IoT BASED SMART CROP PROTECTION SYSTEM FOR AGRICULTURE

PROBLEM STATEMENT

PROBLEM :

An intelligent crop protection system helps the farmers in protecting the crop from the animals and birds which destroy the crop. This system also helps farmers to monitor the soil moisture levels in the field and also the temperature and humidity values near the field. The motors and sprinklers in the field can be controlled using the mobile application.

OBJECTIVE :

With increasing population across the world, food production and farming needs to get increasingly productive and capable of high yields in limited time. The scope for manual experimentation, viability assessment through trial and error etc are no longer feasible. **According to the UN Food and Agriculture Organization, "the world will need to produce 70% more food in 2050 than it did in 2006".** Low productivity of crops is one of the main problems faced by the farmers in our country. This can be because of two main reasons. Crops destroyed by wild animals and because of bad weather condition. This paper provides a solution to the destruction of crops by animals. This system will provide a complete technical solution using the Internet of things (IOT) to the farmers to prevent their crops from wild animals and provide information to the farmers to maximize their production.It also helps the users to supervise the soil moistyre content, temperature and humidity values near the cultivation field. And also provides control over periodic watering using application.

APPROACH :

- 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.

ADVANTAGES :

- Increased agility of the processes.
- Farmers can quickly respond to any significant change in weather, humidity and wild animals attack.
- Increased productivity.
- Reduced financial lossed.
- 24/7 crop monitoring and protecting it from wild animals is made easy and completely automated.
- Reduced man power requirement.
- Provides path to meet increased food demand in our country.
- It also prevents the crop being damaged due to heavy climatic conditions.
- Prevents crop from insufficient watering and also watering the crops when there is no necessity.

CONCLUSION :

Crop protection from animal intrusion is important for the successful cultivation of the crops and this can be done with the IoT. The development of agricultural sector will always be a priority especially given the dynamics of the world today. Therefore, using IoT in agriculture has a big promising future as a driving force of efficiency, sustainability, and scalability in this industry.