**#16euec166\_38b4**

**PREVENTION OF FOOD ADULTERATION USING NIR SPECTROSCOPY AND MONITORING USING IoT.**

**Problem Statement:**

To detect adulteration in food samples and to prevent it using Spectral Sensor.

**Solution:**

Near infrared (NIR) spectroscopy represents an emerging analytical technique, that will enjoy an increasing popularity in food industry due to its low running cost, and since it doesn’t require sample preparation and a pre-defined threshold value is fixed. The light rays passing over the food samples and the reflected rays are detected through NIR sensor and the information (wavelength) regarding it is processed in the arduino using ESP8266. If the detected wavelength is below the threshold value, it is unhealthy for consumption. The entire process is monitored through IoT where the data is displayed in the android app.

**Technology Stack:**

Spectral Sensor (AS7263) is attached along with the hollow box in order to detect the wavelength of the reflected light from food samples and it is sent to the arduino. In Arduino, the reflected light from the spectral sensor is given as input and it also acts as an interface with the Wi-Fi module (ESP8266).The Wi-Fi module ESP8266 connects arduino to the Thing-Speak for the transmission of occurred wavelength. Whereas NODE MCU is used to establish connection with android application keep the overall process intact with Arudino.

Components :

* AS7263
* Node MCU
* Arduino Uno
* Lcd 12x16
* Esp8266(stand alone)

**Dependencies:**

->Things-Speak: It helps to display the threshold value of food samples.

->Android app: It is used for selecting food samples and monitoring the entire process.

**Use Case:**

Wavelength Is Captured and Compared with Threshold Value

Android Application selects Data using WIFI Module