PROGRAM DOCX:

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import cv2
import numpy as np
import tensorflow as tf
from dronekit import connect, VehicleMode
import matplotlib.pyplot as plt

# Connect to the Drone
vehicle = connect('127.0.0.1:14550', wait_ready=True)

def capture_image():
    cap = cv2.VideoCapture(0)
    ret, frame = cap.read()
    cap.release()
    return frame if ret else None

# Load Pre-trained Deep Learning Model
model = tf.keras.models.load_model('crop_disease_model.h5')

def preprocess_image(img):
    img = cv2.resize(img, (224, 224))
    img = img / 255.0  # Normalize
    img = np.expand_dims(img, axis=0)
    return img

def predict_disease(image):
```

```
    processed_img = preprocess_image(image)
    predictions = model.predict(processed_img)
    classes = ['Healthy', 'Disease', 'Pest Infested']
    return classes[np.argmax(predictions)]

# Main Execution
image = capture_image()
if image is not None:
    result = predict_disease(image)
    print(f'Prediction: {result}')
    plt.imshow(cv2.cvtColor(image, cv2.COLOR_BGR2RGB))
    plt.title(f'Crop Status: {result}')
    plt.show()
else:
    print("Failed to capture image")

# Safely disconnect drone
vehicle.close()
```