

Load data

```
load('MobileSensorData/steps-6-280.mat');
lat=Position.latitude;
lon=Position.longitude;
positionDatetime=Position.Timestamp;

Xacc = Acceleration.X;
Yacc = Acceleration.Y;
Zacc = Acceleration.Z;
accelDatetime=Acceleration.Timestamp;

positionTime=timeElapsed(positionDatetime);
accelTime=timeElapsed(accelDatetime);
spd = Position.speed
```

```
spd = 137x1
    0.1900
    0.7600
    1.2500
    1.0200
    1.1900
    1.1800
    1.0800
    1.0100
    1.0700
    1.0900
    ⋮
```

Calculate distance

```
distanceInMeters = getDistance(lat,lon)
```

```
distanceInMeters = 209.2681
```

```
stride = 0.7
```

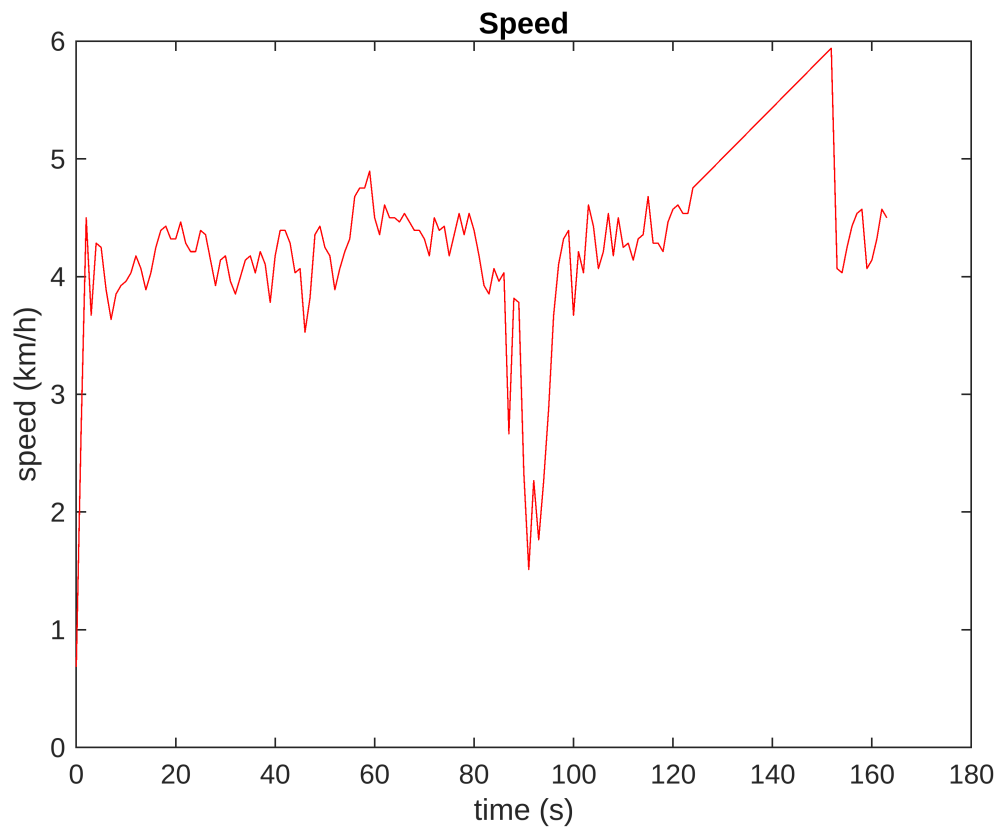
```
stride = 0.7000
```

```
steps = distanceInMeters / stride
```

```
steps = 298.9544
```

Plot speed

```
plot(positionTime, Position.speed*3.6, "r")
title("Speed")
xlabel("time (s)")
ylabel("speed (km/h)")
```

