


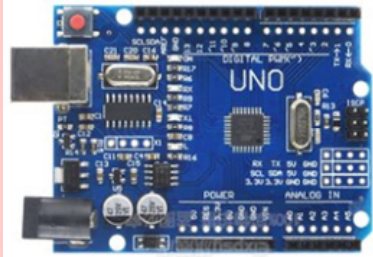
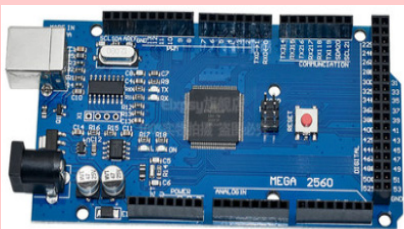
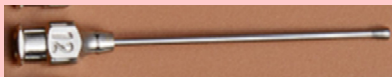


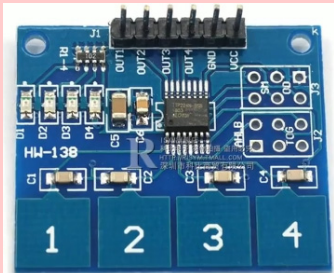










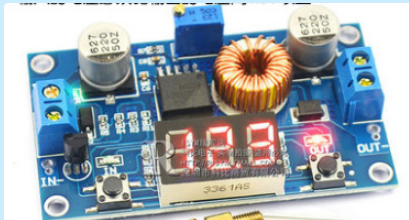
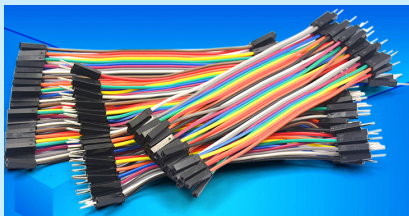

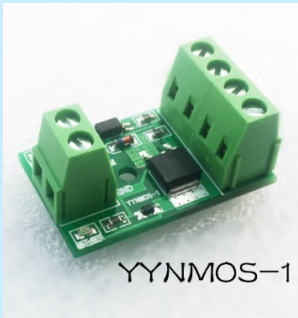

A commercial VR system built upon our design is available at Probecare Inc.

<http://www.probecare.com/products.asp?ID=276>

Item (module #)	Picture	Parameter	Shopping link
Main Hardware			
DAQ card (1)		USB_HRF4626, 72 MHz clock, 400 kHz 16 bits sampling rate for 8 I/O channels	https://item.taobao.com/item.htm?spm=a1z09.2.0.0.5f192e8dNniICu&id=546154770915&_u=bojm6692c2f
LCD Screen (1)		Model CUXI14 (Creative Corp.) Size:13.3 inches, DPI:3840x2160 pixels.	https://m.tb.cn/h.fwmus9a?tk=yXcz2MFdpse
Graphic card (4)		Nvidia NVS 810 Support 6 outputs	
Arduino (UNO) (3)		UNO R3 16 MHz clock	https://detail.tmall.com/item.htm?id=600400882089&spm=a1z09.2.0.0.371f2e8d1waP1R&_u=h21iib7v891f
Arduino (2560) (3)		ATmega2560 16 MHz clock	https://detail.tmall.com/item.htm?id=608423830404&spm=a1z09.2.0.0.371f2e8d1waP1R&_u=h21iib7v9b2d

Lick module (3)	Stainless steel needle		Diameter: 0.8 mm Length: 55mm	https://item.taobao.com/item.htm?spm=a1z10.1-c-s.w137712-15243438341.3.5d6314e18F0mQa&id=19140638425
	Plastic connector		Type: 1/8 (Apply to the inner diameter: 1.6-3.2mm)	https://m.tb.cn/h.fEj0qiD?tk=d5r52MK98cw
	Plastic tubing		Cut the pipe section	
	Capacitance detector (Licking sensor)		Type: TTP224 working voltage: 2.4 – 5.5 V channel: 4 channels	https://detail.tmall.com/item.htm?id=42496584002&spm=a1z09.2.0.0.371f2e8d1waP1R&_u=h21iib7vec1c
	Electromagnetic pump		UX22-1L-DC12V	https://item.taobao.com/item.htm?spm=a1z09.2.0.0.5f192e8dNniICu&id=39846772678&_u=bojm669b7dc
Air puff module (3)	Dagan air controller		Duration: 100 – 300 ms pression: 5 – 10 psi (Dagan Corp. USA)	

