



GPS SEMINAR



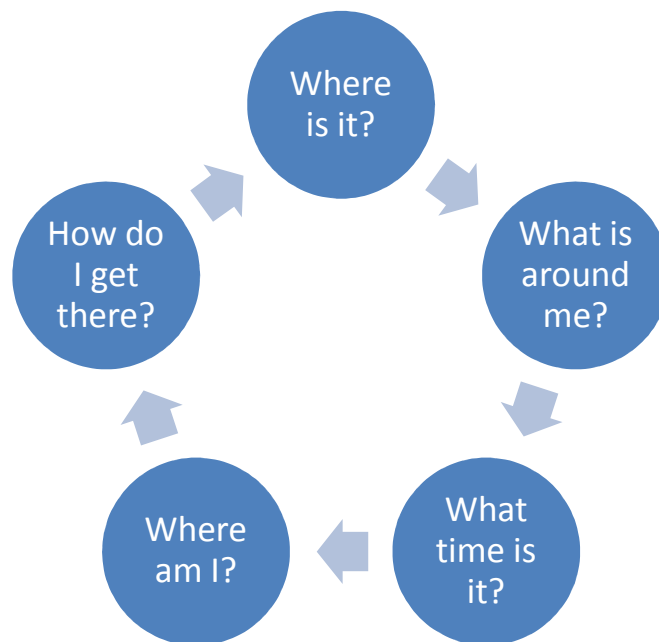
Overview

1. How GPS works
2. Usage fees
3. Types of units available: Mobile, handheld, PDA
4. Uses
5. Pricing, Features and limitations
6. How we use them in the SEP
7. Where to buy

How does GPS work?

GPS units are radio receivers. They do not transmit.

- receive signals from satellites
- Receives many satellites at the same time
- The more satellites received, the better the accuracy
- Reception can be compromised by trees and buildings.
- Generally need line of sight to the satellite.
- Need at least 3 satellites locked for a 2D fix, more for a 3D fix.
- SA (Selective availability) removed in May 2002. Accuracy now down to 20 feet or less



http://www.youtube.com/watch?v=wi_3XwkA8cQ&NR=1

Usage Fees

Unlike cellular phones.....there are

No Usage fees

No license fees





Type of units: 1: Automotive

- a. Removable (add on accessory) or built into car
- b. May or may not have battery
- c. Removable type uses suction cup to windshield or dash (Windshield use illegal in California)
- d. Can block vision if improperly installed.
- e. Newer types are Bluetooth enabled for audio and cell phone operation
- f. Powered internally or plugs into cigarette lighter socket
- g. Some have built in speakers to assist in routing to your destination
- h. Some units have provision for external antenna connection for better reception.
- i. Most popular screen size is 4.3 inches, although 3.5" is widely available
- j. Battery use if available, is limited to a couple of hours depending on backlight level on LCD screen
- k. Most come with USB support but lack serial port input/output



Serial Port
Data I/O





Type of units: 2: Handheld



Serial Port
Data I/O supported



Serial Port
Data I/O

- Smaller means pocket sized
- Batteries last 5 hours to 24 hours depending on backlight
- May come with or without street maps.
- May have memory slot or not for adding/changing maps
- If using disposable batteries, usually 2 AA batteries
- Smaller screen, held closer to face
- Usually built rugged, water resistant or water proof for camping and other outdoor use.
- Most come without serial data input/output but have USB connections to computer for map upgrading
- Some smaller units are available to be worn on the wrist as a watch. Short battery life.
- Most manufacturers have accessories to make a handheld unit work in an automobile



Serial Port
Data I/O





Type of units: 3: PDA

- a. Personal Data Assistant (HP IPAQ, PALM organizers)
- b. Good street level mapping of North America
- c. Multi-purpose and tasking handheld computer and GPS
- d. Usually has USB but no serial input/output capabilities
- e. Most manufacturers have accessories that allow a PDA unit to be used in an automobile.
- f. Some units may be embedded into cell phones



HP 5910
Windows Mobile Computer
And GPS



Uses



- Aircraft
- Marine
- Automobile (emergency response, OnStar)
- Geocaching (treasure hunt)
- Surveying
- Fishing
- Hunting
- Search & Rescue (Saanich Emerg. Pgrm)
- Hiking
- Get Directions
- Ham radio experiments with APRS
- Points of Interest
- Fleet Management & tracking
- Golfing (golf carts calculate distance)



<http://www.youtube.com/watch?v=flsZVs4l3gU>

Pricing

Features & Limitations

- GPS works best in line of sight locations

Avoid trees, tall buildings

- Earlier units are less sensitive than recently manufactured units. Look for the name SiRF3 on the package

- Can start at <\$100 to over \$800

- Special units are made for motorcycles (bright screen, water-proof, operate with gloves on)

- Screens can vary. Some are better than others in direct sunlight.

- Power consumption goes up with brighter screens. Battery life can be shortened drastically.

- Units vary greatly in size and weight.

- Some units have built in maps which are not upgradeable

- Other units use memory cards. You can buy mapping software to download to the card.

- Some units have optional pre-formatted cards with maps for a price.

- Some units have serial port I/O to work with other laptop mapping programs such as Ozzie Explorer or MS Streets and trips

- Some units have built in antennas inside the case, others have swing up antennas, and others have removable antennas or have external antenna connectors for optional rooftop antennas.

Some units have voice output and input, while others only have output.

- Most units have touchscreen, but some only have buttons.

- Most units formatted with maps for North America do not show any map information, coastal outlines outside of the region.

Where to buy?

Locally:

Future Shop

Canadian Tire

Walmart

A&B Sound

London Drugs

Rotek Communications

Victoria Marine Electric

Out of town:

Radioworld: www.radioworld.ca (Toronto, On)

GPS City: www.gpscitiy.com (Calgary, Ab)

Some GPS Manufacturers:

Garmin

Tom Tom

Mio

Lowrance

Co-Pilot

Holux

Magellan