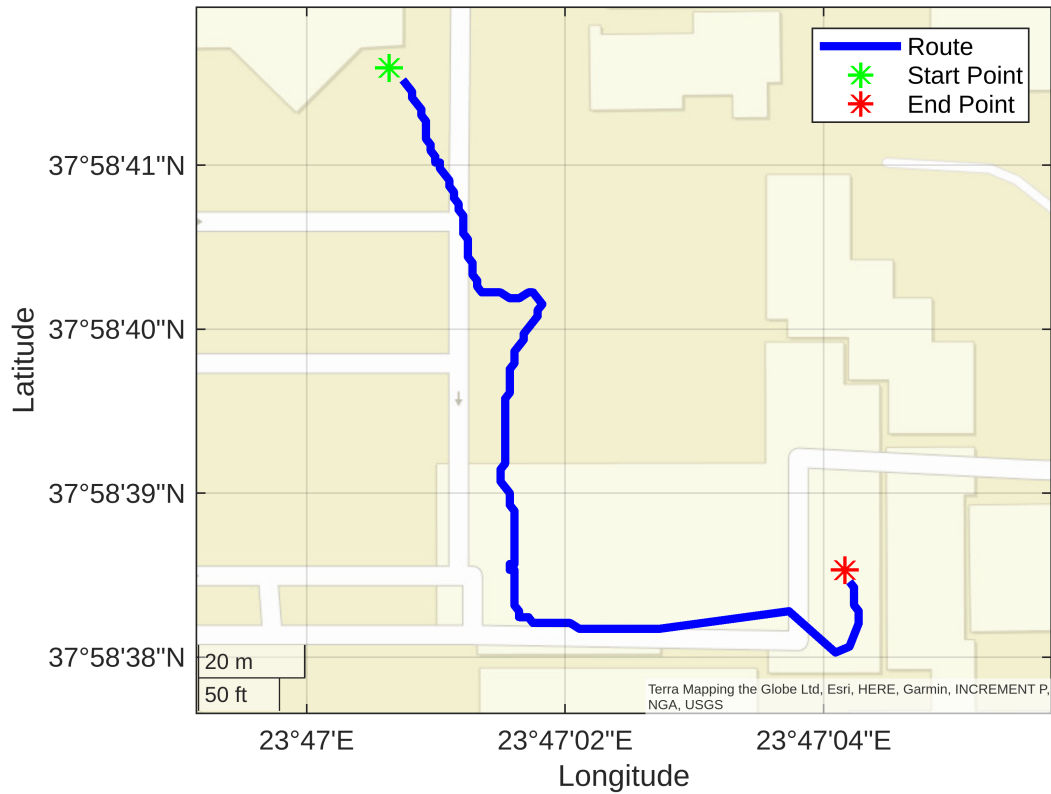


Create map image

```
geoplot(lat(2:end-1), lon(2:end-1),'-b',lat(1), lon(1),'*g',lat(end),
lon(end),'*r','LineWidth',3, 'MarkerSize',10 )
legend("Route","Start Point","End Point");

minlat = min(lat)-0.0001;
minlon = min(lon)-0.0001;
maxlat = max(lat)+0.0001;
maxlon = max(lon)+0.0001;

geolimits([minlat maxlat], [minlon maxlon])
geobasemap streets
```



Color speed map

```
nBins = 10;
```

Warning: Graphics timeout occurred. To share details of this issue with MathWorks technical support, please include that this is an unresponsive graphics client with your service request.

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```
binSpacing = (max(spд) - min(spд))/nBins;
binRanges = min(spд):binSpacing:max(spд)-binSpacing;

binRanges(end+1) = inf;

[~, spdBins] = histc(spд, binRanges);

lat = lat';
lon = lon';
spdBins = spdBins';

s = geoshape();

for k = 1:nBins
```

```

latValid = nan(1, length(lat));
latValid(spdBins==k) = lat(spdBins==k);

lonValid = nan(1, length(lon));
lonValid(spdBins==k) = lon(spdBins==k);

transitions = [diff(spdBins) 0];
insertionInd = find(spdBins==k & transitions~=0) + 1;

latSeg = zeros(1, length(latValid) + length(insertionInd));
latSeg(insertionInd + (0:length(insertionInd)-1)) = lat(insertionInd);
latSeg(~latSeg) = latValid;

lonSeg = zeros(1, length(lonValid) + length(insertionInd));
lonSeg(insertionInd + (0:length(insertionInd)-1)) = lon(insertionInd);
lonSeg(~lonSeg) = lonValid;

s(k) = geoshape(latSeg, lonSeg);

end

```

Create the web map

```

wm = webmap('Open Street Map');

colors = autumn(nBins);

wmline(s, 'Color', colors, 'Width', 5);

wmzoom(18);

```