IOT Based Smart Crop Protection System for Agriculture

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PROJECT OBJECTIVES

BY THE END OF THIS PROJECT :

- 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 avoids 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 achieve the above goals, we have to accomplish the following criteria:

- Create and configure IBM Cloud Services
    - Create 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
    - Create 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.