

Carbon Workshop BM10 Proposal: "Excellent Adventure" audiovisual reactive phone booths								Provided by Carbon Workshop		"Excellent" Build		"Adequate" Build		"Bogus" Build	
Item	Group	Description	Specs	Vendor	Part Number	Link	Unit Cost	Quantity Available	Artist Cost Share	Quantity Req'd [Excellent!]	Subtotal [Excellent!]	Quantity Req'd [Adequate]	Subtotal [Adequate]	Quantity Req'd [Bogus]	Subtotal [Bogus]
Electret Microphone	Audio	Captures user's voice for transmission via laser link, and use as light effects trigger.	Sensitivity-47dB +3dB Voltage - Rated 1.5 ~ 10V Current 500µA TypeElectret Condenser Size / DimensionCircular - 9.7mm Dia x 5.2mm H S/N Ratio58dB Filter Type-Impedance680 Ohm Frequency100Hz ~ 20kHz TerminationSolder Pads DirectionNoise Cancelling Port LocationTop	Digikey	102-1729-ND	http://search.digikey.com/scripts/DkSearch	\$2.46	0	\$0.00	2	\$4.92	2	\$4.92	1	\$2.46
Piezo Speaker	Audio	Produces audible sounds as a part of the telephone interaction. We will reuse speakers in phone handset		N/A			\$0.00	0	\$0.00	2	\$0.00	2	\$0.00	1	\$0.00
Phone Ringer	Audio	Part of the telephone interaction. We will reuse the existing mechanical ringers from the payphones.		N/A			\$0.00	1	\$0.00	2	\$0.00	2	\$0.00	1	\$0.00
Walkie Talkie	Audio	Provides analog voice connection in case digital links are obstructed.		B+H Photo/Video	MOSX600R	http://www.bhphotovideo.com/c/product/6042	\$19.50	0	\$0.00	2	\$38.99	0	\$0.00	2	\$38.99
Arduino Mega Shield	Control Electronics	Creates a secure platform for the mounting of controller peripheral hardware.		Sparkfun	DEV-09346	http://www.sparkfun.com/commerce/pro	\$17.95	0	\$0.00	4	\$71.80	2	\$35.90	1	\$17.95
Arduino Mega	Control Electronics	The "brain". Reads sensors, sends control signals to communications daughterboards, LED, Laser, ringer, and sound driver boards.		Sparkfun	DEV-09152	http://www.sparkfun.com/commerce/pro	\$64.95	0	\$0.00	4	\$259.80	2	\$129.90	1	\$64.95
2n2222 NPN Transistor	Control Electronics	Used to switch individual medium-current signal lines such small arrays of LEDs, or to ease load of switching on LED drivers	Transistor TypeNPN Current - Collector (Ic) (Max)600mA Voltage - Collector Emitter Breakdown (Max) 40V Vce Saturation (Max) @ Ib, Ic300mV @ 15mA, 150mA Current - Collector Cutoff (Max)- DC Current Gain (hFE) (Min) @ Ic, Vce100 @ 150mA, 10V Power - Max625mW Frequency - Transition 300MHz		2N2222A	http://cgi.ebay.com/1000-Transistor-2N2222-MPS2222-NPN-General-Purpose-T092_W0QQitemZ	\$0.06	50	\$2.75	448	\$24.64	112	\$6.16	112	\$6.16
Matched resistors for LEDs	Control Electronics	Limits maximum forward current on each LED to prevent overheating	Resistance In Ohms330 CompositionCarbon Film Power (Watts)0.5W, 1/2W Temperature Coefficient -150/-350ppm°C CaseAxial Lead StyleThrough Hole Tolerance±5%		A508032-001	http://cgi.ebay.com/A508032-001-RESISTOR-330-OHM-5-0603-PKG-QTY-1000_W0QQitemZ	\$0.02	100	\$1.50	448	\$6.72	112	\$1.68	112	\$1.68
