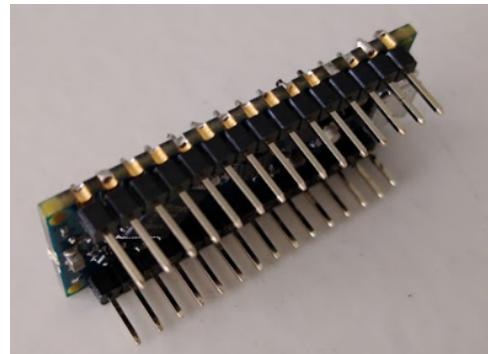
You will also need: a soldering iron, a wire cutter

Step by step assembly instructions

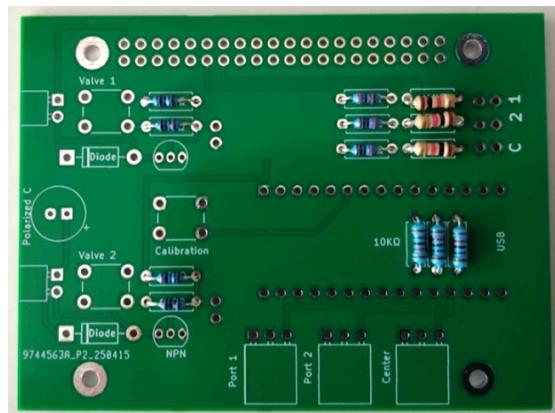
Step 1: Print the PCB board of the schematic. PCB and gerder files for JLPCB are available [here](#).



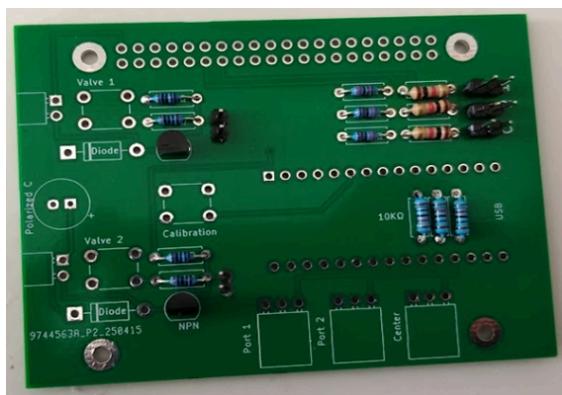
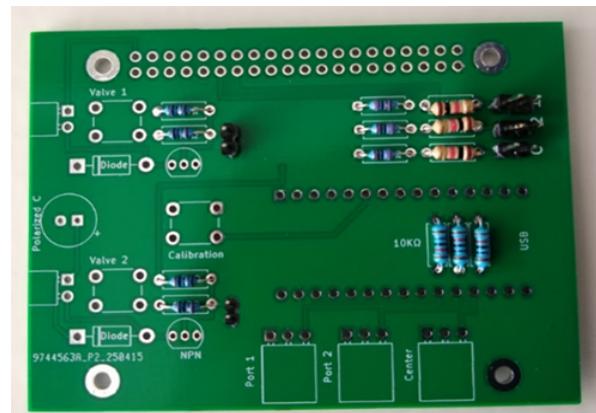
Step 2: Solder the **1x15 female pin headers** on each side of the Arduino Nano Every board.



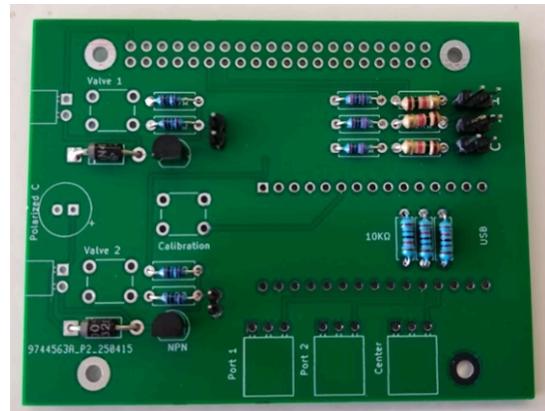
Step 3: Solder each **resistor** into its designated position on the PCB according to its resistance value.



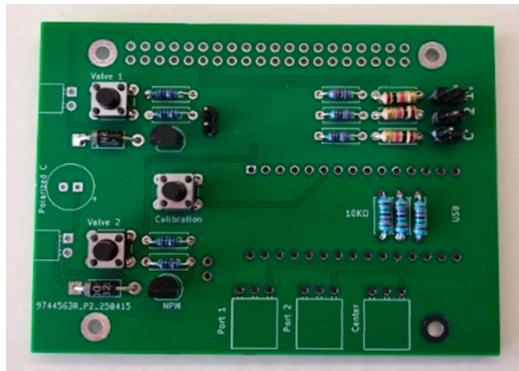
Step 4: Solder the five 1x2 male pins headers into the corresponding ports on the PCB.



Step 5: Solder the **transistors** onto their correct positions on the board.

