Estimation of nitrogen and classification of weeds

Abstract:

Estimation of nitrogen content and weed control is essential and critical operation and can affect crop yield. Fertilizers and weedicides play an important role in maintaining nitrogen and weed control but their role is under criticism due to perceived excessive use and they are potentially harmful to the environment. Autonomous estimation of nitrogen content and weed control concepts have recently being extensively researched due to the advantages that they possess. In this proposed work, we systematically choose methods to be used for the estimation of nitrogen and classification of weeds.

An automatic classification procedure is proposed. Some classification results are presented while discussing problems leading to future direction of research. The image of a crop field is captured and projected towards processing of the image. The processing of the input image consists of certain image processing techniques and noise removal techniques. Based on segmentation algorithms, the segmentation on the processed image and detect weed in the crop field and the estimation of nitrogen content in rice leaf using ANN and linear regression has been performed. The linear regression has been performed on collected 166 samples and then reduced the image size for training. The performance is enhanced and reported.

The final result of the proposed work gives an image of rice leaf in the first part with estimated nitrogen content and a crop field image is resulted in the second part of the work with differentiated crop rows and weeds in the field.