Anti-ghosting diodes for LEDs	Control Electronics	Prevents reverse current leakage causing inconsistent brightness at different points in an LED array.	Package DO-41. 400V Reverse Voltage. 1A Forward Current.		1N4004	http://cgi.ebay.com/1N4004-Rectifier-Diode-DO-41-400V-1A-Qty-1000_W0QQitemZ	\$0.02	100	\$1.70	448	\$7.61	112	\$1.90	112	\$1.90
Conformal Coating	Control Electronics	Protects electronics and assemblies against dust and moisture	UL 746C MIL-I-46058C, Amend. 7 Product Name: Dow Corning® 1-2577 RTV Elastoplastic Conformal Coating1 Or 2 Part: 1 Base Chemistry: Silicone Viscosity Cp: 750 Service Temperature : 60°C to 200°CRT Tack Free Time: 15 to 30 min Cure Time: 72 hrs Durometer/Hardness: 23 D Dielectric Strength: 400 Volume Resistivity: 5.0 x 10(13)	Ellsworth Adhesives	1-2577	http://www.ellsworth.com/display/produ	\$42.12	0	\$0.00	1	\$42.12	1	\$42.12	1	\$42.12
XBee-Pro Series 1 Module	Control Electronics	Radio frequency serial communication link between controllers for when the laser data link is broken, or of reduced fidelity.	100mW, wire antenna, 2.4GHz, 802.15.4 spec	Digikey	XBP24-AWI-001-ND	http://search.digikey.com/scripts/DkSearch	\$32.00	2	\$64.00	2	\$64.00	2	\$64.00	0	\$0.00
Microswitch	Control Electronics	Senses whether phone handset is "on the hook" or not	Sealed, right angle spherical tact switch 8mm x 8mm, through hole	Digikey	KSJ0V411 80SH LFT-ND	http://search.digikey.com/scripts/DkSearch	\$1.51	0	\$0.00	4	\$6.04	4	\$6.04	2	\$3.02

Relay	Control Electronics	Used to engage very high-load devices such as power supplies and batteries, as well as the mechanical phone ringer.	CircuitSPDT (1 Form C) Contact Rating @ Voltage5A @ 125VAC Coil TypeStandard Coil Current80mA Coil Voltage5VDC Control On Voltage (Max) 3.75 VDC Control Off Voltage (Min) 0.25 VDC	Digikey	Z1640-ND	http://search.digikey.com/scripts/DkSearch	\$1.62	4	\$6.48	4	\$7.26	1	\$1.81	1	\$1.81
TO-220 Heatsink	Control Electronics	Prevents overheating of power regulator chips.	2.5w dissipation	Sparkfun	PRT-00121	http://www.sparkfun.com/commerce/pro	\$0.95	0	\$0.00	12	\$11.40	5	\$4.75	3	\$2.85
XBee Shield	Control Electronics	Allows secure mounting and electrical interface from the RF communication module to the controller module.		Sparkfun	DEV-09063	http://www.sparkfun.com/commerce/pro	\$24.95	0	\$0.00	2	\$49.90	0	\$0.00	1	\$24.95
3.3v XBee Power Supply	Control Electronics	Powers XBee modules when using breakout board, instead of shield.	IC REG LDO POS 800MA 3.3V TO-22	Digikey	497-1492-5-ND	http://search.digikey.com/scripts/DkSearch	\$0.68	0	\$0.00	0	\$0.00	2	\$1.36	0	\$0.00
XBee Breakout Board	Control Electronics	Allows secure mounting and wiring of RF communication modules.	This board breaks out all 20 pins of the XBee to a 0.1" standard spacing dual row header. The spacing between 0.1" headers is 0.5" making it breadboard DIP friendly.	Sparkfun	BOB-08276	http://www.sparkfun.com/commerce/pro	\$2.95	2	\$5.90	0	\$0.00	2	\$5.90	0	\$0.00
