METHODOLOGY/APPROACH FOR SOLVING THE PROBLEM

Satellite images need to be analyzed and a ratio of GreenSpace to ConstructionSpace is to be found out. To do this we will segment the image based on color properties of the pixels. We believe K-means algorithm will best fit-in to solve this purpose. Generating a Color based frequency distribution of the Satellite image would help us identify the Green Area (i.e GreenSpace), and the non-green area (i.e The ConstructionSpace, barren land, etc). Once the Satellite image is segmented into Green and Non-Green Area, it becomes possible to calculate the GreenSpace to ConstructionSpace ratio.

Now is the harder task, which is to give suggestions as to which areas have the potential to be converted to GreenSpace. Here we would require to train the algorithm to identify various objects in the image like barren land, roof-tops, water bodies upon which plantation can be achieved. To do this we would take sample satellite images from Google which would act as a training data set for our algorithm. Once we are able to identify the potential areas where plantation can be achieved we will generate a report and also highlight these Areas in the image which will be shown to the user.

TECHNOLOGY STACK

Python - Basic Logic

Scikit-Learn - Image Processing (Implementing K-means Alogrithm)  
NumPy – For treating image as Array.

Tensor-Flow - To utilize GPU for speedy processing

tkinter - GUI