

Summary of Part Check-Out in ENGR 122

Parts may be checked out from Louisiana Tech for use in first year design projects. This spreadsheet quantifies the number of parts checked out each quarter. The results show that a total of 799 parts were checked out over 7 quarters. The average number of parts checked out per team of students is 4.8, revealing that teams are learning to use a significant number of sensors and parts on their own as they complete their design projects. These numbers do not include the parts that student teams purchase themselves or borrow from other sources.

Description	Item#	Approx. Price	Quantity	Supplier	spring 2008	fall 2008	winter 2009	spring 2009	fall 2009	winter 2010	spring 2010	Totals
Things to Induce Motion												
Parallax (GWS) Mini Servo	900-00010	\$ 11.00	10	www.parallax.com	4	0	3	5	0	0	0	12
Parallax (Futaba) Standard Servo	900-00005	\$ 10.00	26	www.parallax.com	7	8	8	17	3	0	5	48
Parallax Continuous Rotation Servo	900-00008	\$ 12.99	23	www.parallax.com	2	0	0	0	0	0	2	4
Buehler Right Angle Gear Motor (10/21/42RPM @ 6/12/24 VDC)	16779 MD	\$ 24.95	3	www.mpja.com	1	0	0	3	0	0	3	7
12VDC/6.8RPM Gear Motor: 3/16" dia x 3/8" long shaft	15870 MD	\$ 12.95	6	www.mpja.com	2	0	0	1	0	0	1	4
24VDC/45RPM Gearhead Motor attached to 4-7/8" Dia Wheel	17971 MD	\$ 9.95	4	www.mpja.com	0	0	0	0	0	0	3	3
Dayton 2L010 Gear Motor (1/125hp,25 RPM,12VDC,1.3A)	60067	\$ 46.49	2	www.drillspot.com	0	0	0	1	0	1	1	3
High Power Gear Box H.E.	H02013-01E	\$ 13.99	5	www.hobbyengineering.com	0	0	0	0	0	0	2	2
3-Speed Crank Axle Gearbox	H02060-01F	\$ 7.99	1	www.hobbyengineering.com	0	0	0	0	0	0	0	0
polypropylene solenoid valve, 1/8"NPT, 12VDC, .5A	7377K3	\$ 24.80	25	www.mcmaster.com	1	14	0	2	3	1	8	29
Grippers, Wheels, Kits												
Gripper Kit for the Boe-Bot	28202	\$ 54.99	1	www.parallax.com	0	0	0	0	0	0	1	1
Little Grip Kit (LG_KT) & attachment Kit (LGA-KT)	LG-KT	\$ 47.00	1	www.lynmotion.com	0	0	0	1	0	0	1	2
Grooved Servo Wheel (to serve as a pulley)					7	1	1	1	0	0	2	12
Boe-Bot Tank Tread Kit					1	0	0	0	0	0	1	2
Visual or Audio Output Devices												
Parallax 2x16 Serial LCD (Non-Backlit)	27976	\$ 26.96	14	www.parallax.com	4	0	1	3	1	1	4	14
4x20 LCD, Backlit, Prix	27979	\$ 39.95	7	www.parallax.com	1	2	2	3	3	3	6	20
Emic Text-to-Speech SIP Module (Female)	30006	\$ 59.95	5	www.parallax.com	4	0	1	3	1	2	5	16
Input Devices												
4X4 Matrix Keypad	27944	\$ 19.00	5	www.parallax.com	0	0	0	3	0	2	4	9
MEMKey (to use with the Keypad)	27963	\$ 37.00	4	www.parallax.com	0	0	0	3	0	2	4	9
4x4 Keypad Cable	27943	\$ 7.99	5		0	0	0	3	0	2	4	9
Temperature Sensors												
Sensirion Temperature/Humidity Sensor	28018	\$ 26.96	10	www.parallax.com	0	0	0	6	2	1	1	10
AD592 Temperature Probe	28130	\$ 11.50	25	www.parallax.com	0	2	1	5	4	6	4	22
MLX90614 Infrared Thermometer 10 deg FOV	28042	\$ 49.99	3	www.parallax.com	0	0	0	0	0	0	3	3
DS1620 Digital Thermometer	604-00002	\$ 5.99	24	www.parallax.com	0	0	0	2	0	0	1	3
Motion, Angle, Direction, Distance, Location Sensing												
Parallax GPS Receiver Module	28146	\$ 62.96	7	www.parallax.com	2	0	0	3	0	1	2	8
Hitachi HM55B Compass Module	29123	\$ 23.96	12	www.parallax.com	1	0	0	0	1	0	2	4
Memsic 2125 Dual-axis Accelerometer	28017	\$ 26.96	10	www.parallax.com	7	1	1	5	2	0	1	17
