Electrical and Electronic Parts

Passive Components

Description/Link to Datasheet	Supplier / Part Number	Location
Resistors, Carbon Film, 0.25W 5%		
Values from 10R to 1M	RP	EIETL, Parts Tray
Capacitors Ceramic , Max Operating Voltage 50Vdc		
10pf	RP	EIETL, Parts Tray
100pf	RP	EIETL, Parts Tray
1nf	RP	EIETL, Parts Tray
10nf	RP	EIETL, Parts Tray
100nf	RP	EIETL, Parts Tray
22pf	RP	EIETL, Parts Tray
39pF		Student Kit
47pf	RP	EIETL, Parts Tray
220pf	RP	EIETL, Parts Tray
470pf	RP	EIETL, Parts Tray
2.2nf	RP	EIETL, Parts Tray
4.7nf	RP	EIETL, Parts Tray
22nf	RP	EIETL, Parts Tray
47nf	RP	EIETL, Parts Tray
220nf	RP	EIETL, Parts Tray
Capacitors Electrolytic, Max Operating Voltage 16Vdc		
10uF	Rapid 11-0825	EIETL, Parts Tray
22uF	Rapid 11-0830	EIETL, Parts Tray
47uF	Rapid 11-0835	EIETL, Parts Tray
100uF	Rapid 11-0875	EIETL, Parts Tray
Capacitors Tantalum, Max Operating Voltage 16Vdc		
10uF	Rapid 11-1022	EIETL, Parts Tray
4.7uF	Rapid 11-1018	EIETL, Parts Tray
33uF	RP 11-1028	EIETL, Parts Tray
22uF	RP 11-1026	EIETL, Parts Tray
Resistors, Cermet Trimmer		
500R, Trimmer Pot	RP 68-1968	EIETL, Parts Tray
1K, Trimmer Pot	RP 68-1943	EIETL, Parts Tray
5K, Trimmer Pot		Student Kit
10K, Trimmer Pot	RP 68-1959	EIETL, Parts Tray
20K, Trimmer Pot.	RP 68-1947	EIETL, Parts Tray
50K, Trimmer Pot.		Student Kit
Resistors, Variable		
1k	RP 65-0751	EIETL, Req. 2 Max
4.7k	RP 65-0752	EIETL, Req. 2 Max
10k	RP 65-0753	EIETL, Req. 2 Max
100k	RP 65-0756	EIETL, Req. 2 Max
Inductors		
1µH		Student Kit
10µH		Student Kit
100µH		Student Kit
1mH		Student Kit
10mH		Student Kit

Optics

Description/Link to Datasheet	Supplier / Part Number	Location
LEDs 3mm		
Red	RP 55-1776	EIETL, Parts Tray
Yellow	RP 55-1774	EIETL, Parts Tray
Green	RP 55-1772	EIETL, Parts Tray
Blue	RP 55-1762	EIETL, Parts Tray
White	RP 55-1766	EIETL, Parts Tray
Orange	RP 55-0095	EIETL, Parts Tray

Mechanical Drive

Description/Link to Datasheet	Supplier / Part Number	Location
Motors		
18RPM 12v 1271-12-43	OC 3999920	Tool Box, 2 Max
40RPM 12v 1271-12-09	OC 3999932	Tool Box, 2 Max
Standard Servo MC-410		2 Max per team
Wheels and Casters		
4" Wheel Vex 276-1497	RP 70-6239	Tool Box, 2 Max
2.75" Wheel Vex 276-1496 (Modified)	RP 76-6238	Tool Box, 2 Max
Ball Caster 1/2" Pololu 953	RP 75-0628	1 Max per team
Ball Caster 3/4" Pololu 995	RP 75-0627	

