**System Requirements – Offtrack Class**

Aim: Identify test points for measurement of off track performance.

1. Identify the x furthest points away from camtrack indices
2. Cluster the neighbourhood of points around each centroid x
3. Plot each off track cluster against the camtrack
4. Properties BM
   1. Catalogue of points – index (name for points, location in Euclidean space)
   2. Index points – list of index points in Euclidean space (reference)
   3. Chosen points – points around them that will be eliminated
   4. Number of points (x) – points selected around centroid
5. Methods
   1. Constructor Methods – data processing BM
      1. Raw data, takes right data channels and stores in the catalogue
   2. Distance Calculation RC
      1. Distance between a point and any group of points (indices and cluster)
         1. Inputs = Vector (2D) – array of tuples
         2. Outputs = Euclidean distance
   3. Plotting Method RC
      1. Scatter plot & plot (CAM track)
      2. Centroid & iris plot – centre and circle, radius = furthest point away from centroid
      3. Area of the offtrack points – difference between circles plotted and area covered by points
   4. Ranking – iterative method RC
      1. (1) All points relative to index points
         1. Inputs =
         2. Outputs = Centroids
      2. (2) Group of points relative to any other point
         1. Inputs = Centroids
         2. Function = remove chosen points from dataset
         3. Outputs =
   5. Optimise x RC
      1. Optimise choice of x to maximised considered area of off track performance