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Plant Disease Detector Based On Artificial Intelligence

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ABSTRACT: An application which is user friendly for every educated and uneducated people around the world.It has all the specifications such as Identifying plants, identifying plant diseases, Identifyingfertilizers, Identifying pesticides, weedicides.

The safety of womidentifyingcern of increasing urgency in India and other countries. The primary issue in the handling of these cases by the police lies in constraints preventing them from responding quickly to calls of distress. These constraints include not knowing the location of the crime, and not knowing the crime is occurring at all: at the victim's end, reaching the police assuredly and discreetly is a challenge. To aid in the removal of these constraints, this paper introduces a mobile application called WoSApp (Women's Safety App) that provides women with a reliable way to place an emergency alert location of the user, as well as contact details of a pre-selected list of emergency contacts, is immediately sent to the police. The fence which a patient can be monitored 24 hours. In the present world, IoT is changing the infrastructure of technologies. By facilitating effortless interaction among various modules, IoT has enabled us to implement various complex systems such as smart home appliances, smart traffic control systems, smart office systems, smart environment, smart vehicle smart temperature control systems, and so on in very little space. Health monitoring systems are one of the most notable applications of IoT. Many types of designs and patterns have already been implemented to monitor a patient's health condition through IoT. In this paper, a review of IoT-based smart health monitoring systems is presented. The latest innovative technologies developed for IoT-based smart health monitoring systems with their merits and demerits have been discussed. This review aims to highlight the common design and implementation patterns of intelligent IoT-based smart health monitoring devices for patients.

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I.INTRODUCTION

Identification of the plantdiseases is important in order to prevent the losses within the yield. It's terriblytroublesome to observe the plant diseases manually. It needs tremendous quantity oflabor, expertize within the plant diseases, and conjointly need the excessive timeinterval. Hence, image processing can be employed forthe detection of plant diseases with the help of Artificial intelligence. In this project, we have described the technique for thedetection of plant diseases with the help of their leaf's pictures. Image processing is abranch of signal processing which can extract the image properties or usefulinformation from the image. The color of Leaves, amount of damage to leaves, area of the leaf, texture parameters are used for Classification. In this project we have analyzed different image parameters or features to identifying different plant leaves diseases to achieve the best accuracy.

II.RELATED SYSTEM

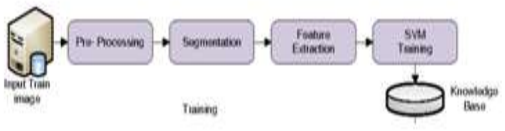
There are variety of applications for plant disease detection for detecting the disease. The disadvantages of using these applications are prediction of plant disease not accurate. But in this app using the optical sensor the diseases are detected at early-stage. For the people who are new for the agriculture this app will be useful. So, in all those applications, it will show onlythe disease name after the start of the application, but practically after some time, it may not be the correct disease. The unique feature of our application is by sensing the leaf, and matches with the dataset which is created byour project.So, ifany farmer is unaware of plant disease, it will be useful. Also, useful for the people who are interested in terrace farming.

III.PROPOSED SOLUTION:

The proposed system will be implemented with the help of the android application. For this project we have used public dataset for plant leaf disease detection. The dataset consists of images of unhealthy plant leaves having 25 classes for experimentation of our algorithm. Data preprocessing is important task in any computer vision-based system. So first the Image is converted to greyscale and then Gaussian filter is used for smoothening of the Image. Then to binaries the image. Then Morphological transform is applied on binarised image to close the small holes in the Foreground part. Now after foreground detection, the bitwise AND operation on Binarised image and original color image is performed to get image of segmented Leaf. Now after image segmentation shape, texture and color features are extracted from the image. By using contours, area of the leaf and perimeter of the leaf is calculated. Contours are the line that joins all the points along the edges of objects having same Color or intensity. Mean and standard deviation of each channel in image is also Estimated. To obtain amount of green color in the image, image is first converted to HSV color space and we have calculated the ratio of number of pixels having pixel Intensity of hue (H) channel in between 30 and 70 and total number of pixels in one Channel. Non green part of image is calculated by subtracting green color part .

IV.SYSTEM ARCHITECTURE:

The following diagram shows the Architecture of the proposed system. The main three Components needed to work this application are the Internet on the client's phone.