Hitachi H48C Tri-Axis Accelerometer Module	28026	\$ 31.96	1	www.parallax.com	1	0	0	0	0	0	0	1
Piezo Film Vibra Tab Mass	605-00004	\$ 1.70	10	www.parallax.com	4	1	0	0	0	1	0	6
PIR Sensor	555-28027	\$ 6.00	19	www.parallax.com	8	2	0	7	4	2	5	28
PING))) Ultrasonic Sensor	28015	\$ 25.00	12	www.parallax.com	9	1	4	7	11	10	18	60
Color, Light, Camera Devices												
TCS230-DB Color Sensor	28302	\$ 50.96	9	www.parallax.com	0	0	1	8	2	0	3	14
DB Expander (for color sensor and other sensors)	28325	\$ 9.99	6	www.parallax.com	0	0	1	8	2	0	3	14
DB Extension Cable (connect expander to color sensor)	28301	\$ 14.99	7	www.parallax.com	0	0	1	8	2	0	3	14
QTI Sensor	555-27401	\$ 5.00	10	www.parallax.com	0	0	0	0	0	0	0	0
TSL230 Light to Frequency Converter	27924	\$ 4.00	10	www.parallax.com	0	0	0	3	1	1	0	5
Boe-Bot CMUcam	30051	\$ 139.95	4	www.parallax.com	2	1	0	4	0	0	1	8
TSL1401-DB Linescan Sensor Module	28317	\$ 49.99	2	www.parallax.com	0	0	0	0	0	0	0	0
Force Sensing												
Flexiforce Sensor Demo Kit	30056	\$ 22.00	14	www.parallax.com	7	6	0	10	1	0	5	29
Square Resistive Force Sensor (1.75"x1.5", .1kg-10kg)	SEN-09376	\$ 7.16	8	www.sparkfun.com	0	0	0	0	0	0	4	4
iLoad Mini Load Cell Sensor	28045	\$ 99.95	2	www.parallax.com	1	1	0	1	0	0	0	3
Other Sensors												
CO Gas Sensor Module	27931	\$ 29.99	5	www.parallax.com	0	0	0	4	0	2	0	6
Sound Impact Sensor	29132	\$ 7.19	9	www.parallax.com	0	0	0	0	0	0	1	1
Switches, Proximity Sensing												
Melexis 90217 Hall-Effect Sensor	605-00005	\$ 4.00	120	www.parallax.com	3	0	1	0	0	0	1	5
QT113-D Touch Sensor	604-00038	\$ 7.00	10	www.parallax.com	8	0	2	7	0	0	7	24
5-Position Switch (sort of like a joystick)	27801	\$ 4.74	5	www.parallax.com	0	0	0	0	0	0	3	3
SPNO 15A snapaction switch (pushbutton)			10		0	0	0	0	0	0	1	1
SPDT 5A snapaction switch (pushbutton)			10		0	0	0	0	0	0	2	2
SPDT 4A snapaction switch (long lever) .183 quick connect	2117333	\$ 1.15	24	www.jameco.com	0	0	0	0	0	0	0	0
SPNC 10A snapaction switch (lever arm)			10		0	0	0	0	0	0	0	0
SPDT 25A snapaction switch (long lever arm)			10		0	0	0	0	0	0	0	0
Reed Switch and Magnet	910-27225	\$ 9.00	10	www.parallax.com	0	0	0	1	0	0	0	1
SPST-NO Relay, 3A contact, coil=5V, coil=40mA	pb370-nd	\$ 1.02	250	www.digkey.com	5	4	0	8	4	6	21	48
Radio Frequency, Wireless												
Keychain Transmitter with Decoded Receiver	XETRO1	\$ 19.23	15	www.xenon-tech.com	7	1	3	12	3	0	11	37
RF Link 2400bps Receiver - 315 MHz (robot to robot)	WRL-08948	\$ 4.95	5	www.sparkfun.com	0	0	0	0	0	0	2	2
RF Link Transmitter - 315 MHz (robot to robot)	WRL-08945	\$ 3.95	5	www.sparkfun.com	0	0	0	0	0	0	2	2
RF Link 2400bps Receiver - 434 MHz (robot to robot)	WRL-08949	\$ 4.95	5	www.sparkfun.com	0	0	0	0	0	0	2	2
RF Link Transmitter - 434 MHz (robot to robot)	WRL-08946	\$ 3.95	5	www.sparkfun.com	0	0	0	0	0	0	2	2
EmbeddedBlue Transceiver AppMod	30068	\$ 65.00	2	www.parallax.com	2	1	0	3	0	2	2	10
Parallax 433 MHz RF Transmitter (robot to robot)	27980	\$ 29.99	5	www.parallax.com	1	1	0	3	1	1	4	11
Parallax 433 MHz RF Receiver (robot to robot)	27981	\$ 39.99	5	www.parallax.com	1	1	0	3	1	1	4	11
RFID Reader Module	28140	\$ 31.96	12	www.parallax.com	14	4	0	7	3	2	8	38
RFID 50 mm Round Tag	28142	\$ 2.20	19	www.parallax.com	17	7	0	5	3	3	6	41
RFID 54mm x 85 m Rectangle Tag	28141	\$ 2.20	15	www.parallax.com	2	0	0	3	0	2	1	8

