Computer for handheld unit:

Using Raspberry Pi 4 since myself and many others already have one. Will be easier will all the docs and support, also has a built-in connector for adding displays. I wanted to use the Raspberry Pi Zero W, and I think it would work just the same (however adding a display might be different without the built-in connector.)

Raspberry Pi 4 ($35 without shipping):

Specifications

- Broadcom BCM2711, Quad core Cortex-A72 (ARM v8) 64-bit SoC @ 1.5GHz
- 2GB LPDDR4-3200 SDRAM (depending on model)
- WiFi and Bluetooth 5.0, BLE
- 2 USB 3.0 ports; 2 USB 2.0 ports.
- 40 pin GPIO header
- 2 × micro-HDMI ports
- 2-lane MIPI DSI display port
- 2-lane MIPI CSI camera port
- 4-pole stereo audio and composite video port
- OpenGL ES 3.0 graphics
- Micro-SD card slot for loading operating system and data storage
- 5V DC via USB-C connector (minimum 3A*)
- 5V DC via GPIO header (minimum 3A*)

* A good quality 2.5A power supply can be used if downstream USB peripherals consume less than 500mA in total.

Raspberry Pi Zero W ($10 without shipping):

- Wi-Fi and Bluetooth 4.1, BLE
- Broadcom BCM2835, 1GHz, single-core ARM1176JZFS CPU
- 512MB RAM
- Mini HDMI and USB On-The-Go ports
- Micro USB power
- HAT-compatible 40-pin GPIO header
- Composite video and reset headers
- CSI camera connector

OBD-II to UART interpreter:

I want to try out the STN1110, but the ELM327 chip is so popular it might be the best choice given the current circumstances.

ELM327 ($21 without shipping)

OBD to RS232 interpreter – verson 2.2

- Very popular and well documented
- Power control with a standby mode
- Universal serial (RS232) interface
- Automatically searches for protocols
- Fully configurable with AT commands
- Low power CMOS design

Operating voltage: 4.5 to 5.5V DC

Operating current: 12mA

Power saver mode: 0.15mA

Operating power: 60mW at 5V

Power saving power: 0.75mW at 5V

Cons:

- Costly
- Many buggy fakes/clones if not purchased from official sites

STN1110 ($10 without shipping)

OBD to UART interpreter

- Fully compatible with the ELM327 (AT) command set
- Extended (ST) command set
- UART interface with wide range of baud rates
- Automatic protocol detection
- Larger memory buffer (more RAM)
- Voltage input for battery monitoring
- SparkFun has a dev board and documentation

Operating voltage: 3-3.6V DC

Operating current: 63mA

Power saver mode: <2mA

Operating power: 207.9mW at 3.3V

Power saving power: 6.6mW at 3.3V

Cons:

- o Less documentation and examples
- o Uses slightly more power

https://www.obdsol.com/downloads/stn1110_vs_elm327.pdf

Bluetooth Transceiver:

HC-05 is the most used, Kevin also recommended that we use it since it is so popular. The HC-06 is also popular but it can only be a slave device, however I don't think this would be an issue. The handheld device would just have to be the initiator/master for the Bluetooth connection. I'm not sure which to go with, probably the HC-05 to be safe.

HC-05

https://www.amazon.com/HiLetgo-Wireless-Bluetooth-Transceiver-Arduino/dp/B071YJG8DR

https://www.mouser.com/ProductDetail/Seeed-Studio/113990637?qs=gZXFycFWdAMlTq%252B0pAB4jw%3D%3D

HC-06

https://www.amazon.com/HiLetgo-Wireless-Bluetooth-Transceiver-Support/dp/B01CKW4FSI