Micro Solar Cell	Control Electronics	Used to sense ambient light, and adjust/enable LEDs accordingly.	1/8" square 1/2 volt @ 1.9mA	Solarbotics	SCPD	http://www.solarbotics.com/products/scpd/	\$1.00	8	\$8.00	8	\$8.00	8	\$8.00	2	\$2.00
3/8"x4"x8' CDX Plywood	Crate	Panels for faces of crate		Economy Lumber			\$15.00	0	\$0.00	6	\$90.00	6	\$90.00	3	\$45.00
3-sided Corner Brace	Crate	Reinforcements to prevent crushing of crate corners		Economy Lumber	756550	http://www.stanleyhardware.com/default.asp?CATEGORY=HDW	\$2.50	0	\$0.00	16	\$40.00	16	\$40.00	8	\$20.00
2"x2"x8' lumber	Crate	Structure for seams of plywood panels		Economy Lumber			\$2.00	16	\$32.00	16	\$32.00	16	\$32.00	8	\$16.00
Vinyl Superman Boogie Stickers	Fun	Commemorates all Superman sightings.					\$1.00	50	\$50.00	50	\$50.00	10	\$10.00	0	\$0.00
Laser Diode Driver	Lights	Controls and powers laser diodes. One driver required per laser.	Constant Current Driver Size :10*20mm TTL modulation 0-5VDC <5kHz 0V off @ >2.5V laser on Current :80-500mA			http://cgi.ebay.com/2pcs-Constant-current-laser-diode-driver-80-500mA-W-TTL_W00QitemZ1	\$4.50	0	\$0.00	12	\$53.94	4	\$17.98	6	\$26.97
Stranded copper wire 4-pair (per foot)	Lights	The nerves, veins, and arteries of Excellent Adventure! We would be nowhere without good wire.	1000' 4-pair stranded 22ga	Axion Tech	3905	http://www.axiontech.com/prdt.php?item=3905	\$0.10	0	\$0.00	900	\$90.36	560	\$56.22	560	\$56.22
Green Laser diode	Lights	Green laser is the "answered" call signal. It is used to complete the bi-directional communication link.	Size Φ11.5x53mm Materials: Copper+Glasses lens+Diode+Crystal Life Span: <3000hours Wavelength: 532nm±5nm Output Power: 20-30mW Light Shape: Dot/Φ≤1.0mm@10m<Φ18mm PCB: ACC Circuit Voltage: DC=3.0V Current: I<350mA			http://cgi.ebay.com/532nm-30mw-Green-Laser-Diode-Module-DIY-Lab-Study-2pcs_W00QitemZ1	\$15.50	0	\$0.00	4	\$62.00	2	\$31.00	0	\$0.00
Red Laser diode	Lights	Red laser is the "outbound call" signal. It is used to trigger the remote booth's ringer, and request the bi-directional communication link.	635nm, 5.6mm can, 7mW			http://cgi.ebay.com/3-pcs-635nm-red-laser-diodes-DL-6353TL-7mW-NEW-3-pcs_W00QitemZ38	\$4.66	0	\$0.00	4	\$18.64	2	\$9.32	1	\$4.66
Blue (violet) Laser diode	Lights	Violet laser is the "secret" signal which is activated after prolonged periods of excitement on the phone.	405 nm 150mW		PHR-803T	http://cgi.ebay.com/Violet-Laser-Diode-405nm-PHR-803T-405-nm-SALE_W00QitemZ	\$21.99	0	\$0.00	4	\$87.96	0	\$0.00	0	\$0.00
10mm Blue LED	Lights	Ultrabright "ambient glow" LEDs mounted in overhead light fixture and along uprights of booths.	10k MCD	Topbright Optoelectronics		http://cgi.ebay.com/ws/eBayISAPI	\$0.13	100	\$12.50	820	\$102.50	205	\$25.63	205	\$25.63
