INFORMATICS INSTITUTE OF TECHNOLOGY

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Soil Fertility Properties Prediction Using Image Processing Techniques

Final Project Report by

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Abstract

Soil is the foundation of agriculture. Soil supplies essential nutrients in the growth of healthy plants, and this mainly helps for the growth of healthy crops bypassing the relevant nutrients. Soil pH, Soil organic matter (SOM) and soil nutrient Phosphorus are some of the key elements of soil fertility to be taken into consideration before beginning cultivation. Soil fertility is often tested by farmers in a soil test laboratory or occasionally with the assistance of a professional. However, these techniques demand expertise, money and time.

The proposed soil fertility properties prediction system using image processing techniques is a novel system making a prediction of soil pH, Organic Matter, Phosphorus using smartphone images for Sri Lankan soil. This would help the farmers by using this at a low cost. These works begin by developing the Sri Lanka soil dataset captured by smart phone and laboratory-tested dataset and constructing and putting into practice a prototype to demonstrate the idea and advance the subject area for more scientific investigation.

Keywords: Soil Fertility, pH, Organic Matter, Phosphorus, Image Processing, Machine Learning, Decision Tree Regression