

Bill of Materials

Company: University of Concordia
 Project Name: Smart Front Door
 Revision: Release 2 BOM
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 Production date 12/22/2020

Design Reference	Name	Description	Value	Qty	Unit	Manufacturer	Manufacturer P/N	Package	Type	Supplier	Supplier P/N	Unit Cost (\$CDN)	Total Cost (\$CDN)
-	Battery Charger	Desktop Battery Charger 7A 300 mA 6V	300mA, 6V	1	pcs	ZEUS Battery Products	PCCG-SLA6V300	Bulk	Desktop	Digi-Key	2059-PCCG-SLA6V300-ND	16.1	16.1
-	SD Card 64 GB	SanDisk A1 Memory micro SD Card 64 GB	64gb	1	pcs	SanDisk	A1 micro sd card	Single card	micro SD	Ali-Express	A1 micro sd card	8.61	8.61
-	USB to Serial	RF Explorer - Adapter Board	317990279	1	pcs	Seeed Technology Co. Ltd	317990279	Evaluation Board	Adapter Board	Digi-Key	1597-1492-ND	8.42	8.42
BT1	Batteries	Battery HHR PACK NIMH 6V L-A	3.7Ah	2	pcs	Panasonic - BSG	HHR-380AB27F5	5 cells	side-to-side	Digi-Key	P018-F051-ND	52.26	104.52
BT2, S4	Wireless Doorbell	Heath Zenith Wireless Battery Operated Door Bell Kit with 1-Push Button	# SL-7306-03	1	pcs	Heath Zenith	# SL-7306-03	Box	//	HomeDepot	# 1001341241	30	30
C1, C2, C5, C12, C14	1µF Cap SMD	Ceramic Capacitor 1µF	1 µF	5	pcs	Samsung Electro-Mechanics	CL10B105KO8NFNC	0603	SM	Digi-Key	1276-1943-1-ND	0.14	0.7
C13	22µF Cap SMD	Ceramic Capacitor 22µF	22 µF	1	pcs	Samsung Electro-Mechanics	CL21A226KPCLRNC	0805	SM	Digi-Key	1276-6786-1-ND	0.52	0.52
C3, C7, C11, C16	0.1uF Cap SMD	0.1µF Ceramic Capacitor	0.1 uF	4	pcs	Samsung Electro-Mechanics	CC0603JRX7R7BB104	0603	SM	Digi-Key	311-1776-1-ND	0.14	0.56
C4, C6, C8 - C10, C15	10µF Cap SMD	Ceramic Capacitor 10µF	10 µF	6	pcs	Samsung Electro-Mechanics	CL21A106KQNNNG	0805	SM	Digi-Key	1276-6455-1-ND	0.16	0.96
CR1	Zener Diode	DIODE ZENER 3.3V 400MW SOD323	3.3V	2	pcs	Nexperia USA Inc.	PDZ3.3B,115	SOD-323	SM	Digi-Key	1727-5150-1-ND	0.24	0.48
CR2	Schottky Diode	Diode Schottky 25V 2A SMB	25V, 2A	2	pcs	STMicroelectronics	STPS2L25U	DO-214AA	SM	Digi-Key	497-5573-1-ND	0.51	1.02
D1, D2	TVS Diodes	TVS DIODE 3.6V 8.5V 2X1SON	TPD1E1B04DPYT	2	pcs	Texas Instruments	TPD1E1B04DPYT	0402	SM	Digi-Key	296-46892-2-ND - Tape & Reel	1.02	2.04
J1, J2, J6, J7	4-wire connector male	Connector Header Surface Mount, Right Angle 4 position	S4B-PH-SM4-TB(LF)(SN)	4	pcs	JST Sales America Inc	S4B-PH-SM4-TB(LF)(SN)	Shrouded	SM, Right Angle	Digi-Key	455-1751-1-ND	1.02	4.08
J14, J19	7-wire connector female	7 Position Terminal Block Plug, Female Sockets 0.100" (2.54mm) 180° Free Hanging (In-Line)	14310713101000	2	pcs	HARTING	14310713101000	Shrouded	Free Hanging (In-Line)	Digi-Key	1195-3604-ND	3.72	7.44