10mm Green LED	Lights	Ultrabright "ambient glow" LEDs mounted in overhead light fixture and along uprights of booths.	Diffused	Topbright Optoelectronics		http://cgi.ebay.com/ws/eBayISAPI	\$0.13	100	\$12.50	820	\$102.50	205	\$25.63	205	\$25.63
10mm Red LED	Lights	Ultrabright "ambient glow" LEDs mounted in overhead light fixture and along uprights of booths.	Diffused	Topbright Optoelectronics		http://cgi.ebay.com/ws/eBayISAPI	\$0.13	100	\$12.50	1,300	\$162.50	325	\$40.63	325	\$40.63
10mm White LED	Lights	Ultrabright "ambient glow" LEDs mounted in overhead light fixture and along uprights of booths.	Diffused	Topbright Optoelectronics		http://cgi.ebay.com/ws/eBayISAPI	\$0.13	100	\$12.50	1,260	\$157.50	315	\$39.38	315	\$39.38
10mm Warm White LED	Lights	Ultrabright LEDs roughly the same color temperature as incandescent light, used in the overhead light fixture in the "beacon" mode	40° 5-Chips Warm White LED 100mA 210000mcd 3.2-3.4V forward voltage	Topbright Optoelectronics		http://cgi.ebay.com/ws/eBayISAPI	\$0.78	30	\$23.25	60	\$46.50	15	\$11.63	15	\$11.63
10mm UV LED	Lights	Ultrabright "spot" LEDs used to enhance effect of strobing lights.	11,000 mcd	Topbright Optoelectronics		http://cgi.ebay.com/ws/eBayISAPI	\$0.45	30	\$13.49	120	\$53.96	30	\$13.49	30	\$13.49

5mm White LED	Lights	Ultrabright LEDs used in overhead light fixture to allow "surge" and "flash" effects.	Lens Color : Water Clear Forward Voltage (V) : 3.2 ~3.6 Forward Current (mA):20 View Angle: About 25 degree. Luminous Intensity: 13000mcd	Topbright Optoelectronics		http://cgi.ebay.com/ws/eBayISAPI	\$0.04	100	\$3.85	100	\$3.85	25	\$0.96	25	\$0.96
LED Driver	Lights	Controls the sizeable current required by the arrays of LEDs. Also allows addressing of particular groups of LEDs, for motion and fade effects.	Internal voltage reference from 1.2V to 12V. Operates with single supply of less than 3V. Inputs operate down to ground. Output current programmable from 2 mA to 30 mA.		LM3914	http://cgi.ebay.com/LM3914-LED-Display-Driver-Bargraph-NEW-100-pcs_W00QitemZ38	\$1.33	0	\$0.00	45	\$59.80	11	\$14.95	11	\$14.95
5mm LED Bezel	Lights	Allows secure mounting of 5mm LEDs, and will help minimize dust entry into booth internal wiring cavities.	Chrome finish ABS			http://cgi.ebay.com/ws/eBayISAPI	\$0.10	50	\$4.80	100	\$9.59	25	\$2.40	25	\$2.40
10mm LED Bezel	Lights	Allows secure mounting of 10mm LEDs, and will help minimize dust entry into booth internal wiring cavities.	Chrome finish ABS			http://cgi.ebay.com/ws/eBayISAPI	\$0.10	50	\$4.80	2,190	\$210.02	548	\$52.51	548	\$52.51
2" channel (per foot)	Lights	Houses arrays of LEDs, and protects them from playa dust.	2"x1/2" U or "hat" channel	Alco Iron & Metal			\$2.00	0	\$0.00	35	\$70.00	15	\$30.00	15	\$30.00
6" channel (per foot)	Lights	Houses arrays of LEDs, and protects them from playa dust.	6"x1/2" U or "hat" channel	Alco Iron & Metal			\$6.00	0	\$0.00	12	\$72.00	5	\$30.00	5	\$30.00
Aluminum rivets	Lights	Mounts aluminum channel to booth structure.	1/16" aluminum rivets	OSH			\$0.10	0	\$0.00	94	\$9.40	40	\$4.00	40	\$4.00
