

Bill of Materials

Company:	University of Concordia
Project Name:	Smart Front Door
Revision:	Release 5 BOM
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Approved by:	Dmitry Rozhdvenskiy
Production date	1/28/2021

Item Number	Design Reference	Name	Description	Value	Qty	Unit	Manufacturer	Manufacturer P/N	Package	Type	Supplier	Supplier P/N	Unit Cost (\$CDN)	Total Cost (\$CDN)
1	-	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
2	-	Magnet	MAGNET 1.125"L X 0.259"W PLASTIC for 59145-030 Reed switch	57150-000	1	pcs	Littelfuse Inc.	57150-000	Bulk	Alnico 5 (AlNiCo)	Digi-Key	57150-000-ND	4.05	4.05
3	-	PCB	Project 4-Layer PCB - 63.5mm x 63.5mm	-	5	pcs	JLPCB	-	Single PCB	4 Layers	JLPCB	-		60.032
4	-	SD Card 32 GB	Gigastone 32GB Micro SD Card, Camera Plus, Full HD Available 90MB/S, U1 C10 Class 10 Micro SDHC, UHS-I Memory Card with Adapter	32gb	1	pcs	Gigastone	Micro SD Card U1	Single Micro SD card	Class 10	Amazon.ca	B089GCB8N8	9.98	9.98
5	-	USB to Serial	RF Explorer - Adapter Board	317990279	1	pcs	Seed Technology Co. Ltd	317990279	Evaluation Board	Adapter Board	Digi-Key	1597-1492-ND	8.42	8.42
6	-	Wrapped Wire	WIRE WRAP THIN PROTOTYPING & REP	50"	1	pcs	Adafruit Industries LLC	1446	Bulk	Wrapped	Digi-Key	1528-2005-ND	10.38	10.38
7	BT1	Batteries	Battery HHR PACK NI MH 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
8	BT2, SW4	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
9	C1, C2, C5, C11, C15, C17	1 uF Cap	MULTILAYER CERAMIC CAPACITORS MLCC - SMD/SMT 1UF 25V 0402 ROHS	1 uF	12	pcs	Samsung Electro-Mechanics	CL05A105KA5NQNC	0402	SM	LCSC	C52923	0.0071	0.284
10	C16	22 uF Cap	MULTILAYER CERAMIC CAPACITORS MLCC - SMD/SMT 22UF 25V 0805 ROHS	22 uF	2	pcs	Samsung Electro-Mechanics	CL21A226MAQNNNE	0805	SM	LCSC	C45783	0.0526	0.0526
11	C20, C21	10uF Cap	CAP CER 10UF 16V X5R RADIAL	10 uF	4	pcs	TDK Corporation	FK24X5R1C106KR000	Radial	Through hole	Digi-Key	445-FK24X5R1C106KR000-ND	0.69	2.76
12	C3, C9, C10, C12, C13, C19	0.1 uF Cap	MULTILAYER CERAMIC CAPACITORS MLCC - SMD/SMT 100NF 50V 0603 ROHS	0.1 uF	12	pcs	Samsung Electro-Mechanics	CL05B104KO5NNNC	0402	SM	LCSC	C1525	0.0029	0.116
13	C4, C6, C7, C8, C14, C18	10 uF Cap	MULTILAYER CERAMIC CAPACITORS MLCC - SMD/SMT 10UF 10V 0603 ROHS	10 uF	12	pcs	Samsung Electro-Mechanics	CL10A106KP8NNNC	0603	SM	LCSC	C19702	0.0169	0.338
14	CR1	Schottky Diode	Diode Schottky 25V 2A SMB	25V, 2A	4	pcs	STMicroelectronics	STPS2L25U	DO-214AA	SM	Digi-Key	497-5573-1-ND	0.51	2.04
15	D1	TVS Diodes	TVS DIODE 5.8V 10.5V DO204AC	P6KE6.8A	2	pcs	Littelfuse Inc.	P6KE6.8A	DO-204AC	Through hole	Digi-Key	P6KE6.8ALFCT-ND	0.48	0.96
16	J1, J2, J6, J7	4-wire connector male	Connector Header Surface Mount, Right Angle 4 position	S4B-PH-SM4-TB(LF)(SN)	8	pcs	JST Sales America Inc	S4B-PH-SM4-TB(LF)(SN)	Shrouded	SM, Right Angle	Digi-Key	455-1751-1-ND	1.02	8.16