	Picospritzer III		(Parker Hannifin Corp. Duration:100 – 300 ms pression:5 – 10 psi	https://ph.parker.com/us/en/picospritzer-iii-intracellular-microinjection-dispense-systems-picospritzer-micro-dispense-system)
Computer (4)			standard workstation (e.g. CPU i5-1145G7, RAM 16 GB DDR4, hard disk 512G SSD, graphic card NVIDIA T500 2GB)	
Laser mouse (6)			Rapoo V310	rapoo.cn
Styrofoam cylinder (7)	Styrofoam cylinder	 凡来包装工艺制品厂 厚度尺寸 由客户可任意定制! 高密度泡沫蛋糕模型直径4寸~18寸 可任意定制! T: 15021952483 圆柱泡沫订制	Diameter: 20cm Height: 10cm	https://item.taobao.com/item.htm?spm=a1z09.2.0.0.68072e8dRQsg6P&id=521693025425&_u=621iib7v8083
	Stainless steel tube (Axis rod)		Diameter: 5mm Length: 30cm	https://detail.tmall.com/item.htm?id=592773986503&spm=a1z09.2.0.0.5f192e8dNniICu&_u=bojm6692fef
	Rubber block (Stuck on each side of the cylinder)		Diameter of bore: 5mm	https://item.taobao.com/item.htm?spm=a1z09.2.0.0.5f192e8d418g9b&id=571821606210&_u=cojm66933e4

Head fixation setup (8)		Length 300 mm, diameter 12 mm	https://m.tb.cn/h.fxWwqZA?tk=5zC52qvvaty
Circuit Component			
Step-down module		Scope of application: 12v to 5V	https://detail.tmall.com/item.htm?spm=a1z10.3-b-s.w4011-21581912015.38.56065535OseeA0&id=19905413537&rn=a939276b5bd2379c48bac0eae2b8ed37&abbucket=17&skuId=4114643951246
Dupont Line		/	https://detail.tmall.com/item.htm?spm=a1z10.1-b-s.w5003-21634422719.1.74a9a5c11iNfDC&id=14466195609&rn=751f7bb25e59412403df260250faf150&abbucket=10&scene=taobao_shop&skuId=3108214440215
Circuit board		Including base plate, switch, small bulb	https://detail.tmall.com/item.htm?id=527169796974&spm=a1z09.2.0.0.5f192e8d418g9b&_u=cojm6697c96
PWN switch		Type: YYNMOS-1	https://item.taobao.com/item.htm?spm=a1z09.2.0.0.371f2e8d1waP1R&id=558189301874&_u=h21iib7v065c
Power supply		Type: 12V2A	https://item.jd.com/1719935.html

Scaffolding and Behavioral Hardware

Sliding table		Type: LWD4060	https://item.taobao.com/item.htm?spm=a1z09.2.0.0.5f192e8dNniICu&id=23557296244&_u=bojm669b2b8
Magnetic base		Length:60mm Width:50mm Height:55mm	https://detail.tmall.com/item.htm?spm=a230r.1.14.21.30a97341siivd0&id=653910209484&ns=1&abbucket=4&skuId=4716667164616
Clamp		Inner diameter: 10*10mm	https://m.tb.cn/h.fwQUW6h?tk=2eST2MKMQ73
		Inner diameter: 12*12mm	https://item.taobao.com/item.htm?spm=a1z0k.7386009.0.0.31d84700tp67hF&id=575238555451&_u=t2dmg8j26111

The approximate costs are list in the following. The visual display (a dedicated graphic card and 6 LCD screens): 12000 CNY. The computer to run the software and control the hardware device: 15000 CNY. The custom-made head-fix preparation: 3000 – 6000 CNY. The DAQ system: 1000 CNY. The Arduino-based modules (e.g. water pumps, licking detector): 3000 CNY. The commercial device to control air puff (Dagan controller or Picospritzer III): 20000 CNY. The laser mouse (2 – 10 items): 500 CNY. The styrofoam cylinder and related electric items: 1000 CNY. In summary, the approximate total cost 60000 CNY.