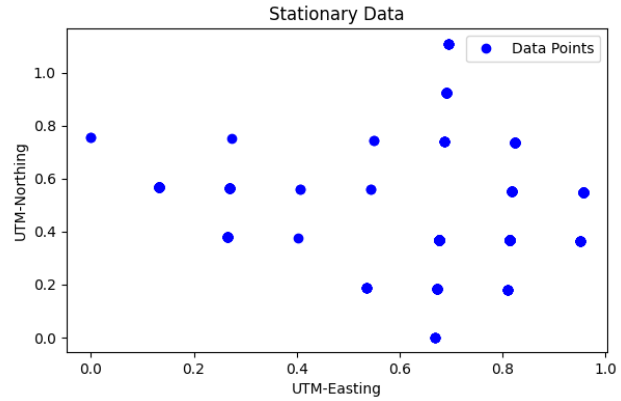
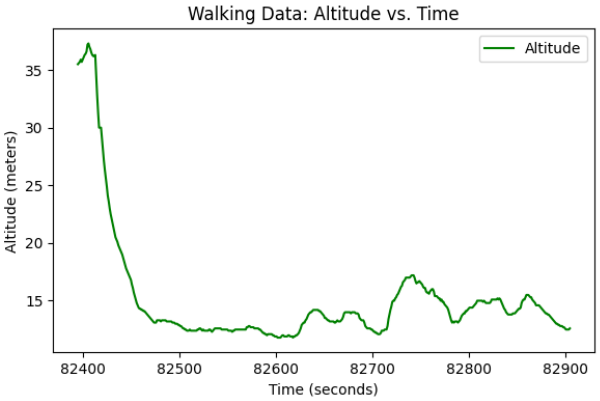
LAB 1 PRESENTATION





GRAPH 1: STATIONARY DATA COMPARISON BETWEEN UTM-EASTING AND UTM-NORTHING

If the GPS position was truly stationary the graph would have just shown one single point on the graph. The fact that I got a scatterplot as a result of the GPS UTM-Easting and UTM-Northing being varied in a tolerance of 1.0 shows that the GPS was not really stationary.

There are a couple of reasons that could make such an error in the result:

A) GPS signal being reflected off due to nearby buildings.
B) Error in the location reported by the GPS itself.

GRAPH 2: WALKING DATA COMPARISON BETWEEN UTM-EASTING AND UTM-NORTHING

The walking data was taken while walking across Carter playground. This was a diagonal walk i.e not going from east to west or from north to south. Such a walk if done straight will have a perfect slope in the graph. However the graph is slightly

flatter in some places, steeper in some places and even has some dips in the slope throughout the walk.

There are a couple of reasons that could make such an error in the result:

A) The walk is not a perfectly straight walk.
B) The GPS might be reading slightly wrong values due to any obstructions in the signal.

GRAPH 3: WALKING DATA COMPARISON BETWEEN TIME AND ALTITUDE

The altitude of the puck was varying throughout the walk. Even though I tried to keep the puck at a steady altitude, the hand movement must have caused some ups and downs in the altitude. But even keeping that in mind the altitude does seem a bit off in the beginning of the graph.

There are a couple of reasons that could make such an error in the result:

A) The initial calibration of the puck when the code starts might be giving some outliers in the trend that probably do not even exist in the actual altitude.
B) Constant hand movement causes constant fluctuations in the altitude which makes the ideal constant altitude impossible to achieve.

Overall it can be said that both the stationary and moving data sets do have some anticipated errors due to many physical, hardware or even software issues, but in comparison the stationary data graph still stays pretty stable in comparison to the moving data as it is less sensitive to physical variables which cause the most fluctuation between graphs. For example the stationary data does stay pretty stable and only produces a scatter plot which hardly changes its position, on the other hand when a GPS device is constantly moved from one place to another, it is likely to change more vigorously.

Physical likely sources for the changes in the graph and the cause of errors present throughout the graph include physical movement of the GPS puck and External physical objects such as buildings and trees.