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<b>Original Hangfa Discovery Q2</b>														
Discovery Q2	DQ2	1	<a href="#">hangfa</a>	only used the mechanical parts of the robot, all the electronics were rebuilt	<a href="#">hangfa-eu</a>	N/A	N/A	<a href="#">ozrobotics</a>	\$ 1 629,00	\$ 1 629,00	<a href="#">hangfa-cn</a>	N/A	N/A	
<b>DC Motor Drivers</b>														
Cytron 13A 5-30V Single DC Motor Driver	MD10C R3	4	<a href="#">cytron</a>	(preferred) 10A should be more than ok for the motors, single channel facilitates the replacement of possible failed drivers	<a href="#">robotshop</a>	€ 18,88	€ 75,52	<a href="#">botland</a>	€ 14,90	€ 59,60	<a href="#">opencircuit</a>	€ 19,95	€ 79,80	
Cytron 10A 5-30V Dual DC Motor Driver	MDD10A	2	<a href="#">cytron</a>	(preferred alternative) dual channel drivers should be more cheap (only two required)	<a href="#">robotshop</a>	€ 27,80	€ 55,60	<a href="#">botland</a>	€ 26,50	€ 53,00	<a href="#">opencircuit</a>	€ 32,95	€ 65,90	
Cytron 20A 6-30V Single DC Motor Driver	MD20A	4	<a href="#">cytron</a>	-	<a href="#">robotshop</a>	€ 24,83	€ 99,32	<a href="#">botland</a>	€ 22,90	€ 91,60	<a href="#">opencircuit</a>	€ 29,35	€ 117,40	
Cytron 20A 6-30V Dual DC Motor Driver	MDD20A	2	<a href="#">cytron</a>	-	<a href="#">robotshop</a>	€ 41,39	€ 82,78	<a href="#">botland</a>	€ 38,50	€ 77,00	<a href="#">opencircuit</a>	€ 43,70	€ 87,40	
<b>Electronics Battery</b>														
Tattu 10000mAh 11.1V 15C 3S LiPo	TAA10K3S15E5	1	<a href="#">gensace</a>	(preferred) max. continuous discharge of 150A and a 10000mAh capacity should be appropriate for more than 1h of continuous usage of the platform (accounting for sensors and other electronic devices)	<a href="#">gensace</a>	€ 103,36	€ 103,36	<a href="#">mercadorc</a>	€ 104,00	€ 104,00	<a href="#">rcinnovations</a>	€ 93,99	€ 93,99	
Tattu 8000mAh 11.1V 15C 3S1P Lipo	TA480003S15E5	1	<a href="#">gensace</a>	-	<a href="#">gensace</a>	€ 93,01	€ 93,01	<a href="#">mercadorc</a>	€ 88,00	€ 88,00	<a href="#">rcinnovations</a>	€ 85,99	€ 85,99	
Gens ace 8000mAh 11.1V 100C 3S Lipo	GEA8K3S100E5	1	<a href="#">gensace</a>	-	<a href="#">gensace</a>	€ 72,35	€ 72,35	<a href="#">smartmodelisn</a>	€ 74,94	€ 74,94	<a href="#">rcparts</a>	€ 79,30	€ 79,30	
<b>Electronics Battery Management System (BMS) Passive</b>														
18650 BMS Charger 3S 12.6V 20A Rev. 2.0	-	1	<a href="#">botnroll</a>	(preferred) peak current of 20A and continuous output of 10A, ok for the electronics part; if you power the SBC to the electronics battery, probably go for the 40A BMS	<a href="#">botnroll</a>	€ 5,50	€ 5,50	<a href="#">ptrobotics</a>	€ 5,04	€ 5,04	<a href="#">allexpress</a>	€ 0,49	€ 0,49	
18650 BMS Charger 3S 11.1~12.6V 40A	-	1	<a href="#">botnroll</a>	-	<a href="#">botnroll</a>	€ 4,90	€ 4,90	<a href="#">ptrobotics</a>	€ 6,64	€ 6,64	<a href="#">allexpress</a>	€ 3,69	€ 3,69	
<b>DC/DC Buck Boost Converter (optional: only required to ensure DC regulated power to the 2D/3D LiDARs, ethernet switch and/or power the SBC)</b>														
DC 5-30V to 1.25-30V 8A Buck Boost Converter	-	1	<a href="#">allexpress</a>	(optional)	<a href="#">allexpress</a>	€ 14,05	€ 14,05	<a href="#">allexpress</a>	€ 5,10	€ 5,10	-	-	-	
<b>Microcontroller Board Circuit</b>														
Arduino Mega 2560 Rev3	A000067	1	<a href="#">arduino</a>	(required)	<a href="#">arduino</a>	€ 51,62	€ 51,62	<a href="#">robertmauser</a>	€ 42,90	€ 42,90	<a href="#">botnroll</a>	€ 42,90	€ 42,90	