Semiconductors

Description/Link to Datasheet	Supplier / Part Number	Location
Integrated Circuits Op Amps		
LM393P, Dual Comparator	RP 82-0272	EIETL, Parts Tray
LM339N, Quad Comparator	RP 82-0242	EIETL, Parts Tray
LM358AP, Dual Precision Op Amp	RP 82-0332	EIETL, Parts Tray
LM311N, Single High Speed Comparator	RP 82-0208	EIETL, Parts Tray
LM324N, Quad General Purpose Op Amp	RP 51-7524	EIETL, Parts Tray
OP484, Presision Rail to Rail I/O Op Amp		Student Kit
OP27, Presision low noise Op-Amp		Student Kit
AD8561, Compararto r		Student Kit
Integrated Circuits, Logic		
SN74HC00N, Quad 2-IP NAND Gate	RP 83-0036	EIETL, Parts Tray
SN74HC02N, Quad 2-IP NOR Gate	RP 51-6275	EIETL, Parts Tray
SN74HC08E, Quad 2-IP AND Gate	RP 51-6276	Student Kit
SN74HC32N, Quad 2-IP OR Gate	RP 83-0058	EIETL, Parts Tray
SN7414N, Hex Schmitt Inverter	RP 83-0050	EIETL, Parts Tray
SN74HC74N, Dual D Type Flip Flop	RP 51-6278	EIETL, Parts Tray
SN74HC273, Octal Flip Flop		Student Kit
Integrated Circuits, I2C		
PCF8574AN, 8-Channel I/O Expander I2C	RS 9203374	EIETL, Parts Tray
Integrated Circuits, Timers, Data Converstion		
NE555P, Bipolar Single Timer	RP 82-0336	EIETL, Parts Tray
NE556N, Dual Timer	RP 82-0344	EIETL, Parts Tray
AD654, Voltage to Frequency Conversion		Student Kit
Integrated Circuits, PCB Sockets		
8 Pin	OC 2668402	EIETL, Parts Tray
14 Pin	OC 2672296	EIETL, Parts Tray
16 Pin	OC 2672297	EIETL, Parts Tray
Transistors, Mosfet		
ZVN3310		Student Kit
ZVN4306A, N Channel Mosfet	RP 47-0166	EIETL, Parts Tray
Diodes		
1N914		Student Kit
1N3064		Student Kit
IN4001	RP 50-0381	EIETL, Drawers

Sensors

Description/Link to Datasheet	Supplier / Part Number	Location
Infrared		
OPB704 Line Sensor, 3.8 mm Detection Range	OC SCO1254	EIETL, Req. 2 Max
GP2Y0A21YK0F Dist. Sensor 80cm	OC 1243869	EIETL, Req. 2 Max
GP2Y0A02YK0F Dist. Sensor 150cm	OC 070891	EIETL, Req. 2 Max
TSOP4838 Infrared Receiver 38 kHz	RP 55-0905	EIETL, Req. 2 Max
KTIR0611S Photo Interrupter	RP 58-0942	EIETL, Req. 2 Max
TSAL6200 5mm 940nm IR Trans. Diode	RP 49-4513	EIETL, Req. 2 Max
SFH313FA Phototransistor	RS 1685379	EIETL, Req. 2 Max
SFH485P IR Emitter	RP 58-0446	EIETL, Req. 2 Max
QED123, IRLED		Student Kit
QED123, IR Phototransistor		Student Kit
Ultrasonic		
HC-SR504, Ranging Module	RP 74-1109	EIETL, Req. 2 Max
Hall Effect		
AD22151, On Breakout Board		Student Kit
SS490	OC SN36530	EIETL, Req. 2 Max
Light Dependant		
NSL 5112	RP 58-0128	EIETL, Req. 2 Max

Switches and Buttons

Description/Link to Datasheet	Supplier / Part Number	Location
Switches		
Microswitch 22.6mm lever	RP 782404	EIETL, Parts Tray
Button		
Push Button,Red push to make Switch	RP 78-0100	EIETL, Parts Tray

Controller and Motor Drive

Description/Link to Datasheet	Supplier / Part Number	Location
Arduino Uno Wi-Fi Rev2, Modified		Tool Box 1x supplied as a module, not to be disassembled
Adafruit Motor Shield V2, Modified, 5v Supply		

KEY: RS-Radio Spares, RP-Rapid, OC-Onecall

Electrical and Electronic Parts

Cable Management

Description/Link to Datasheet	Supplier / Part Number	Location
Connectors		
Crimp Housing 2-Pole	RP 22-0905	EIETL, Part Bins
Crimp Housing 3-Pole	RP 22-0910	EIETL, Part Bins
Crimp Housing 4-Pole	RP 22-0915	EIETL, Part Bins
Header Right Angle 2-Pole	RP 22-1005	EIETL, Part Bins
Header Right Angle 3-Pole	RP 22-1010	EIETL, Part Bins
Header Right Angle 4-Pole	RP 22-1015	EIETL, Part Bins
Header Straight 2-Pole	RP 22-0950	EIETL, Part Bins
Header Straight 3-Pole	RP 22-0955	EIETL, Part Bins
Header Straight 4-Pole	RP 22-0960	EIETL, Part Bins
Male Header Vertical, Cut to required length	RP 22-0545	EIETL, Part Bins
Crimp Terminals JYK T2500	RP 22-1098	EIETL, Part Bins
Single Row PCB Sockets – 2 Way	RP 19-0081	EIETL, Part Bins
Single Row PCB Sockets – 3 Way	RP 19-0082	EIETL, Part Bins
Single Row PCB Sockets – 4 Way	RP 19-0083	EIETL, Part Bins
Cable Ties		
Cable Ties, Various	OC 3382543	EIETL, Part Bins
Cable Tie Bases	RS 666751	EIETL, Part Bins
Heat Shrink Tube		
Various Colours and Sizes Available	As Required	EIETL, Part Bins

