To plot GPS points that are 50 meters ahead and 50 meters behind a current position, you can use the **geopy** library in Python to calculate the distance between points on the Earth's surface. Here's some sample code that demonstrates how to do this:

from geopy.distance import distance

import matplotlib.pyplot as plt

# Define the route points as a list of tuples (latitude, longitude)

route\_points = [(37.7749, -122.4194), (37.7752, -122.4191), (37.7755, -122.4188)]

# Define the current position as a tuple (latitude, longitude)

current\_position = (37.7750, -122.4193)

# Define the distance threshold (50 meters in this case)

distance\_threshold = 50

# Calculate the distances between the current position and each route point

distances = [distance(current\_position, point).meters for point in route\_points]

# Find the index of the closest point to the current position

closest\_index = min(range(len(distances)), key=distances.\_\_getitem\_\_)

# Get the indices of the points 50 meters ahead and behind the current position

prev\_index = max(closest\_index - 1, 0)

next\_index = min(closest\_index + 1, len(route\_points) - 1)

# Extract the latitude and longitude coordinates of the points

prev\_point = route\_points[prev\_index]

next\_point = route\_points[next\_index]

# Plot the points on a map

plt.scatter([p[1] for p in route\_points], [p[0] for p in route\_points], c='b')

plt.scatter([prev\_point[1], current\_position[1], next\_point[1]], [prev\_point[0], current\_position[0], next\_point[0]], c='r')

plt.show()

In this code, we first define the **route\_points** as a list of tuples that represent latitude and longitude coordinates. We also define the **current\_position** as a tuple that represents the current latitude and longitude. We then use the **geopy.distance.distance()** function to calculate the distance between the current position and each route point. We find the index of the closest point to the current position using the **min()** and **range()** functions, and then calculate the indices of the points that are 50 meters ahead and behind the current position. Finally, we plot the route points on a map using **matplotlib.pyplot.scatter()**, and highlight the current position and the points 50 meters ahead and behind it using a different color.