

## DETECTION OF PESTICIDES IN FRUITS AND VEGETABLES

**ABSTRACT:** Many modern techniques were developed to produce more quantity of food for growing population. Now a day fruits and vegetables have become the major source of nutrients and energy. 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 low-cost, portable, sensitive, and selective biosensing platform. Smart system for organic fruit detection using a combination of pH sensor, conductivity sensor, temperature and humidity sensors, integrated 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

### INTERNAL GUIDE

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to assess fruit authenticity, promoting healthier food choices and reducing exposure to harmful substances.

Main aim of the project is to calculate the NDVI (Normalized Difference vegetation Index) using IR sensors. The software for this project is written in embedded C program. The safe value of pesticides on fruits or vegetables which can be consumed by humans and animals are given in the embedded C program. If a fruit is detected to belong in a range above the threshold level then the fruits sample contains pesticides. Through IOT, the pesticides content and the value from each sensor are seen in mobile application. If a fruit or vegetable is detected to have pesticide levels above the threshold value, then the fruit sample is considered contaminated with pesticides. In Project stage 1, our system will focus on detecting pesticides in fruits using the proposed sensors and IoT platform. In Project stage 2, the same methodology will be extended to vegetables, ensuring comprehensive monitoring of both fruits and vegetables for pesticide contamination.

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