GATEBOX: PARTS LIST (SIMPLIFIED)

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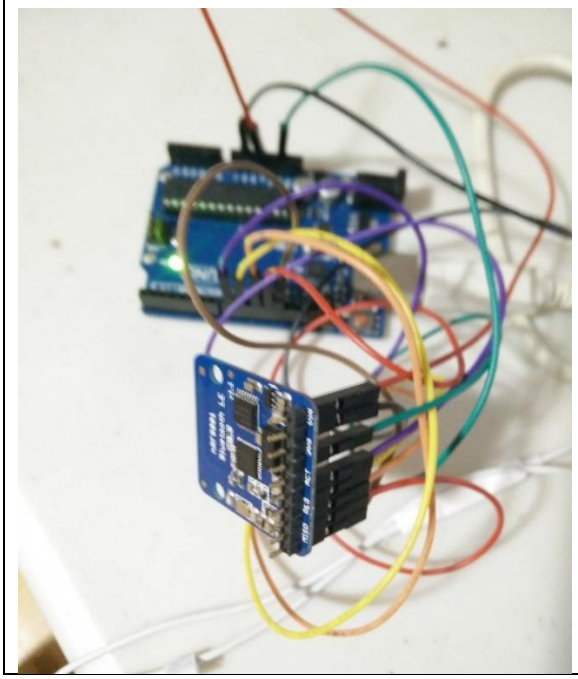
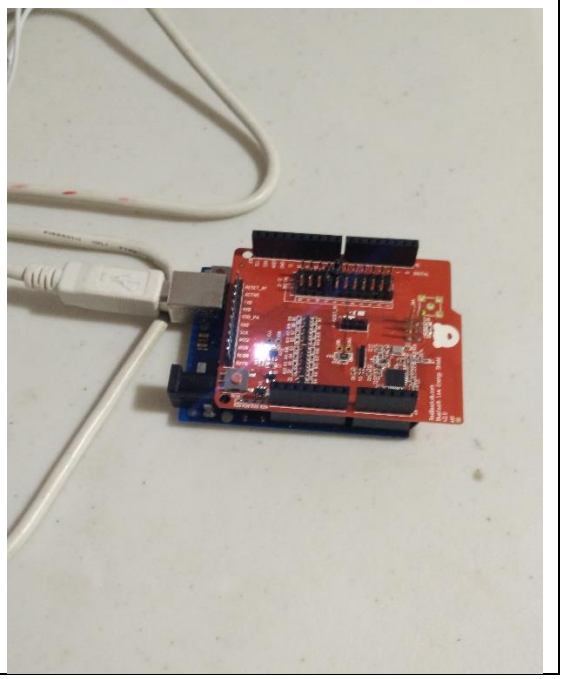
Introduction

This parts list is where we recommend you start testing this project. It is considered simplified because rather than making the complex circuitry of the Bluetooth Low Energy chip, we use a pre-existing chip. You can approach this in the following ways:

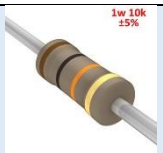
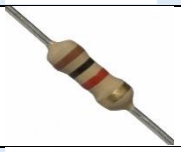
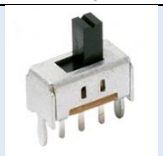
A. You can use an Arduino UNO board, a Bluetooth Low Energy Chip and a perf board for the relay circuitry. **This is the simplest possible approach to this project.**
B. You can use an Arduino UNO board, a Bluetooth Low Energy Chip and a PCB (from PCB V7.brd). This is a lot like the previous method but can speed up development since you will not have to solder as many parts. As you are already using an Arduino UNO, you will not have to solder all the parts on the resulting PCB.
C. You can solder all the components on the PCB V7.brd board (the PCB has place for Arduino UNO's components) and use a Bluetooth Low Energy chip.

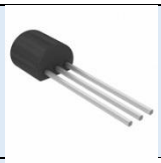
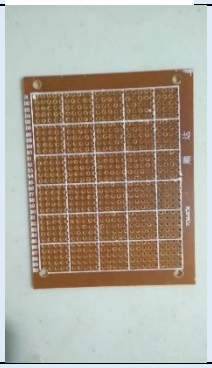
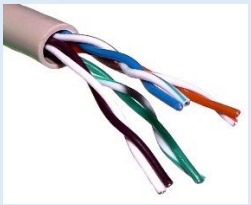
What you will need:

1. As the GateBox device is expected to be up and running for 24/7, you will require a 5V DC power supply that can power the Arduino UNO.
2. A Bluetooth Low Energy module from Nordic Semiconductors called "nRF8001". There are two options you can choose from that already have the circuitry built in.

