PROJECT OBJECTIVES

TEAM ID	PNT2022TMID14113
PROJECT TITLE	IOT BASED SMART CROP PROTECTION FOR AGRICULTURAL

Abstract:

This will be an integrative approach in the field of IIOT designed for perceptive Agriculture which are proceeding the arrangements in course of open source and on low powers devices . This project work is to yield monitoring arrangement for farm safety against animal attacks and climate change conditions. Industrial Internet of Things (IIoT) advances is frequently used in smart farming to emphasize the standard of agriculture. This project work contains various sorts of sensors, controllers in addition to positioner on behalf of WSN and ARM Cortex-A board which consumes 700mA or 3W power is the main temperament of the classification. Different sensors like DHT 11 Humidity & Temperature Sensor, PIR Sensor, LDR sensor, HC-SR04 Ultrasonic Sensor and cameras are interfaced with the board. IOT devices stay adept of in case evidence around farming grounds. As soon as the passive infrared sensors (PIR) go High on detecting the motion within a range of 10 meters, the camera will be turned ON which first captures an image and then starts dealing out the image, which will be warehoused onboard as well as in IoT cloud, instantaneously a message will be generated automatically towards the recorded quantity using a SIM900A module to inform about the intrusion with the data of the temperature as well as humidity obtained by dht11 which is a temperature and humidity sensor. If found not to be human after processing the available information the system elevates a buzzer sound, to notify people about the intrusion. Data collected by the sensors will be given to ARM CortexA through the systems which can be wired or communicataion system. The facts in the porter is tested and harmonized with superlative values of data like value of temperature, humidity and soil moisture. If the difference occurred concerning predefined threshold rate formerly announcement sends to the mobile of the farmer or to the website. The result will be generated arranged the database of the farmer's mobile to take the necessary action

. The Internet of Things (IoT) is an evolving paradigm that seeks to connect different smart physical components for multi-domain modernization. To automatically manage and track agricultural lands with minimal human intervention, numerous IoT-based frameworks have been introduced. This paper presents a rigorous discussion on the major components, new technologies, security issues, challenges and future trends involved in the agriculture domain. An in-depth report on recent advancements has been covered in this paper. The goal of this survey is to help potential researchers detect relevant IoT problems and, based on the application requirements, adopt suitable technologies. Furthermore, the significance of IoT and Data Analytics for smart agriculture has been highlighted.

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- 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
    - 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.