

ABSTRACT

One of the challenges in cultivating horticultural plants is dealing with pests and diseases. Pest and disease attacks can reduce productivity and even lead to crop failure. In this research, a pest and disease detection and eradication system will be designed and implemented, which can send data to a website. However, so far, there are no sensors available that can detect pests and plants in detail.

Based on the problem, the system designed by the author utilizes the Image Classification method, which can identify and detect objects or features in images and videos, thereby recognizing optical characteristics, pattern matching and gradients, scene identification, or scene change detection. Testing will be conducted on cabbage plants, with color as the benchmark for disease and pest detection and object identification. Once the results are obtained, the data will be sent to the provided website.

Image classification can assist farmers in detecting diseases and pests without having to be physically present at the hydroponic site. Additionally, the addition of sensors to detect temperature, humidity, and water turbidity will enable automatic irrigation using pesticide pumps in the event of pest detection, as well as water pumps in case of high-water turbidity. The combination of image classification and the Internet of Things can help farmers easily and efficiently care for hydroponic cabbage plants while saving time.

Keywords: hydroponic, mustard greens, IoT, disease, pest