DC-DC Converter	Power Supply	Provides tuned regulated power to arrays for optimum LED brightness without overheating.	Voltage - Output 1.2 ~ 32 V Voltage - Input 4.2 ~ 40 V Current - Output 5A Current - Limit (Min) 7A	Digikey	LM338T-ND	http://search.digikey.com/scripts/DkSearch	\$2.45	0	\$0.49	9	\$21.46	2	\$5.37	2	\$5.37
SLA Battery	Power Supply	Powers lights, control electronics, and sound hardware	* 7.68oz x 5.15oz x 7.13 (terminal included) * 23.15lbs. * 12 V * 35 Ah			http://cgi.ebay.com/6V-36Ah-Sealed-Lead-Acid-Battery-ZEUS_W00QitemZ	\$64.98	0	\$0.00	2	\$129.95	2	\$129.95	1	\$64.98
40W Monocrystalline Solar Panel	Power Supply	Recharges batteries during daytime	Maximum Power at STC: 40 Watts Optimum operating voltage: 17.3 Volts Optimum operating current: 2.35 Amp Weight (Panel Only): 11 lbs Dimension of module: 26.2 in x 21.1 in x 1.38 (in)			http://cgi.ebay.com/40-WATT-40W-SOLAR-PANEL-12-VOLT-UL-SOLAR_W00QitemZ	\$143.50	0	\$0.00	2	\$287.00	0	\$0.00	0	\$0.00
12W Flexible Solar Panel	Power Supply	Recharges batteries during daytime	(12W 1.16V) 657g (23oz) / 1104mm x 653mm (43.5" x 25.7")	Konarka	KT 1500	http://mail.google.com/a/locktech.com/#search/konarka	\$60.00	1	\$60.00	0	\$0.00	2	\$120.00	1	\$60.00
"D" Cell battery holder	Power Supply	Securely holds 6 "D" cells as a backup power supply.	6 cells, black PET, solder tabs	Digikey	BH26DL-ND	http://search.digikey.com/scripts/DkSearch	\$2.66	4	\$10.64	4	\$10.64	4	\$10.64	2	\$5.32
"D" Cell	Power Supply	Provides backup power.	1.5v 20500mAh	Digikey	N105-ND	http://search.digikey.com/scripts/DkSearch	\$1.43	24	\$34.32	24	\$34.32	24	\$34.32	12	\$17.16
Phone Booth	Structure	The space. Must be transparent on all sides. Doors and any branding shall be removed prior to shipping.		N/A		http://sfbay.craigslist.org/sby/for/1555472	\$500.00	1	\$500.00	2	\$1,000.00	2	\$1,000.00	1	\$500.00
Payphone	Structure	Functions both as the housing for control electronics and batteries, and as the main point of interface.		N/A		http://sfbay.craigslist.org/sby/mob/15564	\$100.00	1	\$100.00	2	\$200.00	2	\$200.00	1	\$100.00
Structural Anchors	Structure	Custom fabricated from scrap steel, these will have a top which comes flush with the group so as to avoid being a trip hazard, yet which can engage slots in the uprights of each phone booth, and hold it steady against 60mph+ winds.		N/A			\$0.00	8	\$0.00	8	\$0.00	8	\$0.00	4	\$0.00

Clear RTV Silicone Adhesive	Structure	Used to fasten wiring and solar panel to frame, and seal seams against dust entry	Product Name: Dow Corning® 3165 Fast Tack RTV Adhesive/Sealant Item Number: 3111440 1 Or 2 Part: 1Base Chemistry: Silicone Viscosity Cp: Non-flow Tack Free Time: 4 min Cure Time: 24 hrs Shear Strength Psi: 200 Tensile Strength: 170 Durometer/Hardness: 35 A	Ellsworth Adhesives	3165				1	\$11.10	1	\$11.10	1	\$11.10	1	\$11.10
TOTAL										\$989.06		\$3,882.69		\$2,403.53		\$1,434.80