17	J14, J19	7-wire connector female	7 Position Terminal Block Plug, Female Sockets 0.100" (2.54mm) 180° Free Hanging (In-Line)	14310713101000	6	pcs	HARTING	14310713101000	Shrouded	Free Hanging (In-Line)	Digi-Key	1195-3604-ND	3.72	22.32
18	J15 - J17	4-wire connector female	4 Position Cable Assembly Rectangular Socket to Individual Wire Leads	CABLE-EH04	6	pcs	Trinamic Motion Control GmbH	CABLE-EH04	Shrouded, Socket to individual wire leads	Free Hanging, (In-Line)	Digi-Key	1460-1292-ND	1.7	10.2
19	J18	5-wire connector female	5 Rectangular Connectors - Housing Receptable Natural	GHR-05V-S	2	pcs	JST Sales America Inc.	GHR-05V-S	Shrouded	Free Hanging (In-Line)	Digi-Key	455-1595-ND	0.25	0.5
20	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	4	pcs	HARTING	14110713002000	Shrouded	SM, Right Angle	Digi-Key	1195-3639-1-ND	2.87	11.48
21	J4	5-wire connector male	CONN HEADER SMD R/A SPOS 1.25MM	SM05B-GHS-TB(LF)(SN)	2	pcs	JST Sales America Inc	SM05B-GHS-TB(LF)(SN)	Shrouded	SM, Right Angle	Digi-Key	455-1567-1-ND	0.5	1
22	J8	Barrel Connector	DC POWER JACK, SMT, HORIZONTAL,	DCJ065-05-A-K1-A	2	pcs	GCT	DCJ065-05-A-K1-A	Bulk	SM, Right Angle	Digi-Key	2073-DCJ065-05-A-K1-ACT-ND	1.05	2.1
23	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
24	L1	180uH Inductor	Shielded Wirewound Inductor	180 uH	2	pcs	Boums Inc	SRR1210-181M	Nonstandard	SM	Digi-Key	SRR1210-181MCT-ND	1.64	3.28
25	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
26	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
27	R1	200 Ω Res	CHIP RESISTOR - SURFACE MOUNT 200OHMS ±1% 1/8W 0805 ROHS	200 Ω	2	pcs	Uniroyal Elec	0805W8F2000T5E	0805	SM	LCSC	C17540	0.0035	0.07
28	R14	10 kΩ Res (0.1% Tol)	RES SMD 10K OHM 0.1% 1/10W 0603	10 kΩ	2	pcs	Yageo	ERA-6AEB304V	0805	SM	Digi-Key	P300KDACT-ND	0.46	0.92
29	R17	931 kΩ Res	RES SMD 931K OHM 1% 1/8W 0805	931 kΩ	2	pcs	Yageo	RC0805FR-07931KL	0805	SM	Digi-Key	311-931KCRT-ND	0.15	0.3
30	R18	300 kΩ Res	CHIP RESISTOR - SURFACE MOUNT 300KOHMS ±1% 1/8W 0805 ROHS	300 kΩ	2	pcs	Uniroyal Elec	0805W8F3003T5E	0805	SM	LCSC	C17616	0.0036	0.072
31	R19	499 Ω Res	RES 499 OHM 1% 1/8W 0805	499Ω	2	pcs	Vishay Dale	CRCW0805499RFKEAC	0805	SM	Digi-Key	541-CRCW0805499RFKEACCT-ND	0.15	0.3
32	R2, R3, R5, R7, R10 - R16	10 kΩ Res	CHIP RESISTOR - SURFACE MOUNT 10KOHMS ±1% 1/8W 0805 ROHS	10 kΩ	22	pcs	Uniroyal Elec	0805W8F1002T5E	0805	SM	LCSC	C17414	0.004	0.088
33	R20 - R22	200 kΩ Res	CHIP RESISTOR - SURFACE MOUNT 200KOHMS ±1% 1/8W 0805 ROHS	200 kΩ	6	pcs	Uniroyal Elec	0805W8F2003T5E	0805	SM	LCSC	C17539	0.0044	0.088
34	R23	150 kΩ Res	CHIP RESISTOR - SURFACE MOUNT 150KOHMS ±1% 1/8W 0805 ROHS	150 kΩ	2	pcs	Uniroyal Elec	0805W8F1503T5E	0805	SM	LCSC	C17470	0.0057	0.114
