Bill of Materials

Device Area	BoM Item Line	Part Number	Design Iteration	Part Name	Quantity (units, g, mm, mm2)	Unit Cost (£/unit; £/g; £/mm - VAT inc.)	Total Cost (£ - VAT inc.)	IMechE BoM Cost (£ - VAT inc.)	Material	Density (kg/m3)	Mass (g)	Total Mass (g)	Manufacturing Technique / Purchased Item	Supplier	Hyperlink	Invoices (see notes below)
Mechanical	1	M0001	1	IMechE Standard datum pointer	1	£0.14	£0.14	£0.00	Brass	8350	1	1	COtS	RS Components	Link	Invoice 4
	2	M0002	2	8 mm Rod	600	2.60E-04	£0.16	£0.00	Hard Wood	650	19.6	19.6	Cut to size	WF Education Group	Link	Invoice 2
	3	M0003	1	608zz Bearings	4	£0.30	£1.20	£1.20	-	N/A	10	40	COtS	Amazon UK	Link	Invoice 1
	4	M0004	1	Ultrasonic sensor holder	1.62	£0.10	£0.16	£0.00	PLA+	1250	1.62	1.62	3D Printed	-	-	-
	5	M0005	2	Motor mount	2.46	£0.10	£0.25	£0.25	PLA+	1250	2.46	2.46	3D Printed	-	-	-
	6	M0006	6	Chassis	60684	4.06E-06	£0.25	£0.25	MDF	360	87	87	Laser Cut	Hobarts	Link	-
	7	M0007	2	Datum holder	6	£0.10	£0.60	£0.60	PLA	800	6	6	3D Printed	-	-	-
	8	M0008	4	Drive gear	1542	6.21E-04	£0.96	£0.96	Perspex	1250	11.5	11.5	Laser Cut	Hobarts	Link	-
	9	M0009	4	Output gear	2734	6.21E-04	£1.70	£1.70	Perspex	1250	20.5	20.5	Laser Cut	Hobarts	Link	-
	10	M0010	3	Wheel	2522	6.21E-04	£1.57	£1.57	Perspex	1250	18.9	18.9	Laser Cut	Hobarts	Link	-
	11	M0011	1	Axle holder	20	£0.10	£2.00	£2.00	PLA	1250	5	20	3D Printed	-	-	-
	12	M0012	1	Bottom bracket	3	£0.10	£0.30	£0.30	PLA	1250	3	3	3D Printed	-	-	-
	13	M0013	2	Camera holder	6	£0.10	£0.60	£0.60	PLA	1250	6	6	3D Printed	-	-	-
	14	M0014	2	Camera arm	5840	4.06E-06	£0.02	£0.00	MDF	360	7	14	Laser Cut	Hobarts	Link	-
	15	M0015	1	RPi Spacer	0.96	£0.10	£0.38	£0.38	PLA	1250	0.96	3.84	3D Printed	-	-	-
				Mechanical IMechE BoM - Partial (£)				**£9.80**								
Electronics	16	E0001	2	Raspberry Pi Zero 2 W	1	£14.88	£14.88	£14.88	-	-	14	14	COtS	CPC Farnell	Link	Invoice 11
	17	E0002	2	Webcam	1	£9.99	£9.99	£9.99	-	-	47	47	COtS	Argos	Link	Invoice 3
	18	E0003	1	NEMA 17	1	£12.00	£12.00	£12.00	-	-	64	64	COtS	RS components	Link	Invoice 7
	19	E0004	2	TMC2208 Driver	1	£5.25	£5.25	£5.25	-	-	3	3	COtS	3DJake	Link	Invoice 12
	20	E0005	1	MicroSD card	1	£5.39	£5.39	£5.39	-	-	0.25	0.25	COtS	CPC Farnell	Link	Invoice 6
	21	E0006	2	Microswitch	1	£0.35	£0.35	£0.35	-	-	3	3	COtS	Amazon UK	Link	Invoice 8
	22	E0007	1	8x Battery holder	1	£0.98	£0.98	£0.98	-	-	16	16	COtS	CPC Farnell	Link	Invoice 6
	23	E0008	1	Snap-on battery connector	1	£0.23	£0.23	£0.23	-	-	20	20	COtS	CPC Farnell	Link	Invoice 6
	24	E0009	1	Micro USB adapter	1	£0.77	£0.77	£0.77	-	-	13	13	COtS	CPC Farnell	Link	Invoice 6