Arduino Mega Proto Shield Rev3 (PCB)	A000080	1	<a href="#">arduino</a>	(required)	<a href="#">arduino</a>	€ 6,35	€ 6,35	<a href="#">robertmauser</a>	€ 6,40	€ 6,40	<a href="#">opencircuit</a>	€ 5,90	€ 5,90	
Female header stackable 8 pin (10 un.)	-	1	<a href="#">opencircuit</a>	(optional) allows to stack protoboard circuits on top of	<a href="#">opencircuit</a>	€ 3,05	€ 3,05	-	-	-	-	-	-	
Female header stackable 10 pin (10 un.)	-	1	<a href="#">opencircuit</a>	Arduino Mega and/or helps to have easy accessibility to PWM	<a href="#">opencircuit</a>	€ 3,50	€ 3,50	-	-	-	-	-	-	
Female header stackable 2x18 pin (2 un.)	-	1	<a href="#">opencircuit</a>	and encoders signals using an oscilloscope	<a href="#">opencircuit</a>	€ 3,20	€ 3,20	-	-	-	-	-	-	
IDC Header Straight 6-Way	-	8	-	(optional) although we used IDC connectors to make it	<a href="#">robertmauser</a>	€ 0,45	€ 3,60	<a href="#">rs</a>	€ 0,66	€ 5,28	<a href="#">ptrobotics</a>	€ 0,25	€ 2,00	
IDC Socket 6-Way	-	8	-	compatible with the original cables, you may use other	<a href="#">robertmauser</a>	€ 0,53	€ 4,24	<a href="#">rs</a>	€ 1,09	€ 8,72	<a href="#">ptrobotics</a>	€ 0,49	€ 3,92	
<b>Single Board Computer (SBC)</b>														
LattePanda 3 Delta	DFR0981	1	<a href="#">lattepanda</a>	-	<a href="#">farnell</a>	€ 220,62	€ 220,62	<a href="#">diglkey</a>	€ 265,66	€ 265,66	<a href="#">mouser</a>	€ 265,05	€ 265,05	
Samsung 970 EVO Plus 250 GB PCIe NVMe M.2	MZ-V7S250BW	1	<a href="#">samsung</a>	(optional) if you want to upgrade the 64GB storage (faster read and writing speeds, 64GB for data e.g.)	<a href="#">amazon-es</a>	€ 48,21	€ 48,21	<a href="#">kuantokusta</a>	€ 51,54	€ 51,54	-	-	-	
UGREEN USB 3.0 Hub with 4-Port	CM219 50985	1	<a href="#">ugreen</a>	(optional) Increases #USB ports available (e.g., joystick, keyboard and/or mouse adapter, etc.)	<a href="#">amazon-es</a>	€ 12,19	€ 12,19	<a href="#">kuantokusta</a>	-	-	-	-	-	
<b>Single Board Computer (SBC) Battery (optional: power SBC through USB C PD protocol; if not used, DC/buck-boost converter to have 11-15VDC)</b>														
Powerbank Xiaomi MI 50W 20000 mAh	PB200SZM	1	<a href="#">xiaomi</a>	(preferred) 50W > minimum 24W, if 3A current consumption the 20000mAh allows for 6h+ (not tested!)	<a href="#">amazon-es</a>	€ 80,17	€ 80,17	<a href="#">kuantokusta</a>	€ 50,46	€ 50,46	-	-	-	
UGREEN Nexode Powerbank 100W 20000mAh	-	1	<a href="#">ugreen</a>	-	<a href="#">amazon-es</a>	€ 81,32	€ 81,32	<a href="#">ugreen</a>	€ 69,99	€ 69,99	-	-	-	
<b>Networking (optional: default network interfaces of the SBC may be ok for you)</b>														
Ringfu Antena WiFi Dual Band RP-SMA 25cm U.FL IPEX MHF4 M.2 NGFF Intel	BFN00525	1	<a href="#">bingfu</a>	(optional) same Wi-Fi antennas as in F1TENTH	<a href="#">amazon-es</a>	€ 12,19	€ 12,19	-	-	-	-	-	-	
Brainboxes 5 Port Unmanaged Ethernet Switch 10/100Mbps	SW-005	1	<a href="#">brainboxes</a>	(optional) if you want to have multiple 2D/3D LiDARs communicating to the SBC (single ethernet port...)	<a href="#">farnell</a>	€ 61,30	€ 61,30	<a href="#">diglkey</a>	€ 48,41	€ 48,41	<a href="#">mouser</a>	€ 48,30	€ 48,30	
Brainboxes 5 Port Unmanaged Ethernet Switch 10/100/1000Mbps	SW-015	1	<a href="#">brainboxes</a>	(optional) some 3D LiDAR may surpass the 100Mbps requirement (depending on the configuration)	<a href="#">farnell</a>	€ 102,29	€ 102,29	<a href="#">diglkey</a>	€ 95,04	€ 95,04	<a href="#">mouser</a>	€ 87,12	€ 87,12	
