A digital camera or similar devices are used to take images of different types, and then those are to identify the affected area in leaves. Then different types of image-processing techniques are applied to them, the process those images, to get different and useful features needed for the purpose of analyzing later-Plant leaf disease identification is especially needed to predict both the quality and of the First segmentation step primarily based on a mild polygonal leaf model is first achieved and later used to guide the evolution of an energetic contour. Combining global shape descriptors given by polygonal model with local curvature based features, the leaves are then classified overleaf datasets In this research work introduce a method designed to deal with the obstacles raised by such complex images, for simple and plant leaves. A first segmentation step based on graph-cut approach is first performed and later used to guide the evolution of leaf boundaries, and implement classification algorithm to classify the diseases and recommend the fertilizers to affected leaves as shown in FImplements Guided active contour method. Unconstrained active contours applied to the difficult natural images. Dealing with unsatisfying contours, which would try and make their way through every possible grab cut in the border of the leaf. The proposed solution is used the polygonal model obtained after the first step not only as an initial leaf contour but also as a shape prior that will guide its evolution towards the real leaf boundary. Disease Prediction: Leaves are affected by bacteria, fungi, virus, and other insects. Support Vector Machine (SVM) algorithm classifies the leaf image as normal or affected. Vectors are constructed based on leaf features such as color, shape, textures. Then hyperplane constructed with conditions to categorize the preprocessed leaves and also implement multiclass classifier, to predict diseases in leaf image with improved accuracy. Fertilizer Recommendation: Recommend the fertilizer for affected leaves based on severity level. may be organic or inorganic. Admin can store the fertilizers based on disease categorization with

severity levels. The measurements of fertilizers suggested based disease diversity .he purpose of image preprocessing is improving image statistics so that undesired distortions are suppressed and image capabilities which are probably relevant for similar processing are emphasized. The preprocessing receives an image as input and generates an output image .This further research is implementing the proposed algorithm with the existing public datasets. Also, various segmentation algorithms can be implemented to improve accuracy. The proposed algorithm can be modified further to identify the disease that affects the various plant organs such as stems and fruits.In this proposed technique it is important to have an established approach for grading the defects on the plant leaves automatically. In this system by using Artificial fertilizer for automatically detecting leaf
disease and fertilizer for that disease. These systems are going to be very helpful for agriculturist since is efficient than the manual method. The proposed system uses K means clustering technique for segmentation of image to segment diseased area and background area of the input leaf image in order to calculate the percentage infection of the disease in the leaf. These systems can be helpful to trade the manual disease identification technique and can be used by agricultural experts in identifying correct pesticide and from this proposed techniques agriculturist can be easily find the disease and also fertilizer for that disease hence they can easily remove the disease in a short period and can get the good results and profit from the plants.