BOM D-O Mainboard + Supply board

	# required	Type	Link	Contained in Kit	Comment
Main board	1			yes	
Power board	1			yes	
Female pin header Main board / Arduino	2	2.54mm 14pin		yes	Self solder
Female pin header Main board / DFPlayer	2	2.54mm 14pin		yes	Self solder
Female pin header Power board / Gyro	1	2.54mm 9pin		yes	Self solder
Female pin header Main board / Xbee	2	2mm 10pin	https://a.aliexpress.com/_Evyz9aN	yes	Self solder
Male pin header Main board / Amplifier	2	2.54mm 2pin	https://a.aliexpress.com/_ExxAZ2d	yes	Self solder
Gyro standoffs	2	M2.5x12	https://a.aliexpress.com/_EG86KNx	yes	
Gyro standoff screws	2	M2.5x5	https://de.aliexpress.com/item/32810852732.html?spm=a2g0o.productlist.main.7.35f2ea97efFr5N&algo_pvid=5189f	yes	
Power board mounting screws	2	M2x8	https://a.aliexpress.com/_EG068mN	yes	
Encoder cable with connector	2	KF2510 4 Pin 200mm	https://a.aliexpress.com/_EJB2txj	yes	Self solder
Motor driver cable with connector	2	KF2510 3 Pin 200mm	https://a.aliexpress.com/_EJB2txj	yes	Self solder
Amplifier Cable	1	JST PH 2mm	https://a.aliexpress.com/_Exf7Yh7	yes	
Fan connector	2		JST XH 2pol	yes	Self solder
XT30 Male + Female Power Connector	10	XT30	https://www.amazon.de/HUAZIZ-Anschlüsse-Rundstecker-	yes	Self solder
XT30 Boards for Battery Packs	2		https://de.aliexpress.com/item/1005006755414157.html?spm=a2g0o.detail.pcDetailTopMoreOtherSeller.1.30ccZniGZniGjH	yes	Self solder
Fuse holder 17x7mm incl. 10A fuse	1		https://de.aliexpress.com/i/4000583874791.html	yes	Self solder
Battery holder	2	Keystone 1049	https://www.reichelt.de/batteriehalter-fuer-2x-18650-	yes	Self solder
Screw terminal socket + plug 3.81mm	1	2EDG 2 Pin 3.81mm	https://de.aliexpress.com/item/1005006431241111.html?spm=a2g0o.productlist.main.35.18e354565eNspE&algo_pvid=521	yes	Self solder
Power switch	1		https://www.reichelt.de/kippschalter-10a-125vac-1x-ein-ein-ms-166-p13140.html?	yes	Self solder
Fan 12V XH2.54 Version	0		https://a.aliexpress.com/_EwbIuWN	no	Optional
Arduino Mkr Wifi 1010	1		https://store.arduino.cc/en-de/products/arduino-mkr-wifi-1010?srsltid=AfmBOor1uf474VBQ4F3swBHxR5Ink16Y9eqV17ocvqeqTx	no	Not contained in kit
Arduino Mkr Dynamixel Shield	1		https://www.mybotshop.de/ROBOTIS-DYNAMIXEL-Arduino-MKR-Shield	no	Not contained in kit
Xbee board	1	XB24CAUIT	https://de.rs-online.com/web/p/entwicklungstools-	no	Not contained in kit
Gyro board	1	ISM330DHCX	https://www.digikey.de/de/products/detail/adafruit-industries-llc/4502/11569134?utm_adgroup=Development Boards, Kits,	no	Not contained in kit
UBEC 12V3A	1		https://de.aliexpress.com/item/1005007037699334.html?spm=a2g0o.productlist.main.1.7932d20ctt8PtJ&algo_pvid=9c1a4	no	Not contained in kit
UBEC 5V3A	1		https://de.aliexpress.com/item/1005007037699334.html?spm=a2g0o.productlist.main.1.7932d20ctt8PtJ&algo_pvid=9c1a4	no	Not contained in kit