35	R24	10 kΩ Trimmer	Trimmer 10K Ω	10 kΩ	2	pcs	Bourns Inc	TC33X-2-103E	SOD-23	SM	Digi-Key	TC33X-103ECT-ND	0.4	0.8
36	R25	86.6 kΩ Res	RES SMD 86.6K OHM 1% 1/8W 0805	86.6 kΩ	2	pcs	Yageo	RC0805FR-0786K6L	0805	SM	Digi-Key	311-86.6KCRT-ND	0.15	0.3
37	R26	100 Ω Res	CHIP RESISTOR - SURFACE MOUNT 100OHMS ±1% 1/8W 0805 ROHS	100 Ω	2	pcs	Uniroyal Elec	0805W8F1000T5E	0805	SM	LCSC	C17408	0.0035	0.07
38	R27	180 Ω Res	RES 180 OHM 1/8W 5% AXIAL	180 Ω	2	pcs	Stackpole Electronics Inc	CF18JT180R	Axial	Through hole	Digi-Key	CF18JT180RCT-ND	0.15	0.3
39	R4, R6	100 kΩ Res	CHIP RESISTOR - SURFACE MOUNT 100KOHMS ±1% 1/16W 0402 ROHS	100 kΩ	4	pcs	Uniroyal Elec	0805W8F1003T5E	0805	SM	LCSC	C17407	0.0038	0.076
40	R8	0.4 Ω Res	RES 0.4 OHM 1% 1/8W 0805	400 mΩ	2	pcs	Yageo	RL0805FR-070R4L	0805	SM	Digi-Key	13-RL0805FR-070R4LCT-ND	0.65	1.3
41	R9	1.43 kΩ Res	RES SMD 1.43K OHM 1% 1/8W 0805	1.43 kΩ	2	pcs	Yageo	RC0805FR-071K43L	0805	SM	Digi-Key	311-1.43KCRT-ND	0.15	0.3
42	SW1, SW2	Switch Button	Tactile Switch Top Actuated Surface Mount	PTS 647 SK50 SMTR2 LFS	4	pcs	C&K	PTS 647 SK50 SMTR2 LFS	PTS647-NO	SM	Digi-Key	PTS647SK50SMTR2LFSCT	0.2	0.8
43	SW3	Switch Button	Tactile Switch SPST-NO Top Actuated Through Hole	1825910-6	2	pcs	TE Connectivity ALCOSWITCH Switches	1825910-6	SPST-NO	Through hole	Digi-Key	450-1650-ND	0.15	0.3
44	SW5	Reed Switch	SENSOR REED SW SPDT WIRE LEADS	59145-030	1	pcs	Littelfuse Inc.	59145-030	Wire terminated	SPDT	Digi-Key	59145-030-ND	6.58	6.58
45	U1	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
46	U2	ESP32-SOLO-1	ESP32-SOLO-1 Board, 2.4GHz, 150Mbps, 3.6V	ESP32-SOLO-1	2	pcs	Espressif Systems	ESP32-SOLO-1	38-SMD Module	SMD	Digi-Key	1965-ESP32-SOLO-1CT-ND	5.12	10.24
47	U3	Motor Controller	Bipolar Motor Driver Power MOSFET Parallel	DRV8832QDQGRQ1	2	pcs	Texas Instruments	DRV8832QDQGRQ1	10-TFSOP, 10-MSOP	SM	Digi-Key	298-51093-1-ND	3.92	7.84
48	U4	Op-Amp	IC OPAMP GP 2 CIRCUIT 8VSSOP	TLV8812DGKR	2	pcs	Texas Instruments	TLV8812DGKR	8-VSSOP	SM	Digi-Key	298-45065-2-ND	1.28	2.56
49	U5	Switching Reg.	Buck Switching Regulator IC Positive	TPS5403DR	2	pcs	Texas Instruments	TPS5403DR	8-SOIC	SM	Digi-Key	296-34972-1-ND	2.41	4.82
50	U6	ESP32-CAM	ESP32-CAM DEVELOPMENT BOARD	113990580	1	pcs	Seed Technology Co., Ltd	113990580	DIP-16	DIP	Digi-Key	1597-1687-ND	15.99	15.99
51	U7	LCD Screen	with SD Card Socket 5V/3.3V + Touch Pens	240x320px	1	pcs	WayinTop	FCWYTP69	Bulk	DIP	Amazon.ca	B087C3PP9G	24.99	24.99
Total Cost:														493.37

Note 1: The PCB price accounts for 2 days building fee, minimum quantity of 5 units and 10\$ SMT setup fee.
Note 2: The price of the parts supplied by LCSC have a fixed price up to a maximum quantity. If the quantity is surpassed, the unit cost is considered instead.
Note 3: The components ordered through LCSC will be installed by SMT by the PCB manufacturer