Electronics Part List

Microcontroller:

* Used for controlling all electronics.
* An Arduino Uno (already in possession of 1)

Sensors:

* 9-Degrees Of Freedom Inertial Measurement Unit:
  + Includes a 3-Axis Accelerometer, 3-Axis Gyroscope, and a 3-Axis Magnetometer
  + 2 choices:
    - Adafruit 9-DOF IMU Breakout - L3GD20H + LSM303
      * <https://www.adafruit.com/product/1714>
      * Cost: $19.95/pc
    - Adafruit 9-DOF Absolute Orientation IMU Fusion Breakout - BNO055
      * <https://www.adafruit.com/product/2472>
      * Cost: $34.95/pc

Communications Module (GSM & GPRS):

* Based off 2G technology.
* 4 choices (2 come with GPS inbuilt). All require and external antenna (GPS included variants also need an additional one for the GPS module):
  + Adafruit FONA 808 Shield - Mini Cellular GSM + GPS for Arduino
    - <https://www.adafruit.com/product/2636>
    - Cost: $49.95/pc
  + Adafruit FONA 808 - Mini Cellular GSM + GPS Breakout
    - <https://www.adafruit.com/product/2542>
    - Cost: $49.95/pc
  + Adafruit FONA 800 Shield - Voice/Data Cellular GSM for Arduino
    - <https://www.adafruit.com/product/2468>
    - Cost: $39.95/pc
  + Adafruit FONA - Mini Cellular GSM Breakout uFL Version
    - <https://www.adafruit.com/product/1946>
    - Cost: $39.95/pc

GPS (other variants):

* If the GSM & GPRS + GPS Shield/Module isn’t used, then the following shields/modules are to be used (All have an inbuilt passive antenna, and an external active antenna can be attached):
  + Adafruit Ultimate GPS Logger Shield (Requires SD Card for data logging; has an internal SD Card adapter):
    - <https://www.adafruit.com/product/1272>
    - Cost: $44.95/pc
  + Adafruit Ultimate GPS Breakout - 66 channel w/10 Hz updates - Version 3 (Requires an external SD Card adapter module for data logging):
    - <https://www.adafruit.com/product/746>
    - Cost: $39.95/pc

Antennae:

* GSM & GPRS:
  + Slim Sticker-type GSM/Cellular Quad-Band Antenna - 3dBi uFL (Antenna Length: 75mm)
    - <https://www.adafruit.com/product/1991>
    - Cost: $2.95/pc
  + Slim Sticker-type GSM/Cellular Quad-Band Antenna - 3dBi - 200mm (Antenna Length: 238mm)
    - <https://www.adafruit.com/product/3237>
    - Cost: $2.95/pc
* GPS:
  + Passive GPS Antenna uFL - 9mm x 9mm -2dBi gain (Antenna Length: 9mm + 50mm)
    - <https://www.adafruit.com/product/2460>
    - Cost: $4.95/pc
  + Passive GPS Antenna uFL - 15mm x 15mm 1 dBi gain (Antenna Length: 15mm + 50mm)
    - <https://www.adafruit.com/product/2461>
    - Cost: $3.95/pc

Shield Stacking Headers:

* Required since multiple shields/modules are being used:
  + Shield stacking headers for Arduino (R3 Compatible):
    - <https://www.adafruit.com/product/85>
    - Cost: $1.95/pc
  + Plain Headers are included in the modules and shields.

Final Cost:

* These costs exclude shipping costs and tax (it is possible that these modules may be available for cheaper prices elsewhere, excluding shipping costs and tax)
* Lowest: $76.80
* Highest: $130.65

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