RFID Blue Eye Key Fob Tag	28147	\$ 5.00	20	www.parallax.com	5	2	0	3	0	0	2	12
Xbee Transmitter					0	0	0	0	0	0	2	2
Xbee Receiver					0	0	0	0	0	0	2	2

Chips for Projects

LM358 dual op-amp	602-00015	\$ 0.50	227	www.parallax.com	0	0	0	0	0	0	0	0
ADC0831 8-bit A/D Converter	ADC0831CCN-ND	\$ 3.28	9	www.digikey.com	0	0	0	0	0	0	1	1
DS1302 Timekeeping Chip	604-00005	\$ 4.50	7	www.parallax.com	7	3	1	5	3	2	8	29
XTAL-32.768 kHz	251-03230	\$ 2.25	15	www.parallax.com	7	3	1	5	3	2	8	29
Mosfet, 60v N-channel	153-00002	\$ 0.50	18	www.parallax.com	0	0	0	0	0	0	0	0
555 Timer					0	2	0	1	0	0	0	3

Other Helpful Devices

ServoPal	28824	\$ 19.95	5	www.parallax.com	1	1	0	0	0	0	2	4
SoundPal	28825	\$ 24.95	2	www.parallax.com	1	0	0	1	1	0	0	3

	spring 2008	fall 2008	winter 2009	spring 2009	fall 2009	winter 2010	spring 2010	
Totals Parts Used per Quarter:	157	70	33	197	65	59	218	799
Number of Students:	120	52	31	141	62	27	151	584
Number of Teams:	33	13	9	41	17	8	44	165
Students per Team:	3.6	4.0	3.4	3.4	3.6	3.4	3.4	
Parts Checked Out Per Team:	4.76	5.38	3.67	4.80	3.82	7.38	4.95	
Avg. Number of Parts Per Team:	4.8							