	# required	Type	Link	Contained in Kit	Comment
DfPlayer Mini	1		https://de.farnell.com/dfrobot/dfr0299/dfplayer-mini-mp3-player-arduino/dp/3517866?CMP=KNC-GDE-GEN-KWL-PMAX-Search-	no	Not contained in kit
Amplifier	1	TPA3110	https://a.aliexpress.com/_Eli5efP	no	Not contained in kit
Speakers	2	5W8Ω	https://www.cqrobot.com/index.php?route=product/product&product_id=1106	no	Not contained in kit

BOM D-O Rest

Part		# required	Type	Link	Comment
Body	**Lead weight**	2kg	Lead shot ~1mm		
Body	**Countersunk screws top frame - bottom frame**	6	M3x8		
Body	**Motors**	2	Pololu 4863		
Body	**Screws motor - body**	4	M3x8 countersunk		
Body	**Motor drivers**	2	Adafruit DRV8871		
Body	**Neck - body connector male (in body)**	1	2.54mm 10 pin 2 row	https://www.digikey.de/short/pd8w3z7d	
Body	**Main axis bearings**	2			
Body	**Square nuts body**	16	M3		
Body	**Square nuts body**	4	M4		
Body	**Countersunk screws main axis holder left**	2	M4x?		Shorter, from inside the body
Body	**Countersunk screws main axis holder right**	2	M4x?		Longer, from outside the body
Body	**Main neck servo**	1	XL430-W250-T		
Body	**Screws servo holder - body**	3	M3x12 countersunk		
Body	**Screws servo holder - servo**	3	M2.5x? socket		
Body	**Screws servo gear - servo**	4	2mm self-tapping socket		Included with servo
Wheels	**Delrin Balls**	100			
Wheels	**Countersunk screws wheels - body**	10	M3x8		
Wheels	**Countersunk screws wheels - outer bearings**		M3x?		
Wheels	**Countersunk screws drive edge - lazy susans**	12	M3x8		
Wheels	**Square nuts lazy susans**	12	M3		
Wheels	**Outer bearings wheels**				
Neck	**Countersunk screws neck - body**	3	M3x40		
Neck	**Neck - body connector female (in neck)**	2	Dupont 2.54mm 5 pin		

Part		# required	Type	Link	Comment
Neck	Neck carbon tube	0	OD15mm, ID13mm, length >170mm	https://www.amazon.de/dp/B07RLF822F/ ref=pe_27091401_487027711_TE_SCE_3p_dp_i1?th=1	Optional, can use printed part
Neck	Neck i2c cable	1	STEMMA/Qt, length 250mm+		
Neck	Neck Dynamixel cable	1	length 250mm+		
Neck	Neck square nut	1	M3		
Neck	Neck safety screw	1	M3x5		
Head Box	Head pitch servo	1	Dynamixel XL330-M288		
Head Box	Square nut servo connector	1	M3		
Head Box	Screws servo connector - servo	3	2mm self-tapping socket		Included with servo
Head Box	Screw servo connector - neck	1	M3x12 countersunk		
Head Box	Screws head frame - pitch servo	4	M2.5x12 socket		
Head Box	Square nut head frame	1	M3		
Yaw Assy	Screw neck bottom - head frame	1	M3x8 countersunk		
Yaw Assy	Screws neck bottom - servo	4	M2.5x12 socket		
Yaw Assy	Head yaw servo	1	Dynamixel XL330-M288		
Yaw Assy	Screws neck bottom - neck top	2	M3x40 countersunk		
Yaw Assy	Screws tilt mount - yaw servo	4	2mm self-tapping socket		Included with servo
Yaw Assy	Screws tilt mount - roll servo	4	M2.5x12 socket		
Head	Head roll servo	1	Dynamixel XL330-M288		
Head	Head roll servo rear mount grommet	1	FPX330-H101		
Head	Screws head plate - roll servo	8	2mm self-tapping socket		Included with servo