J15 - J17	4-wire connector female	4 Position Cable Assembly Rectangular Socket to Individual Wire Leads	CABLE-EH04	3	pcs	Trinamic Motion Control GmbH	CABLE-EH04	Shrouded, Socket to individual wire leads	Free Hanging, (In-Line)	Digi-Key	1460-1292-ND	1.7	5.1
J18	5-wire connector female	5 Rectangular Connectors - Housing Receptable Natural	PHR-5	1	pcs	JST Sales America Inc	PHR-5	Shrouded	Free Hanging (In-Line)	Digi-Key	455-1163-ND	0.17	0.17
J3, J5	7-connector male	7 Position Terminal Block Header, Male Pins, Shrouded (4 Side) 0.100" (2.54mm) 90°, Right Angle Surface Mount	14110713002000	2	pcs	HARTING	14110713002000	Shrouded	SM, Right Angle	Digi-Key	1195-3639-1-ND	2.87	5.74
J4	5-wire connector male	Connector Header Surface Mount, Right Angle 5 position	S5B-PH-SM4-TB(LF)(SN)	1	pcs	JST Sales America Inc	S5B-PH-SM4-TB(LF)(SN)	Shrouded	SM, Right Angle	Digi-Key	455-1752-1-ND	1.06	1.06
J8	Barrel Connector	DC POWER JACK, SMT, HORIZONTAL,	DCJ065-05-A-K1-A	1	pcs	GCT	DCJ065-05-A-K1-A	Bulk	SM, Right Angle	Digi-Key	2073-DCJ065-05-A-K1-ACT-ND	1.05	1.05
J9	Barrel Plug	Cable Assembly 0.7mm ID, 2.35mm OD Plug to wire	CA-2192	1	pcs	Tensility International Corp	CA-2192	Bulk	Free Hanging, Plug to wire leads	Digi-Key	CP-2192-ND	3.79	3.79
L1	180uH Inductor	Shielded Wirewound Inductor	180 µH	1	pcs	Bourns Inc	SRR1210-181M	Nonstandard	SM	Digi-Key	SRR1210-181MCT-ND	1.64	1.64
M1	Defiant Door lock	Defiant Castle Matte Black Single Cylinder Electronic Keypad Deadbolt	# G7XKD01AA	1	pcs	Defiant	# G7XKD01AA	Box	Electronic Keypad	HomeDepot	# 1001134626	90	90
MS1	Motion Sensor	Motion Sensor SEN0171 PIR (MOTION) SENSOR	Gravity	1	pcs	DFRobot	SEN0171	Board and cables	Sensor	Digi-Key	1738-1129-ND	6.93	6.93
R1 - R7, R10 - R12, R16	10kΩ Res (1% Tol)	RES 10K OHM 1% 1/10W 0402	10 kΩ	11	pcs	KOA Speer Electronics Inc	RK73G1ETTP1002F	0402	SM	Digi-Key	2019-RK73G1ETTP1002FCT-ND	0.39	4.29
R13, R15, R27, R28	1 kΩ Res	1 kΩ with 1% Tolerance	1 kΩ	4	pcs	Yageo	RE0603FRE071KL	0603	SM	Digi-Key	13-RE0603FRE071KLCT-ND	0.15	0.6
R14	10kΩ Res (0.1% Tol)	RES SMD 10K OHM 0.1% 1/10W 0603	10 kΩ	1	pcs	Yageo	RE0603BRE0710KL	0603	SM	Digi-Key	13-RE0603BRE0710KLCCT-ND	0.48	0.48
R17	499 Ω Res	499 Ω Chip Resistor	499Ω	1	pcs	Stackpole Electronics	RMCF0201FT499R	0201	SM	Digi-Key	RMCF0201FT499RCT-ND	0.15	0.15
R18	4.99kΩ Res	4.99kΩ Chip Resistor	4.99 kΩ	1	pcs	Yageo	RT0603DRE074K99L	603	SM	Digi-Key	311-2608-1-ND	0.15	0.15

