**DEVICE TO DETECT PESTICIDE LEVEL IN FRUITS AND VEGETABLES**

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**PROJECT DETAILS:**

**PROBLEM STATEMENT:**

The major health issue which our country is facing due to nutrition less vegetations.

To seek more productivity, some farmers use heavy chemical fertilizers and pesticides without the knowledge of higher authorities.

These chemicals are not screened properly during harvesting.

This leads to many diseases while the innocent consumer consumes them.

**DESCRIPTION OF PROBLEM:**

The use of pesticides, steroids and fertilizers in vegetables and fruits has tremendously increased.

It is known that chemicals which are banned in other countries and also by the Indian Government are heavily used without the knowledge of the authorities and the consumers.

The results obtained showed that 39.2 % of the fruits and vegetable samples analyzed contained no detectable level of the monitored pesticides, 51.0 % of the samples gave results with trace levels of pesticide residues below the maximum residue limit (MRL), while 9.8 % of the samples were above the MRL.

These harmful chemicals enter human body as the items are consumed.

The same have been found to have serious effects on human body giving rise to deadly diseases like cancer.

Innocent consumers are unknowing getting their health deteriorated due to their inability to notice the presence of harmful chemicals in the food items.

**SOLUTION:**

The main idea of this project is to detect the amount of pesticides on vegetables and fruits by calculating the NDVI (Normalized Difference Vegetation Index) by using IR sensors.

Healthy vegetation absorbs most of the visible light and less IR light that hits it, and reflects a large portion of the near-infrared light.

Unhealthy or sparse vegetation reflects more visible light and less near-infrared light.

The NDVI is calculated based on these reflected rays from the fruits and vegetable.

Calculations of NDVI gives the result in a number that ranges from minus one (-1) to plus one (+1); however, no green leaves gives a value close to zero. A zero means no vegetation and close to +1 (0.8 - 0.9) indicates the highest possible density of green leaves.

**DEPENDENCIES:**

Here we use Arduino microcontroller along with some sensors to achieve this project. The sensors like IR sensor, Photoelectric sensor, LED etc to send and detect the rays from the object. The calculated results are displayed in LCD(16\*2).

**CONCLUSION:**

Thus we developed the low cost, pocket friendly and easy to use system to detect level of pesticides in fruits and vegetables. Hope this would be helpful for people to indentify the sparse vegetables and live their healthy life.