ICT 2403

Graphics and Image Processiong

Image Acquisition Model

Presented by
Pixel Pioneers

Introduction

The image acquisition model is a crucial component of the project, enabling the capture of consistent images for analyzing plant growth, leaf count, and health in controlled environments. This model serves as the foundation for effective image processing and data analysis.

Objective

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Experimental Setup

The experimental setup includes

A Controlled environment with minimal external light interference. Here we are using 3 tomato plant pots for our experiment.

- **1st pot** - We are not controlling any factor of growth. This is the main pot we are using to monitor the plant's growth and health issues.
- **2nd pot** – We are controlling only the sunlight by keeping the pot in a room to monitor the color change of the leaves without sunlight. Then we will include the algorithm to our image processing system to identify the color change of the leaves.
- **3rd pot** – We are controlling only water for the plant to monitor what will happen without water. Then we will include the algorithm to our image processing system to identify that the plants need water.

Equipment and Materials

Cameras

We are using Mobile camaras

Lighting

LED panels providing consistent and even illumination.

Image Acquisition Techniques

Time-lapse Capture: Images are captured at regular intervals to monitor changes over time. We are capturing images in every 24 hours.

Data Storage and Management

- **Storage:** Images are stored in structured directories labeled by date and time.
- **Formats:** PNG and JPG

Challenges and Limitations

- **Lighting Variability:** Managing consistent lighting in dynamic environments.
- **Camera Positioning:** Ensuring no displacement over long durations.

Team Pixel Pioneers

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