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LEAF DISEASE DETECTION: IMAGE PROCESSING

SRI VENKATESWARA COLLEGE OF ENGINEERING
(An Autonomous Institution; Affiliated to Anna University)
Department of Electronics and Communication Engineering
UG MINI PROJECT (DECEMBER 2023 - 24)

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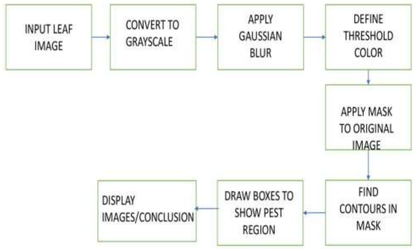
ABSTRACT

The abstract for a leaf disease detection using image processing project might read as follows: "This study presents a novel approach for the automated detection of leaf diseases in plants through image processing techniques. By utilizing computer vision algorithms and machine learning models, we have developed a system capable of accurately identifying and classifying various leaf diseases. The proposed method offers a non-invasive and efficient solution for early disease detection, which can significantly contribute to crop health management and agricultural productivity. Our findings demonstrate promising results in terms of accuracy and speed, making this approach a valuable tool for precision agriculture and plant disease management."

PROJECT WORKFLOW



PROJECT MODULES

1mage Acquisition: The process begins by capturing an image of a plant leaf. This image can be obtained using various devices, such as cameras or smartphones. High-quality image acquisition is crucial as it forms the foundation for disease detection.

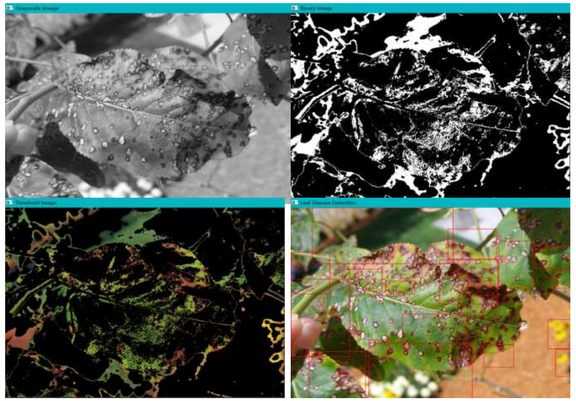
Grayscale Conversion: The acquired color image is converted into grayscale. This simplifies the image and reduces it to a single channel, making it easier to perform image analysis and extract relevant features.

Gaussian Blurring: To reduce noise and enhance the image clarity, Gaussian blur is applied. This step smoothens the image, making it more suitable for feature extraction and disease pattern recognition.

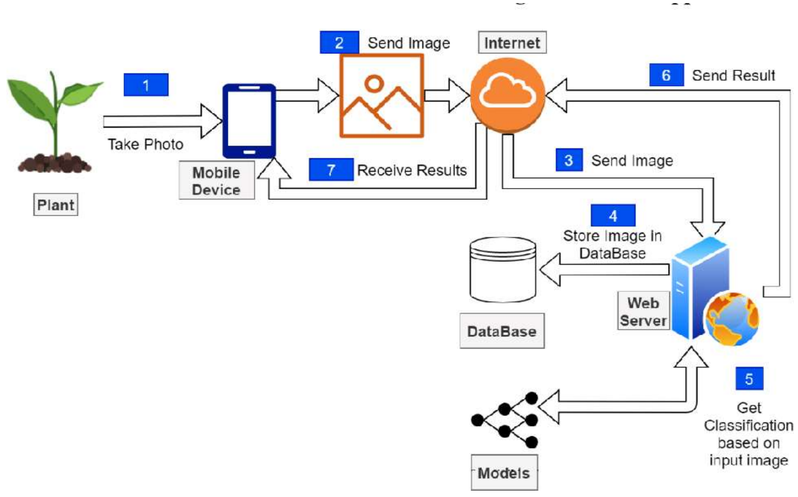
Color Thresholding: Disease-related colors are defined by specifying a lower and upper threshold. These values represent the color range associated with the disease symptoms. This step is vital for isolating the regions of interest that may contain the disease.

Contour Detection: Contours are identified within the masked image using image processing techniques. Contours are a valuable tool for segmenting and analyzing distinct areas in the image that may correspond to disease symptoms.

IMPLEMENTATION & OUTPUT



PROPOSED SYSTEM DIAGRAM



SOFTWARE REQUIREMENT

SOFTWARE
- Python
- OpenCV

CONCLUSION AND FUTURE WORK

In conclusion, image processing for plant disease detection represents a powerful and innovative approach that offers numerous advantages for agriculture and pest management. This technology-driven solution enables precise and early detection of diseases and pests in crops, ultimately leading to improved crop health, increased yield, and reduced environmental impactAI-Enhanced Pest Recognition: Continued advancements in artificial intelligence (AI) will lead to more accurate and robust pest recognition systems. AI models will be able to identify a broader range of pests and diseases with higher precision, reducing false positives and false negatives.

REFERENCES

• 1.P. B R, A. Ashok and S. H. A V, "Plant Disease Detection and Classification Using Deep Learning Model," 2021 Third International Conference on Inventive Research in Computing Applications (ICIRCA), 2021, pp. 1285-129.

• 2.M. E. Pothen and M. L. Pai, "Detection of Rice Leaf Diseases Using Image Processing," 2020 Fourth International Conference on Computing Methodologies and Communication (ICCMC), 2020, pp. 424-430.