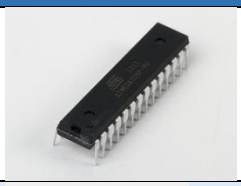
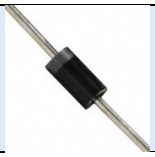
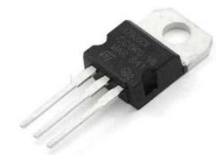
Option 1	**Option 2**
The Adafruit Bluetooth Low Energy nRF8001 breakout board (https://www.adafruit.com/product/1697)	The RedBearLab BLE shield (http://redbearlab.com/bleshield/)
	

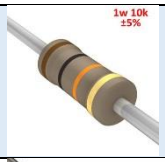
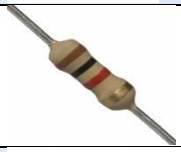
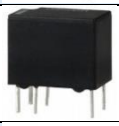
Parts List for Option A and B

Part	Digikey/ Element14 Part No.	Manufacturer Part No.	Quantity	Picture	Cost (CANADIAN $)
ARDUINO UNO REV 3	1050-1024-ND	**A000066**	1		33.43
Terminal blocks	ED1623-ND	ED500/2DS	4		0.85
3mm LED, FWD V= 2.1V FWD I= 20mA	94T8843	703-0087	3		$0.184
10K Ω Resistor, 1W, 5%	95W5667	CFR100J10K	8		$0.18
1K Ω Resistor, 1/4W, 5%	25M8365	CBT25J1K0	7		$0.32
6 Pin Male Header	609-3263-ND	68000-406HLF	4		$0.24
G5V-1-DC Low Signal Relay	Z773-ND	G5V-1-DC5	4		2.77
SPDT Sliding Switch	CKN9565-ND	OS102011MS2QN1	1		0.54
DIODE GEN PURP	1N4148TACT-ND	1N4148TA	4		0.14

Transistor NPN	2N3904FS-ND	2N3904BU	4		0.26
SWITCH PUSH SPST-NO	EG1900-ND	**RP3502ABLK**	5		2.80
Prototype Board (Not needed for Option B)	Any brand of your choosing	**Any brand of your choosing**	1		-
24-30 AWG wire (For connections on perf board. Alternatively, you can strip open a CAT5 cable and use the one of the 8 small wires instead.)	Any brand of your choosing	**Any brand of your choosing**	-		-
Soldering iron and Solder	Any brand of your choosing	**Any brand of your choosing**	-	-	-

Parts List for Option C

Part	Digikey/ Element14 Part No.	Manufacturer Part No.	Quantity	Picture	Cost (CANADIAN $)
Atmega 328p Microcontroller	68T2944	ATMEGA328P-PU	1		$3.24
16 MHz Crystal Oscillator	18C1481	XT9S20ANA16M	1		$0.338
28 pin DIP IC Socket	34P8056	4828-3004-CP	1		$0.503
Rectifier Diode 1A, 50V	10M8464	1N4001	1		$0.113
LM-7805-CT Linear Voltage Regulator	MC7805CTG	MC7805CT-BPMS-ND	1		$0.487
Terminal blocks	ED1623-ND	ED500/2DS	4		0.85
2.1mm DC Barrel Jack	CP-037A-ND	PJ-037A	1		$1.23
100uF, 25V Aluminum Electrolytic Capacitor	39T8695	25YXH100MEFC6.3X11	2		$0.075
22 pF, 50 V Ceramic Capacitors	BC1034TR-ND	K220J15C0GF5TH5	2		$0.34

3mm LED, FWD V= 2.1V FWD I= 20mA	94T8843	703-0087	3		$0.184
10K Ω Resistor, 1W, 5%	95W5667	CFR100J10K	8		$0.18
1K Ω Resistor, 1/4W, 5%	25M8365	CBT25J1K0	7		$0.32
6 Pin Male Header	609-3263-ND	68000-406HLF	4		$0.24
G5V-1-DC Low Signal Relay	Z773-ND	G5V-1-DC5	4		2.77
SPDT Sliding Switch	CKN9565-ND	OS102011MS2QN1	1		0.54
DIODE GEN PURP	1N4148TACT-ND	1N4148TA	4		0.14
Transistor NPN	2N3904FS-ND	2N3904BU	4		0.26
SWITCH PUSH SPST-NO	EG1900-ND	**RP3502ABLK**	5		2.80