**Project Objectives**

**Team ID:** PNT2022TMID47966

**Project Name:** IOT Based Smart Crop Protection System for Agriculture

**By the end of this project we will:**

* Gain knowledge of Watson IoT Platform.
* Connecting IoT devices to the Watson IoT platform and exchanging the sensor data.
* Gain knowledge on Cloudant DB
* Gain Knowledge on using the Clarifai service
* Gain knowledge of storing images in IBM Object Storage and retrieving images
* Creating a Web Application through which the user interacts with the device.

**Project Flow:**

* The device will detect the animals and birds using the Clarifai service
* If any animal or bird is detected the image will be captured and stored in the IBM Cloud object storage.
* It also generates an alarm and avoid animals from destroying the crop
* The image URL will be stored in the IBM Cloudant DB service
* The device will also monitor the soil moisture levels, temperature, and humidity values and send them to the IBM IoT Platform
* The image will be retrieved from Object storage and displayed in the web application.
* A web application is developed to visualize the soil moisture, temperature, and humidity values
* Users can also control the motors through web applications.

To accomplish this, we have to complete all the activities and tasks listed below:

* Create and configure IBM Cloud Services oCreate IBM Watson IoT Platform
  + Create a device & configure the IBM IoT Platform
  + Create Node-RED service
  + Create a database in Cloudant DB to store location data oCreate a cloud object storage service and create a bucket to store the images
* Develop a python script to publish the sensor parameters like Temperature, Humidity, and Soil Moisture to the IBM IoT platform and detect the animals and birds in video streaming using Clarifai.
* Develop a web Application using Node-RED Service.
  + Display the image in the Node-RED web UI and also display the temperature, humidity, and soil moisture levels. Integrate the buttons in the UI to control the Motors.