	25	E0010	1	Micro USB Cable	1	£0.96	£0.96	£0.96	-	-	8	8	Cut to size	RS components	Link	Invoice 4
	26	E0011	1	DC-DC buck converter	1	£1.40	£1.40	£1.40	-	-	12	12	COtS	Amazon UK	Link	Invoice 1
	27	E0012	1	Header pin, 1 row, 20 way	2	£0.10	£0.20	£0.00	-	-	0.6	1.2	COtS	CPC Farnell	Link	Invoice 5
	28	E0013	2	SPDT Switch	1	£0.35	£0.35	£0.35	-	-	5	5	COtS	Amazon UK	Link	Invoice 9
	29	E0014	1	AA Battery	8	£0.70	£5.60	£5.60	-	-	24	192	COtS	Amazon UK	Link	-
	30	E0015	1	100uF capacitor	1	£0.12	£0.12	£0.00	-	-	1	1	COtS	CPC Farnell	Link	Invoice 10
	31	E0016	1	Breadboard	1	£0.90	£0.90	£0.90	-	-	33	33	COtS	CPC Farnell	Link	Invoice 10
	32	E0017	1	6.3A fuse	1	£0.14	£0.14	£0.00	-	-	0.81	0.81	COtS	CPC Farnell	Link	Invoice 10
	33	E0018	1	Buttons	2	£0.04	£0.08	£0.00			0.3	0.6	COtS	Buttons	Link	-
	34	E0019	1	In-line fuse holder	1	£0.60	£0.60	£0.60	-	-	4.5	4.5	COtS	CPC Farnell	Link	Invoice 10
	35	E0020	1	Jumper wire	25	£0.06	£1.46	£0.00	-	-	0.66	16.5	COtS	Amazon UK	Link	Invoice 10
	36	E0021	1	Ultrasonic distance sensor	1	£2.52	£2.52	£2.52	-	-	8	8	COtS	RS components	Link	Invoice 4
				Electronics IMechE BoM - Partial (£)				**£62.17**								
Fixings, Fasteners, and other consumeables	37	CF0001	1	Heatshrink	20	£0.02	£0.38	£0.00	EVA	-	5	5	Cut to size	Amazon UK	Link	-
	38	CF0002	1	Lead-free solder	2	£0.17	£0.34	£0.00	-	-	2	2	Cut to size	RS Components	Link	-
		CF0003	1	Stranded-core wire	500	2.37E-04	£0.12	£0.00	-	-	8	8	Cut to size	Pi Hut UK	Link	-
	39	CF0004	1	Solid-core wire	500	2.63E-04	£0.13	£0.00	-	-	8	8	Cut to size	Pi Hut UK	Link	-
	40	CF0005	1	Super glue	1	£0.72	£0.72	£0.72	-	-	1	1	COtS	Amazon UK	Link	-
	41	CF0006	2	Velcro tape	150	2.60E-03	£0.39	£0.39	-	-	8	8	Cut to size	Amazon UK	Link	-
	42	CF0007	1	M3x6	2	£0.01	£0.03	£0.00	Stainless Steel	8000	0.36	0.72	COtS	Amazon UK	Link	Invoice 8
	43	CF0008	1	M3x10	25	£0.01	£0.33	£0.00	Stainless Steel	8000	0.5	12.5	COtS	Amazon UK	Link	Invoice 8
	44	CF0009	1	M2.5x12	6	£0.01	£0.08	£0.00	Stainless Steel	8000	0.4	2.4	COtS	Amazon UK	Link	Invoice 8
		CF0010	1	M2x10	2	£0.01	£0.03	£0.00	Stainless Steel	8000	0.22	0.44	COtS	Amazon UK	Link	Invoice 8
	45	CF0011	1	Electrical tape	400	3.33E-05	£0.01	£0.00	PVC	-			Cut to size	Screwfix	Link	-
				Consumables IMechE BoM - Partial (£)				**£1.11**		**Total Mass (g)**			**723.28**				

Notes:
Unit costs that are too small are denoted in scientific form (ie 4.06E-6) and are still in the unit £
Quantity is in units, except for those which are laser cut (mm2), those which are 3D printed (g), or tape/cut (mm)

[Access invoices here](#) Back up link: https://uoe-my.sharepoint.com/:f:/g/personal/s2289738_ed_ac_uk/EtWzKMgK9zBFi7NRyLfgglQBb7IdocdMV8jteqt58a28lA?e=eVg11O