Cable

Description/Link to Datasheet	Supplier / Part Number	Location
Single Core Equipment Wire 1/0.6, 100m Roll		
Black	RP 01-0601	EIETL, Cable Rack
Brown	RP 01-0604	EIETL, Cable Rack
Red	RP 01-0616	EIETL, Cable Rack
Orange	RP 01-0613	EIETL, Cable Rack
Yellow	RP 01-0620	EIETL, Cable Rack
Green	RP 01-0609	EIETL, Cable Rack
Multi Core Equipment Wire 7/0.2, 500m Roll		
Black	RP 01-0719	EIETL, Cable Rack
Brown	RP 01-0722	EIETL, Cable Rack
Red	RP 01-0728	EIETL, Cable Rack
Orange	RP 01-0726	EIETL, Cable Rack
Yellow	RP 01-0732	EIETL, Cable Rack
Green	RP 01-0723	EIETL, Cable Rack

KEY: RS-Radio Spares, RP-Rapid, OC-Onecall

Gears

Description/Link to Datasheet	Supplier / Part Number	Location
Plain Gears		
10 Tooth	RP 37-0276	EIETL, Part Bins
20 tooth	RP 37-0271	EIETL, Part Bins
30 tooth	37-0266	EIETL, Part Bins
40 Tooth	37-0261	EIETL, Part Bins
Bevel Gears		
12 Tooth Bevel	51-1729	EIETL, Request
Worm Gears		
Dia. 12mm, Length 30mm	37-0240	EIETL, Request
Gear Rack		
Length 100mm, Interlock to make longer racks	RP 37-0246	EIETL, Request
Ladder Chain		
Link spacing 6mm, 10.5mm width	RP 06-0650	EIETL, Request

Battery Pack

Description/Link to Datasheet	Location
Bespoke Battery Pack	EIETL, 1 per team

Miscellaneous

Description/Link to Datasheet
Light Filters LEF-56SET
12v Power Supply
Battery Pack to Ardunio Power Lead
Arduino Isolated Programming Cable
Wheel Adaptors
Blank Shield Boards with Long Pin Header Kit

Mechanical Parts

Screws, Fixings and Adhesives

Description/Link to Datasheet	Location
Scews and Fixings	
M2.5 x 12 Skt. head Cap Screws motor mounts	Dyson
M3/M4/M5/M6 Studding	Dyson
M3 x 4, 10, 16, 20 Socket Head Cap Screws	Dyson
M4 x 10, 16, 20, 25 Socket Head Cap Screws	Dyson
M5 x 16, 20, 25 Socket Head Cap Screws	Dyson
M6 x 16, 25, 40 Socket Head Cap Screws	Dyson
No4x25mm Round Head Screws	Dyson
No4x25mm Countersunk Screws	Dyson
M3 Nylon nut, bolts and screws	Dyson
M4 Nylon nut, bolts and screws	Dyson
M5 Nylon nut, bolts and screws	Dyson
M6 Nylon nut, bolts and screws	Dyson
Pop rivets	Dyson
Adhesives	
Hot glue	Dyson
RP Araldite	Dyson
White Wood Glue	Dyson
Superglue HV (EIETL	Dyson

Sheet, Bar, Rod, Angle ETC

Description/Link to Datasheet	Supplier / Part Number	Location
Sheet		
Mild steel sheet, 0.7mm thick	450mm×450mm	Dyson
Aluminium sheet, 1.5mm thick	200mm×150mm	Dyson
Rod		
Aluminium rod, 8mm diameter	150mm long	Dyson
Alum. angle, 12.5×12.5×1.6 1 21swg = 0.8mm	600mm Long	Dyson
Steel tube (5/16od × 21swg) 1 18swg = 1.2mm	300mm long	Dyson
Steel tube (3/8od × 22swg) 1 16swg = 1.6mm	300mm long	Dyson
Aluminium tube, 19mm diameter, 1mm wall	150mm long	Dyson
Wood Sheet, PLA and Cardboard		
Polypropylene sheet	300×150×1.5 1	Dyson
MDF (3mm, 4mm, 6mm) for laser cutting		Dyson
Plywood (3mm, 4mm, 6mm for laser cutting		Dyson
PLA for 3D printing		Dyson
Cardboard for testing		Dyson