

Green Thumb Engineering - Explainable Artificial Intelligence for Managing IoT Enabled Houseplants

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Abstract : Significant progress in intelligent systems in combination with exceedingly wide application domains having machine learning as the core technology are usually opaque, non-intuitive, and commonly complex for human users. We use innovative IoT technology which monitors and analyzes moisture, humidity, luminosity and temperature levels to assist end users for optimization of environmental conditions for their houseplants. For plant health monitoring, we construct a system yielding the Normalized Difference Vegetation Index (NDVI), supported by visual validation by users. We run the system for a selected plant, basil, in varying environmental conditions to cater for typical home conditions, and bootstrap our AI with the acquired data. For end users, we implement a web based user interface which provides both instructions and explanations.

Keywords : explainable artificial intelligence, intelligent agent, IoT, NDVI

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