The architecture of the plant disease detection

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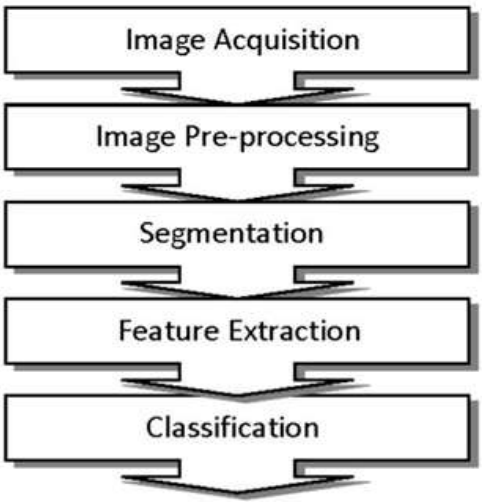
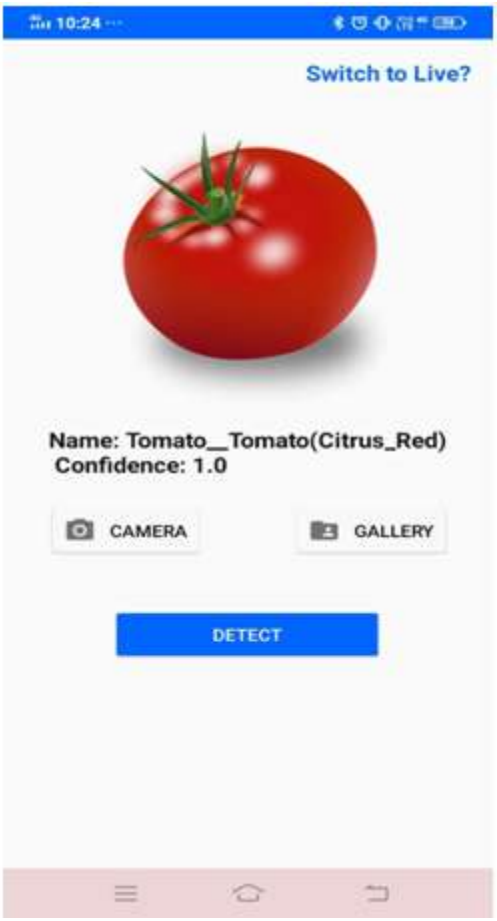


The block diagram for plant disease detection

The above diagram shows the architecture of the proposed model. The user need not register himself to use the application so that there will be no delay time while using the application during the emergency The user has givena detect option which they can scan the diseased part of plant.



Eitherwe can click the picture or we can take picture from our gallery by accessing our phone.

Steps are mentioned how the app works:

1. Initially, we have to click the picture of diseased part of plant.
2. We can upload the picture either from gallery or through camera
3. After uploading the picture, detect button is enabled and the name of the plant is also displayed
4. By clicking the detect button. We can get the name of the plant disease.

V. SOURCE CODE:

```
#include <Arduino.h>
#include "DCMDriverL298.h"
/**
* Construct a DC Motor Driver instance.<BR>
* It constructs two DC Motor instances, motorL and motorR.<BR>
* enA, enB - enable pins for motors. connected to PWM pin on Arduino board.<BR>
* pinA1,pinA2,pinB1,pinB2 - direction pin of the motors. connected to digital pins on Arduino board.
*/
DCMDriverL298::DCMDriverL298(const int enA, const int pinA1, const int pinA2, const int enB, const int pinB1, const int pinB2) : m_enA(enA), m_enB(enB), m_pinA1(pinA1), m_pinA2(pinA2), m_pinB1(pinB1), m_pinB2(pinB2)
{
pinMode(m_pinA1,OUTPUT);
pinMode(m_pinA2,OUTPUT);
pinMode(m_pinB1,OUTPUT);
pinMode(m_pinB2,OUTPUT);
pinMode(m_enA,OUTPUT);
pinMode(m_enB,OUTPUT);

stopMotors();
}
/**Set DC motor A speed and direction.
*/
void DCMDriverL298::setMotorA(int speed, bool dir)
{
setMotor(m_enA, m_pinA1, m_pinA2, speed, dir);
}

/**Set DC motor B speed and direction.
*/
void DCMDriverL298::setMotorB(int speed, bool dir)
{
setMotor(m_enB, m_pinB1, m_pinB2, speed, dir);
}
/**Stop DC motor A.
*/
```

```
void DCMDriverL298::stopMotorA()
{
off(m_enA, m_pinA1, m_pinA2);
}
/**Stop DC motor B.
*/
void DCMDriverL298::stopMotorB()
{
off(m_enB, m_pinB1, m_pinB2);
}
/**Stop both DC motors.
*/
void DCMDriverL298::stopMotors()
{
stopMotorA();
stopMotorB();
}
/**Set DC motor speed and direction.
*/
void DCMDriverL298::setMotor(int pinPWM, int pinDir1, int pinDir2, int speed, bool dir)
{
analogWrite(pinPWM, speed);
digitalWrite(pinDir1, !dir);
digitalWrite(pinDir2, dir);
}


/**Turn off DC motor
*/
void DCMDriverL298::off(int pinPWM, int pinDir1, int pinDir2)
{
analogWrite(pinPWM, 0);
digitalWrite(pinDir1, LOW);
digitalWrite(pinDir2, LOW);
}
```

VI. CONCLUSION:

The women's safety application is very useful for farmers because it could only focus on the plant disease detection. We can detect the plant disease at early-stage using mobile.

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