

## Module 1 Introduction to GPS

### Objectives:

The overall objective of this exercise is to allow the student to obtain hands-on experience with a GPS receiver. The student will learn how to locate his/her position, navigate through a user-friendly interface, mark a waypoint, navigate to a predetermined waypoint, and calculate the area of a parcel of land. It is assumed that the student has had no prior experience with GPS receivers.

### Part 1: Introduction to Garmin eTrex Legend



#### Step 1: Satellite Position

- Turn on the eTrex Legend by pressing and holding the *Power* button.
- The first screen you will see will be the *Satellite* page. Wait and observe the number and position of satellites the unit is receiving. The outer ring represents the horizon, while the inner ring represents an overhead view of the sky at 45 degrees from the vertical. The black bars along the bottom of the screen represent satellite signal strength. The satellites you are receiving will be represented by black bars. Also notice that the latitude, longitude, and elevation are also shown.
- When sufficient satellites are received, *Ready to Navigate* will display at the top of the screen.

#### Step 2: Current Location Data (1 pt)

- Your instructor will have a pre-selected waypoint to begin your navigation.
- Write down the following:
  - Latitude: \_\_\_\_\_ Longitude: \_\_\_\_\_ (specify direction)
  - Elevation: \_\_\_\_\_
  - The numbers of the satellites you are communicating with: \_\_\_\_\_
  - What is the current accuracy in ft. \_\_\_\_\_.

**Step 3: Navigate to selected Waypoints (3 pts)**

(Instructor Note: The number of waypoints will change depending upon the class size.

You will want to break the class into groups and assign them different waypoints.)

- a. Push the *Page* button to scroll to the *Main Menu*.
- b. Use the Click Stick to highlight the *Find* icon. Press the Click Stick to select.
- c. Select *Waypoints* in the Find dialog box and *By Name* in the Waypoints dialog box.
- d. The Waypoints dialog box will show the Waypoints that you will navigate to on campus. Highlight and select the waypoint assigned to your group.
- e. Highlight and select the *Goto* button. The *Navigation* screen shows a compass with an arrow pointing towards the direction of the selected waypoint. The estimated time and distance to the waypoint is shown at the top. The Speed and Heading are shown at the bottom of the screen.



f. Begin walking a direction for at least 50 feet. Follow the arrow to the Waypoint. You may not be able to pinpoint the exact location due to receiver error. Write down the following:

1. Waypoint number: \_\_\_\_\_
2. What is the object? \_\_\_\_\_
3. What is the Latitude: \_\_\_\_\_ Longitude: \_\_\_\_\_ (located on satellite page)
4. What was the change in Latitude: \_\_\_\_\_ and Longitude: \_\_\_\_\_ between the starting point and your first waypoint.

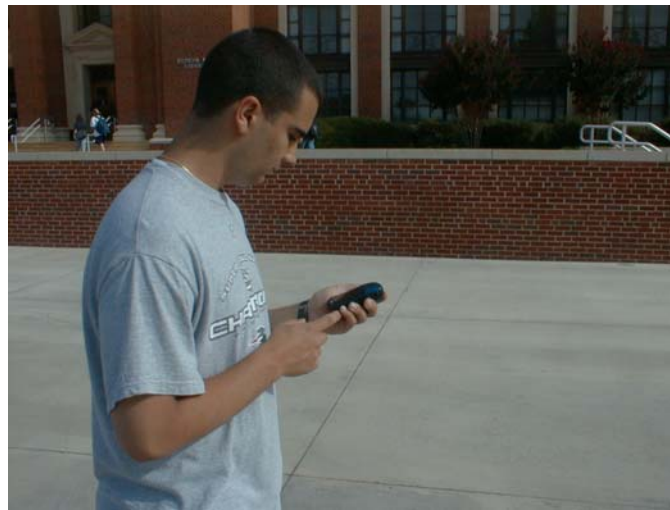
g. Use the *Page* button to scroll to the Map screen. Use the *zoom* buttons to view your track to the first waypoint.

h. Repeat the above steps to navigate to the remaining waypoints. Record the following for each waypoint.

1. Waypoint number: \_\_\_\_\_
2. What is the object? \_\_\_\_\_
3. What is the Latitude: \_\_\_\_\_ Longitude: \_\_\_\_\_ (located on satellite page)

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**Step 4: Find a New Object:**

- a. Go to the *Main Menu* and select the *Mark* icon.
- b. When the *Mark Waypoint* screen appears highlight the number and select it. Give the waypoint a descriptive name. Highlight the black dot above the waypoint name and select an appropriate icon that represents the waypoint.
- c. Select the OK button to log the waypoint.
- d. Go to the Map screen to see the waypoint mapped.

**Step 5: Other features (2 pts)**

**Area Calculation:**

- a. Using the *Page* button select the *Accessories* icon and then the *Area Calc.* icon.
- b. Look at the area identified by your instructor. Write down how many acres you estimate this area to be: \_\_\_\_\_
- c. Select *Start* when you are ready, walk the perimeter, and then select *Stop*.
- d. Write down the actual size of the area in acres: \_\_\_\_\_, in sq. ft.: \_\_\_\_\_  
 \*\*To change the units, highlight the units with *click stick* and scroll until desired unit is found\*\*

**Other Options: (2 pts)**

- a. Go to *Main Menu* and select *Accessories*.
  1. When is Moonrise: \_\_\_\_\_
  2. When is Sunset: \_\_\_\_\_
  3. What is the best time today to go hunting/fishing: \_\_\_\_\_



**Step 6: Trip Computer Data: (2 pts)**

- a. Use the *Page* button to scroll to the *Trip Computer* screen.
- b. Write down the following information:
  - Distance traveled: \_\_\_\_\_
  - Moving time: \_\_\_\_\_
  - Stopped time: \_\_\_\_\_
  - Moving avg.: \_\_\_\_\_
  - Overall avg.: \_\_\_\_\_
  - Speed: \_\_\_\_\_

**\*\*Instructor Note:** If you have multiple classes you will want to reset the Trip Computer. Go to Trip Computer screen and select *Menu* and *Reset*. Check the top four boxes and select *apply*\*\*