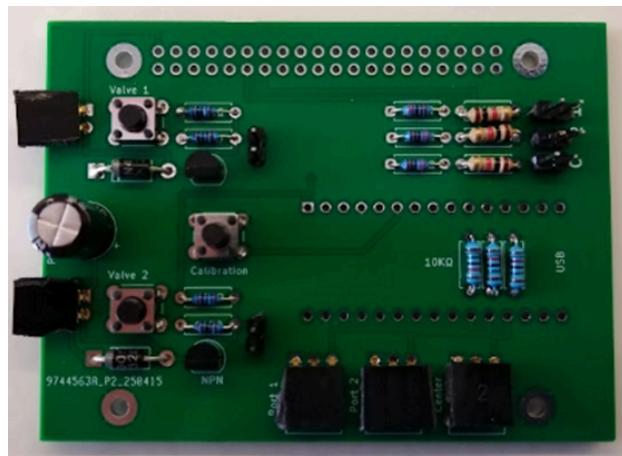
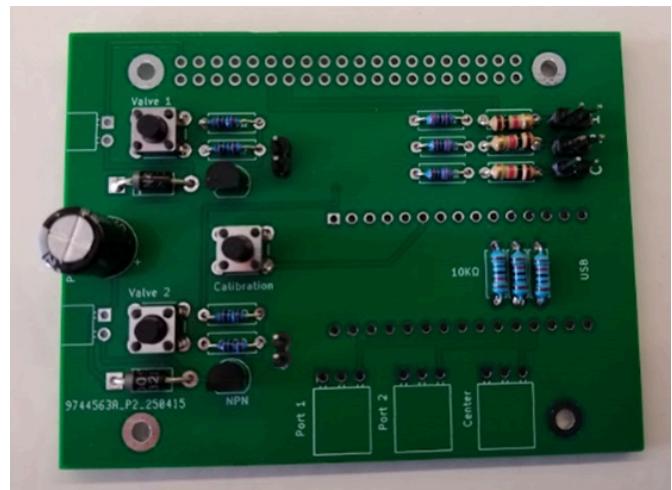


Step 6: Solder the **diodes** in the same way.

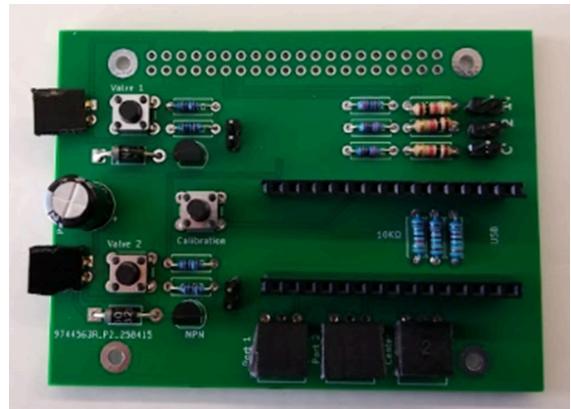


Step 7: Solder the **tactile push button switch** in the appropriate position on the board.

Step 8: Solder the **capacitor**, ensuring the longer positive lead goes into the right hole.

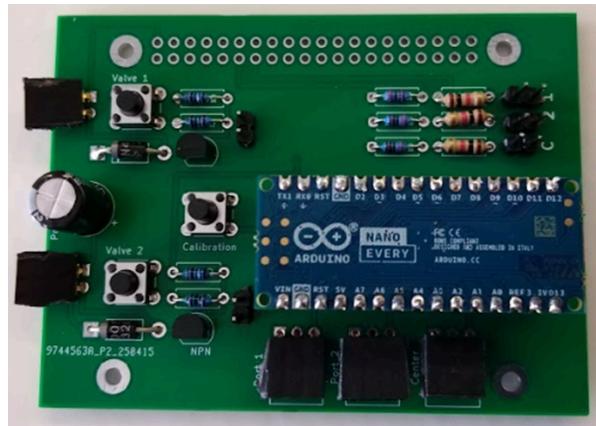
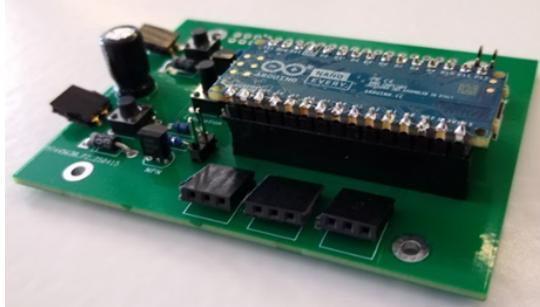


Step 9: Solder the **right-angle female pin headers** - two on the left side (1x2) for valves and three on the bottom (1x3) for ports and centerport.

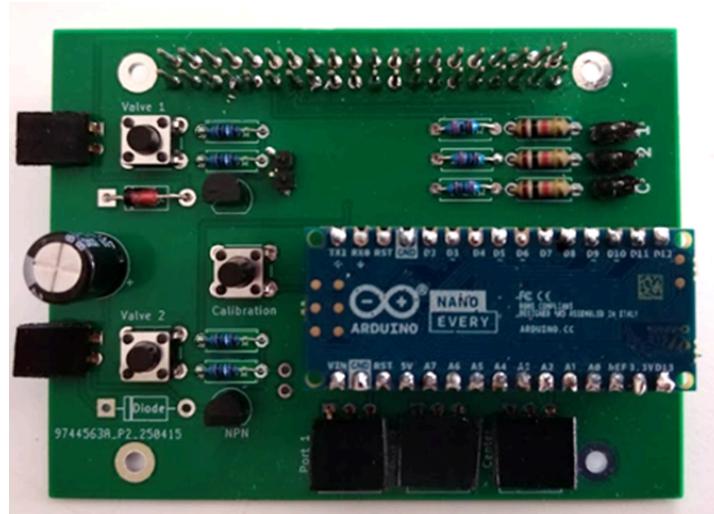


Step 10: Solder the two **1x15 female pin headers** for the Arduino board.

Step 11: Mount the **Arduino board** onto the previously mentioned female pin headers.



Step 12: Solder the 40-pin extra-tall stackable female header to connect the PCB to the Raspberry Pi board.



Step 13: Set up the Arduino using the code provided here.