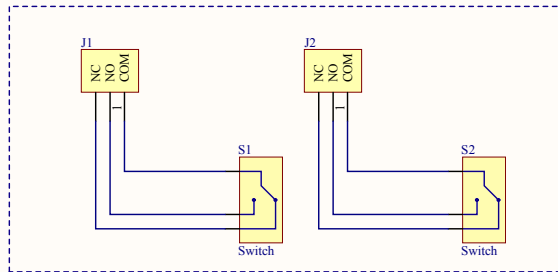
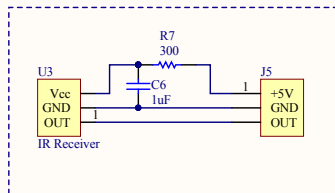


Title Controller Block Diagram		
Drawn By Kevin Bradshaw		Revision 001B
Date: 9/17/2013		Sheet 2 of 3
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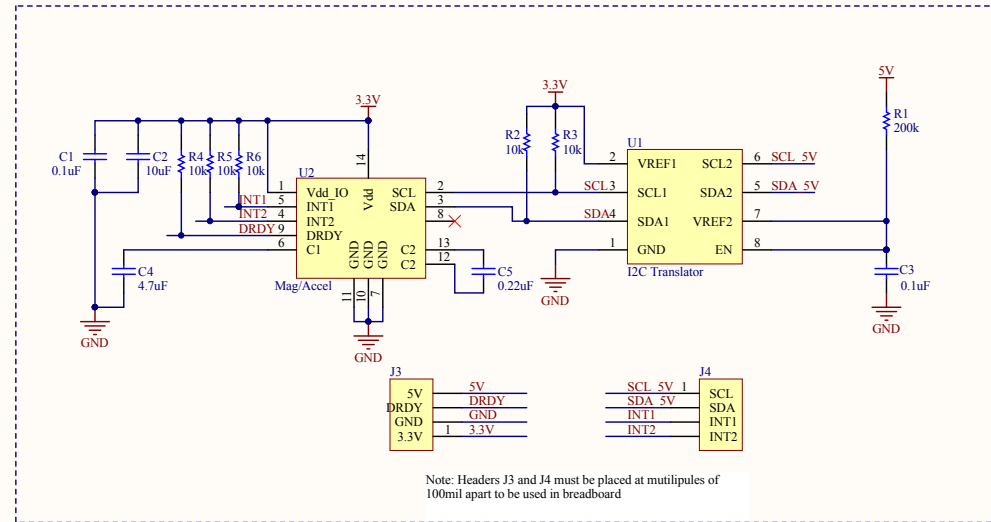
Bump Sensors



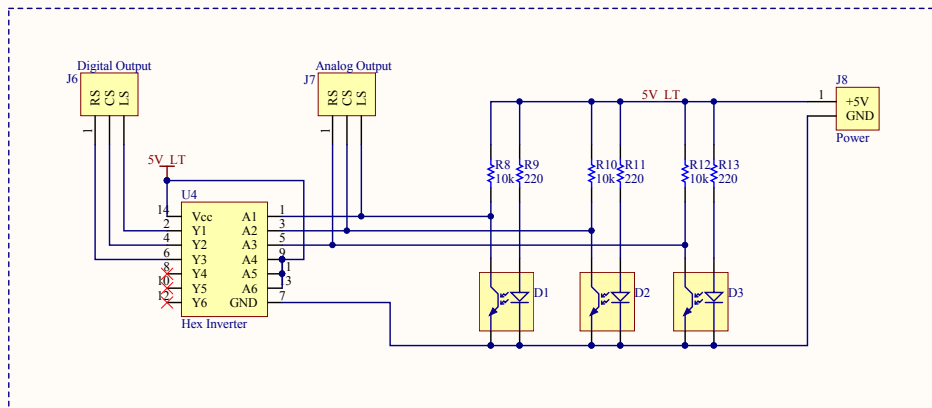
Infrared Receiver



3D Accelerometer, 3D Magnetometer



Line Tracker



Title OC Bot Sensors		
Drawn By Kevin Bradshaw		Revision B002
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Number: 1002		Sheet: Legal

