**Crop-field monitoring using IOT, analyze the recorded value and predict the growth and other health issues of the crop using Artificial Neural Network**.

As we know India has vast crop-field. But due to unawareness of crop-field, farmer losses their crop.

Now I give the solution of the above problem into three stages:

1. Collecting the Data using IOT Technology and other media
2. Analyze the recorded data and filter the data and observing the pattern in data.
3. Predict the best, worst or average result of the crop into its corresponding field using Artificial Neural Network.

**Collecting the Data using IOT Technology and other media.**

In this section, we decide our relevant parameters related to crops and field(soil).

Some parameters for the crop are the following:

1. Location
2. Year
3. Season
4. Crop type
5. Area
6. Production of crop
7. Rain

etc.

Some parameters for soil(field) are the following:

1. Soil nutrients
2. Soil pH value
3. Soil moisture
4. Soil temperature

Etc.

Here we use IOT (Internet of Things) technology to collect the most of data from crop and soil using built-in modules (or device), only dedicated for IOT Technology.

And also collect data using certain website using Python web scraping technique.

**Analyze the recorded data and filter the data and observing the pattern in data.**

In this section, we merge all the recorded data related to crop and soil and make a huge dataset.

After that, we filter the data in the dataset. Generally, we clean the data, so that our result will be more accurate.

To filter data, we use the different technique of Data Mining.

Then we use our machine learning algorithm like SVM, k-NN, etc. to recognize patterns in data and conclude (or answer) the following questions:

1. Predict the yield
2. How much fertilizers and water are needed in a certain season, region etc.

**Predict the best, worst or average result of the crop into its corresponding field using Artificial Neural Network.**

In this section, using the attributes of datasets, the stored image of crop and field and Artificial Neural Network we predict the growth of a crop.

And other factors like after this interval your crop look like this type.

To do this I think CNN (Convolutional Neural Network) model is Right option but I searched for other also.

In CNN Neural Network, we train the CNN model with different stage images of crop and field and compare the new data with trained data and predict the different categories of the crop as the best, average or worst.