Prior Knowledge

Date	November 2022
Team Id	PNT2022TMID26773
Project Name	Fertilizer Recommendation System for Disease Prediction

Supervised and unsupervised learning:

Supervised:

- Supervised learning, on the other hand, includes techniques that require a defined response measure.
- Supervised learning allows collecting data and produces data output from previous experiences.
- Helps to optimize performance criteria with the help of experience.Classifying big data can be challenging.

Unsupervised:

- Unsupervised learning is the training of a machine using information that is neither classified nor labeled and allowing the algorithm to act on that information without guidance.
- It is Computationally complex.
- Uses real-time analysis of data.

Regression Classification and Clustering :

Clustering: Clustering is an unsupervised technique. With clustering, the algorithm tries to find a pattern in data sets without labels associated with it. This could be a clustering of buying behaviour of customers.

Regression:Regression the output variable must be of continuous nature or real value.

Classification: The output variable must be a discrete value. The task of the regression algorithm is to map the input value (x) with the continuous output variable(y).

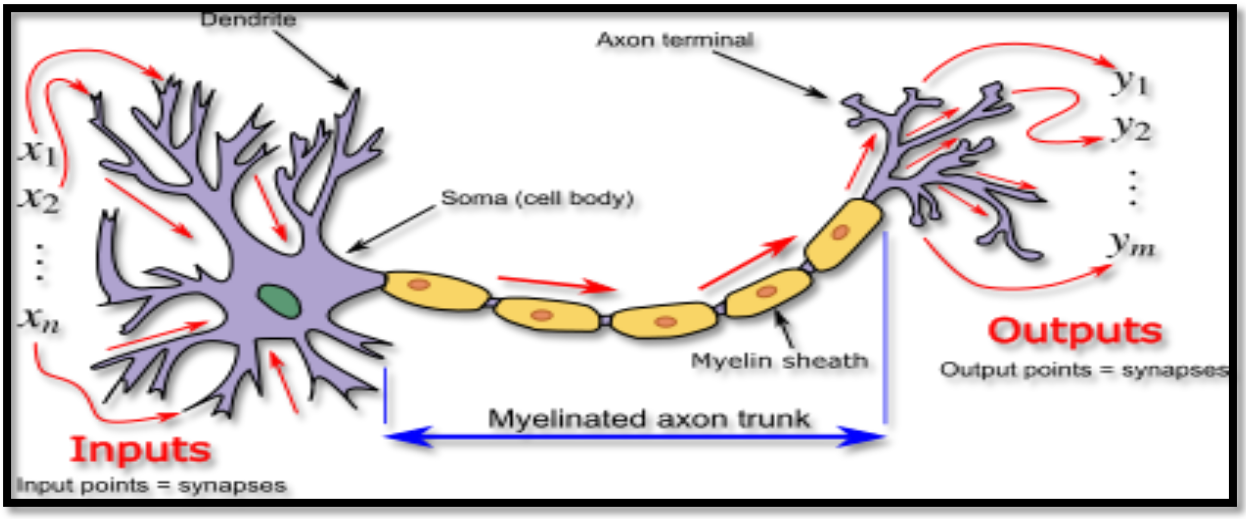
Artificial Neural Networks:

- An ANN is based on a collection of connected units or nodes called artificial neurons, which loosely model the neurons in a biological brain. Connection, like the synapses in a biological brain, can transmit a signal to other neurons.
- An artificial neuron receives signals then processes them and can signal neurons connected to it.
- A computing system made up of a number of simple, highly interconnected processing elements, which process information by their dynamic state response to external inputs."

➢ **Applications of Neural Networks**

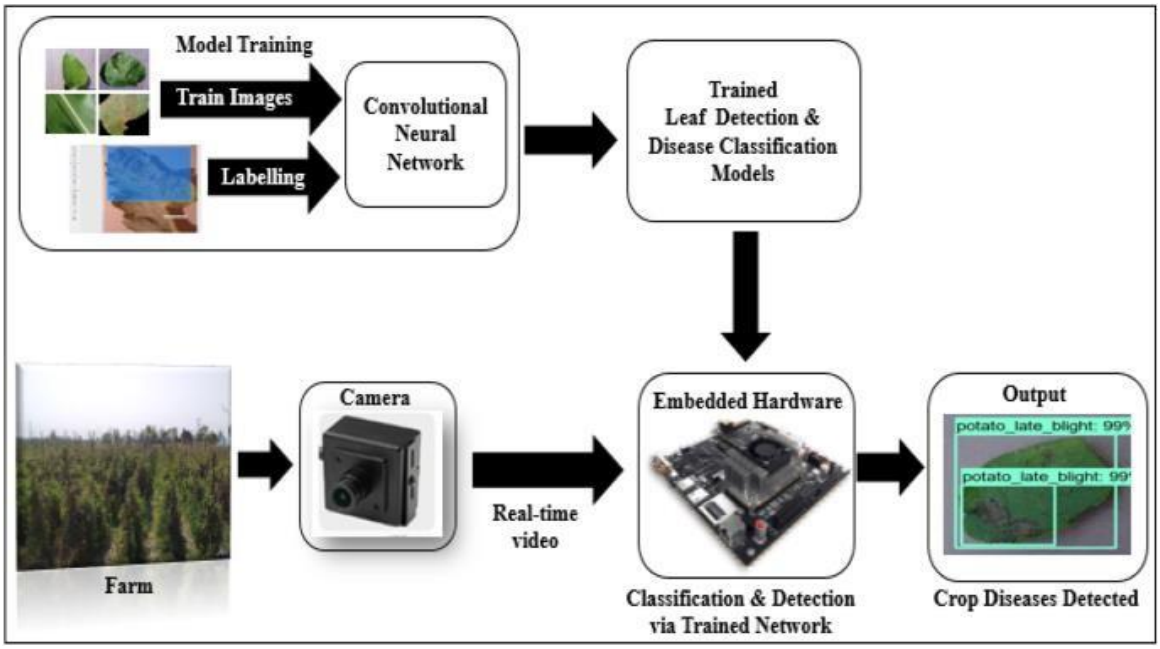
They can perform tasks that are easy for a human but difficult for a machine −

- **Aerospace** − Autopilot aircrafts, aircraft fault detection.
- **Automotive** − Automobile guidance system.
- **Military** − Weapon orientation and steering, target tracking, object discrimination, facial recognition, signal/image identification.
- **Electronics** − Code sequence prediction, IC chip layout, chip failure analysis, machine vision, voice synthesis.



Convolution Neural Networks :

- A convolutional neural network (CNN or convnet) is a subset of machine learning.
- It is one of the various types of artificial neural networks which are used for different applications and data types.
- Provides live coverage and analysis of breaking news, as well as a full range of international, political, business, entertainment, sports, health, science and weather coverage, and topical in-depth interviews.
- Each of these layers has different parameters that can be optimized and performs a different task on the input data.



Flask :

- Flask is a micro web framework written in Python.
- It is classified as a microframework because it does not require particular tools or libraries.
- It has no database abstraction layer, form validation, or any other components where pre-existing third-party libraries provide common function.
- A machine learning model and created a web application on it using Flask.