OC BOT Controller Board

Designator	Description	Package	Vendor	Supplier Part #	Manufacture	Manufacture Part #	Price	Quantity	Notes
C1, C2, C3, C13	4.7uF Ceramic Cap 16V 10% X7R	1206	DigiKey	445-1385-1-ND	TDK Corporation	C3216X7R1C475K/1.60	0.29	4	
C4	470pF 630V 5% Ceramic Cap NP0	1206	DigiKey	445-2340-1-ND	TDK Corporation	C3216C0G2J471J	0.35	1	
C5	10uF 10V Tantalum LOW ESR 20%	1206	DigiKey	478-4086-1-ND	AVX Corporation	TPSA106M010R1800	0.56	1	
C7, C8	18pF 100V 5% Ceramic Cap NP0	1206	DigiKey	478-5036-1-ND	AVX Corporation	12061A180JAT2A	0.39	2	
C6, C9, C10, C11, C12	0.1uF 50V 10% Ceramic Cap X7R	1206	DigiKey	445-4007-1-ND	TDK Corporation	C3216X7R1H104K	0.19	5	
D1, D8	Red LED If = 10mA Vf = 1.8V	1206	DigiKey	160-1167-1-ND	Lite-On Inc	LTST-C150CKT	0.10	1	
D2, D4, D9	Green LED If = 10mA, Vf = 2.1V	1206	DigiKey	160-1169-1-ND	Lite-On Inc	LTST-C150GKT	0.09	2	
D3	Yellow LED If = 20mA Vf = 2.1V	1206	DigiKey	160-1406-1-ND	Lite-On Inc	LTST-C150KSKT	0.12	1	
D5	Orange LED If = 10mA Vf = 2.1V	1206	DigiKey	160-1166-1-ND	Lite-On Inc	LTST-C150AKT	0.12	1	
D6, D7	Diode Bridge	DF-S	DigiKey	DF15005SDICT-ND	Diodes Inc	DF15005S-T	0.61	2	
J6	1x3 0.100" MTA polarized header	SIP-3	DigiKey	A19470-ND	Tyco Electronics	640456-3	0.35	1	
J3, J14, J15, J16	1x4 0.100" MTA polarized header	SIP-4	DigiKey	A1922-ND	Tyco Electronics	640456-4	0.36	4	
J1	1x27 0.100" Female Pin Header	SIP-27	DigiKey	SAM1119-27-ND	Samtec	SS-127-TT-2	1.89	1	
J4	1x7 0.100" MTA polarized header	SIP-7	DigiKey	A19472-ND	TE Connectivity	640456-7	0.36	1	
J9, J17, J18, J19, J20	1x2 0.100" std male header	SIP-2	DigiKey	609-3250-ND	FCI	68000-110HLF	0.54	1	Actual part is
J7	USB 2.0 mini B surface mount right angle Receptacle		DigiKey	H2961CT-ND	Hirose	UX60A-MB-5ST	1.30	1	
J10	1x2 0.100" MTA polarized header	SIP-2	DigiKey	A1921-ND	Tyco Electronics	640456-2	0.35	1	
J8	1x6 0.100" MTA polarized header	SIP-6	DigiKey	A1923-ND	Tyco Electronics	640456-6	0.38	1	
J12, J13	Battery Connectors, CONN HEADER		DigiKey	455-1749-1-ND	JST Sales America Inc	S2B-PH-SM4-TB(LF)(SN)	0.47	2	
R2, R14	20k Ohm 1% SMT 1/4 watt	1206	DigiKey	311-20.0KFRCT-ND	Yageo	RC1206FR-0720KL	0.04	2	
R1, R3, R4, R7, R8, R12, R13	300 Ohm 1% SMT resistor 1/4watt	1206	DigiKey	311-300FRCT-ND	Yageo	RC1206FR-07300RL	0.04	5	
R5, R6, R9, R10, R11	10k Ohm 1% SMT 1/4 watt	1206	DigiKey	311-10.0KFRCT-ND	Yageo	RC1206FR-0710KL	0.04	6	
S2	SWITCH TACT 6MM MOM SMT 150GF	6.3x6mm	DigiKey	SW424CT-ND	Omron Electronics	B3FS-1002P	0.59	1	
U1, U7	Li Pol battery charger	SOT-23-5	DigiKey	MCP73831T-2ATI/OTCT-ND	Microchip	MCP73831T-2ATI/OT	0.75	1	
U2	Fixed 5V LDO regulator 500mA peak 200mA Continuous	SOT-23-5	DigiKey	576-2770-1-ND	Micrel Inc	MIC5219-5.0YM5 TR	1.87	1	
U3	8 Channel USB TO SERIAL UART	28-SSOP	DigiKey	768-1007-1-ND	FTDI	FT232RL R	4.95	1	
U4	DIP-28 Socket for uC	DIP-28	DigiKey	3M5480-ND	3M	4828-3004-CP	0.36	1	
U4	AT-MEGA-328P Microcontroller	DIP-28	DigiKey	ATMEGA328P-PU-ND	Atmel	ATMEGA328P-PU	3.61	1	
U5	Push Pull Driver 1A	DIP-16	DigiKey	497-1389-5-ND	STMicroelectronics		3.89	1	
U5	DIP 16 Socket for L293B	DIP-16	Digikey	3M5463-ND	3M	4816-3000-CP	0.20	1	
U6	Inverter	SC70-6	DigiKey	NC7WZU04P6XCT-ND	Fairchild Semiconductor	NC7WZU04P6X	0.62	1	
Y1	16MHz fundamental crystal CL = 20pF	HC49SD	DigiKey	631-1017-1-ND	Fox electronics	FOXSDLF/160-20	0.69	1	

