DETECTION OF PESTICIDES IN FRUITS AND VEGETABLES

ABSTRACT: Many modern techniques were developed to produce more quantity of food for the growing population. Now a days, fruits and vegetables have become the major source of nutrients and energy. However, many chemicals are used in the production of fruits and vegetables, which are dangerous for consumers. To identify pesticides in organic fruits and vegetables, it is necessary to build a low-cost, portable, sensitive, and selective biosensing platform.

The proposed smart system for organic fruit detection integrates a pH sensor, conductivity sensor, temperature sensor, and humidity sensor with an Arduino Uno controller and ESP Wi-Fi module for real-time monitoring and data transmission. The system is designed to distinguish between organic and non-organic fruits by analyzing key environmental and chemical parameters. The Arduino Uno processes sensor data and transmits it via the ESP Wi-Fi module to a cloud platform or mobile application for further analysis and display.

This system offers a cost-effective, portable, and user-friendly solution for consumers and vendors to assess fruit authenticity, thereby promoting healthier food choices and reducing exposure to harmful substances. The main aim of the project is to calculate the NDVI (Normalized Difference Vegetation Index) using IR sensors, with the software written in Embedded C. Safe pesticide values that can be consumed by humans and animals are pre-programmed in the code, and if a fruit is detected to fall above the threshold level, it is considered contaminated.

Through IoT, pesticide content and sensor values are displayed in a mobile application. If the pesticides in fruit or vegetable exceeds the threshold value, the sample of fruit or vegetable is flagged as contaminated. In Project Stage 1, the system will detect pesticides in fruits using the proposed sensors and IoT platform, while in Project Stage 2, the same approach will be extended to vegetables, ensuring comprehensive monitoring of both fruits and vegetables.

INTERNALGUIDE

Dr S Asha Kiranmai

HOD-EEE

Mrs S Deepti

SUBMITTED BY:

Batch 13

M. Tejasri (22321A0231)

R. Veena (23325A0221)

V. Pranitha (22321A0214)

J. Sai Abhignya (22321A0220)