Wireless Outline

These are some things to be aware of or study further. You will find your own preferences! This list is not comprehensive and may even be missing something popular!

AT commands (Hayes command set – originally for controlling modems)

WiFi (802.11, 2.4 GHz)

- Esp8266 (CHEAP, a little complex, no Arduino needed, **or** use one + AT commands)
- Oak (example of one of dozens of ESP-based kickstarters)
- cc3000, W5100 (classic wifi shields, use a library)
- WiFly (low power, kinda expensive, a little old)
- Particle (Really easy – similar to Oak but more established, different module, less cheap)
- Arduino Yun (buggy – just avoid it)

Bluetooth (802.15.1 [previously], 2.4 GHz)

- Use LE (BT 4.0+) – might be more expensive but WAY less power and better compatibility w/ newer devices
- Legacy – ok to use as well, especially if you get a good deal

xBee (802.15.4, 2.4 GHz)

- X-ctu to program (from digi – after clocking download, scroll down and click “no thanks, register later”
- Pro versions are just higher power transmitter, ~1 mile of range instead of ~300feet.
- AT commands
- Point to point, point to multipoint, mesh (certain models)

Nordic (2.4GHz)

- nRF24L01+ (good. Cheap, low power, tricky to use sometimes)
- ANT (old, used to be good?, I know very little about it)
- Low power, bi-directional

Cheap RF

- 433/315 MHz basic (one way)
- RFM12/22 (more advanced version of above)

Cellular

- GSM (2G) – T-mobile in USA, Rogers in Canada – usually use MMS.
- LTE/4G – hard to find but better N. America compatibility

R/C (usually 2.4Ghz, but other frequencies are available)

- Usually a TX, handheld controller + RX receiver
- Can be adapter for Arduino input w/o much difficulty
- A little expensive but provides a ready to go controller for robots, etc.

Considerations:

- Range (distance limitation)
- Power (voltage and current requirements, especially for battery)
- Data rate (how fast can it communicate)
- Data type (serial, IP (internet), AT (hayes command set or derivative))
- Antenna (some built in, some are on breakout, some external. May not be included)
- PRICE (very wide range)
- Physical Size (very wide range of sizes)