R19	604 kΩ Res	604 kΩ Chip Resistor	604 kΩ	1	pcs	Yageo	RC1206FR-07604KL	1206	SM	Digi-Key	311-604KFRCT-ND	0.15	0.15
R20	2 kΩ Res	RES SMD 2kΩ 1% 1/10W	2 kΩ	1	pcs	Yageo	RC0603FR-072KL	0603	SM	Digi-Key	311-2.00KHRCT-ND	0.15	0.15
R20 - R23	300 kΩ Res	RES 300 kΩ	300 kΩ	3	pcs	Yageo	RC0402JR-07300KL	0402	SM	Digi-Key	311-300KJRCT-ND	0.15	0.45
R24	10 kΩ Trimmer	Trimmer 10k Ω	10 kΩ	1	pcs	Bourns Inc	TC33X-2-103E	SOD-23	SM	Digi-Key	TC33X-103ECT-ND	0.4	0.4
R25	86.6 kΩ Res	RES 86.6k Ω	86.6 kΩ	1	pcs	Stackpole Electronics	RMCF0201FT86K6	0201	SM	Digi-Key	RMCF0201FT86K6CT-ND	0.15	0.15
R26	100 Ω Res	RES SMD 100 OHM 1% 1/20W 0201	100 Ω	1	pcs	Yageo	RC0201FR-07100RL	0201	SM	Digi-Key	311-100MCT-ND	0.54	0.54
R8	0.4 Ω Res	400 mΩ Chip Resistor	400 mΩ	1	pcs	Yageo	RL1206FR-070R4L	1206	SM	Digi-Key	311-.4LWCT-ND	0.54	0.54
R9	1.43kΩ Res	1.43 kΩ Chip Resistor	1.43 kΩ	1	pcs	Bourns Inc	RT0603BRE071K43L	0603	SM	Digi-Key	YAG4654CT-ND	0.57	0.57
S5	Reed Switch	SEC-101 Small Magnetic door sensor reed switch, Normally Open (Note 1)	GPS-23	1	pcs	Abra Electronics	GPS-23	Wire terminated	Reed Switch	Abra Electronics	SEC-101	3.98	3.98
SW1, SW2	Switch Button	Tactile Switch Top Actuated Surface Mount	PTS 647 SK50 SMTR2 LFS	2	pcs	C&K	PTS 647 SK50 SMTR2 LFS	PTS647-NO	SM	Digi-Key	PTS647SK50SMTR2LFSCT	0.2	0.4
SW3	Switch Button	Tactile Switch SPST-NO Top Actuated Through Hole	1825910-6	1	pcs	TE Connectivity ALCOSWITCH Switches	1825910-6	SPST-NO	Through hole	Digi-Key	450-1650-ND	0.15	0.15
U1, U2	OptoCoupler	Optoisolator Transistor Output 2500Vrms 2 Channel 8-SOIC	2500Vrms	2	pcs	ON Semiconductor	MOC207D2M	8-SOIC	SM	Digi-Key	MOC207D2MCT-ND	2.18	4.36
U3	ESP32-SOLO-1	ESP32-SOLO-1 Board, 2.4GHz, 150Mbps, 3.6V	ESP32-SOLO-1	1	pcs	Espressif Systems	ESP32-SOLO-1	38-SMD Module	SMD	Digi-Key	1965-ESP32-SOLO-1CT-ND	5.12	5.12
U4	Motor Controller	Bipolar Motor Driver Power MOSFET Parallel	296-51093-1-ND	1	pcs	Texas Instruments	DRV8832QDQGRQ1	10-TFSOP, 10-MSOP	SM	Digi-Key	296-51093-1-ND	3.92	3.92
U5	Op-Amp	IC OPAMP GP 2 CIRCUIT 8SOIC	LM358BIDR	2	pcs	Texas Instruments	LM358BIDR	8-SOIC	SM	Digi-Key	296-LM358BIDRCT-ND	0.54	1.08
U6	Switching Reg.	Buck Switching Regulator IC Positive	296-34972-1-ND	2	pcs	Texas Instruments	TPS5403DR	8-SOIC	SM	Digi-Key	296-34972-1-ND	2.41	4.82
U7	ESP32-CAM	ESP32-CAM DEVELOPMENT BOARD	ESP32-CAM	1	pcs	Seeed Technology Co., Ltd	113990580	DIP-16	DIP	Digi-Key	1597-1687-ND	15.99	15.99
U8	LCD Screen	LCD Screen Serial Port Module With PCB Adapter Micro SD (240x320)	240x320px	1	pcs	Generic	MSP2807	Bulk	DIP	All-Express	2.8 inch TFT LCD Modul	7.09	7.09

Note 1: Reed switch closes and the circuit is completed when doors and windows OPEN

Total Cost: **356.46**