OC Bot Controller Off Board Components

1x2 22Gauge MTA w/lock w/polarized Receptacle		DigiKey	A31107-ND	Tyco Electronics	3-643813-2	0.21	1	
1x3 22Gauge MTA w/lock w/polarized Receptacle		DigiKey	A30842-ND	Tyco Electronics	3-644083-3	0.30	1	
1x4 22Gauge MTA w/lock w/polarized Receptacle		DigiKey	A31108-ND	Tyco Electronics	3-643813-4	0.27	4	
1x6 22Gauge MTA wo/lock w/polarized Receptacle		DigiKey	A31124-ND	Tyco Electronics	3-644540-6	0.35	4	
1x7 22Gauge MTA wo/lock w/polarized Receptacle		DigiKey	A31125-ND	TE Connectivity	3-644540-7	0.58	1	
1x2 Jumper for 0.100" Header		Digikey	929950-00-ND	3M	929950-00	0.26	5	
SWITCH SLIDE 3PDT 3A EYELET		DigiKey	SW121-ND	CW Industries	GF-161-3011	1.51	1	
1" #4-40 Female/Female Spacer		DigiKey	2205K-ND	Keystone	2205	0.82	4	
3.7V LiPo Batteries		Robotshop.ca	RB-Spa-109			11.33	2	
Pololu 50:1 gear motor Gearmotor (625rpm .67m/s)		Robotshop.ca	RB-POL-60			14.26	2	
Pololu Wheel encoder		Robotshop.ca	RB-POL-97			14.16	2	
Pololu wheel		Robotshop.ca	RB-POL-56			5.79	1	
Pololu motor mounting bracket		Robotshop.ca	RB-POL-54			4.20	1	
Tamiya Ball caster		Robotshop.ca	RB-TAM-11			3.59	0.5	
400 tie point breadboard, half size		Robotshop.ca	RB-CIX-17			3.86	1	
Rubber Grommet 1/8" diameter		DigiKey	733K-ND	Keystone	733	0.15	1	
#4-40 3/8 panhead machine screw		Digikey	H782-ND	B&F Supply	PMS 440 0038 PH	0.02	4	
#2-56 1/4" panhead machine screw		DigiKey	H330-ND	B&F Supply	PMS 256 0025 PH	0.07	2	
#4 3/8" sheet metal screw		Digikey	H800-ND	B&F Supply	4X3/8 PHSMSPH	0.02	8	
#4-40 nut		Digikey	H216-ND	B&F Supply	HNZ440	0.01	4	
#2-56 nut		DigiKey	H212-ND	B&F Supply	HNZ256	0.02	2	
Cable Tie		DigiKey	2-604771-9-ND	TE Connectivity	2-604771-9	0.03	10	
PCB		Can. Circuits		Canadian Circuits		11.30	1	