UGREEN RJ45 female coupler Gigabit Ethernet 1000Mbps	NW114 20390	1	<a href="#">ugreen</a>	(optional) facilitates the connection of the Hokuyo UST-10LX (short Ethernet cable)	<a href="#">amazon-es</a>	€ 3,66	€ 3,66	<a href="#">kuantokusta</a>	€ 3,90	€ 3,90	-	-	-	
<b>Miscellaneous</b>														
XT30 Connector - Pair Male/Female	xt30	10	-	(optional) DC derivation bus to power the sensors	<a href="#">botnroll</a>	€ 1,50	€ 15,00	<a href="#">diglkey</a>	€ 1,81	€ 18,10	<a href="#">allexpress</a>	€ 0,26	€ 2,60	
XT60 Connector - Pair Male/Female	xt60	-	-	(optional) connection from the inside to the exterior of the original Discovery Q2 metallic box	<a href="#">botnroll</a>	€ 1,50	€ 7,50	<a href="#">diglkey</a>	€ 1,43	€ 7,15	<a href="#">allexpress</a>	€ 0,21	€ 1,05	
Terminal Blocks 10mm² VDE DIN EN 60998 - DIN EN 60999	096-9065	2	<a href="#">robertmauser</a>	GND and Vcc (Vbattery or Vbms) buses	<a href="#">robertmauser</a>	€ 2,17	€ 4,34	-	-	-	-	-	-	
<b>Sensors</b>														
<i>(depends on your desired perception system! Here only put the ones tested with the modified platform)</i>														
<b>Inertial Measurement Units (IMUs)</b>														
Xsens MTi-3 AHR5	MTi-3-SA-DK	1	<a href="#">xsens</a>	-	<a href="#">mouser</a>	€ 458,85	€ 458,85	<a href="#">diglkey</a>	€ 427,54	€ 427,54	<a href="#">farnell</a>	€ 419,99	€ 419,99	
Xsens MTi-630 AHR5	MTi-630-DK	1	<a href="#">xsens</a>	-	<a href="#">mouser</a>	€ 1 054,50	€ 1 054,50	<a href="#">diglkey</a>	€ 1 086,38	€ 1 086,38	<a href="#">farnell</a>	€ 1 034,00	€ 1 034,00	
<b>2D Laser Scanners</b>														
Hokuyo UST-10LX-H01/H02	UST-10LX	1	<a href="#">hokuyo-usa</a>	-	<a href="#">robotshop</a>	€ 1 783,50	€ 1 783,50	<a href="#">generationroby</a>	€ 1 878,00	€ 1 878,00	-	-	-	
LDRobot D300 Kit LD-19	D300	1	<a href="#">ldrobot</a>	-	<a href="#">robotshop</a>	€ 121,77	€ 121,77	<a href="#">amazon-es</a>	€ 60,98	€ 60,98	<a href="#">dfrobot</a>	\$ 119,00	\$ 119,00	
SLAMTEC RPLIDAR S2	S2	1	<a href="#">slamtec</a>	-	<a href="#">robotshop</a>	€ 471,88	€ 471,88	<a href="#">generationroby</a>	€ 536,64	€ 536,64	<a href="#">amazon-es</a>	€ 405,59	€ 405,59	
YDLIDAR X4	X4	1	<a href="#">ydlidar</a>	-	<a href="#">xiaor-eeek</a>	\$ 96,99	\$ 96,99	<a href="#">rlx</a>	€ 128,17	€ 128,17	-	-	-	
<b>3D Light Detection And Ranging (LiDAR)</b>														
Livox Mid-360	mid-360	1	<a href="#">livox</a>	-	<a href="#">livox</a>	€ 659,00	€ 659,00	-	-	-	-	-	-	
Ouster OS1 64	os1-64	1	<a href="#">ouster</a>	-	-	-	-	-	-	-	-	-	-	
RoboSense RS-HELIOS-S515	rs-helios-s515	1	<a href="#">robosense</a>	-	<a href="#">robotshop</a>	€ 5 166,00	€ 5 166,00	<a href="#">generationroby</a>	€ 4 742,40	€ 4 742,40	-	-	-	
Velodyne VLP-16	vlp-16	1	<a href="#">ouster</a>	-	-	-	-	-	-	-	-	-	-	
<b>RGB + Depth Cameras</b>														
Intel RealSense D455	d455	1	<a href="#">intel</a>	-	<a href="#">mouser</a>	€ 439,66	€ 439,66	<a href="#">diglkey</a>	€ 423,73	€ 423,73	<a href="#">rs</a>	€ 676,78	€ 676,78	
Intel RealSense L515	l515	1	<a href="#">intel</a>	-	<a href="#">diglkey</a>	€ 595,13	€ 595,13	-	-	-	-	-	-	
OAK-D Pro Fixed Focus	A00565	1	<a href="#">luxonis</a>	-	<a href="#">luxonis</a>	\$ 349,00	\$ 349,00	<a href="#">mouser</a>	€ 331,55	€ 331,55	<a href="#">diglkey</a>	€ 490,82	€ 490,82	