IoT Based Smart Crop Protection System for Agriculture

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PROBLEM STATEMENT

A vast majority of the people are invariably affected by the production of crops. Farmers, for example, rely on them for their survival. The consumers, on the other hand, depend on the crops as it provides them with a multitude of utilities. It therefore, becomes essential to protect and maintain these crops. The project aims at improving the farmers' situation by preventing them from incurring losses due to the damage of crops. Crop failure also deteriorates the quality of the yield thereby decreasing the quality of living.

EXISTING SOLUTION

- Nanda, Ipseeta & Chadalavada, Sahithi & Swathi, Medepalli & Khatua, Lizina. (2021). Implementation of IIoT based smart crop protection and irrigation system. Journal of Physics: Conference Series. 1804. 012206. 10.1088/1742-6596/1804/1/012206.
- P. Bhadani and V. Vashisht, "Soil Moisture, Temperature and Humidity Measurement Using Arduino," 2019 9th International Conference on Cloud Computing, Data Science & Engineering (Confluence), 2019, pp. 567-571, doi: 10.1109/CONFLUENCE.2019.8776973.
- S. Yadahalli, A. Parmar and A. Deshpande, "Smart Intrusion Detection System for Crop Protection by using Arduino," 2020 Second International Conference on Inventive Research in Computing Applications (ICIRCA), 2020, pp. 405-408, doi: 10.1109/ICIRCA48905.2020.9182868.

INFERENCE

- It was learnt that the size of the animal is found out by using several PIR sensors. PIR sensors can be used to determine the height of the animals instead of using a camera for image processing. This reduces the processing time and power.
- It was also learnt that crop protection is majorly dependent on the moisture content of the soil, the temperature and humidity of the surrounding environment.
- Additionally, tracking of the damaged crop’s location is done and the camera is activated only at that instant in order to capture the image

IDEA FOR THE PROJECT

- In this project, we propose a solution which integrates different technologies like IoT and sensor fusioning.
- Raspberry Pi is used along with different sensors to monitor different parameters like temperature, humidity, luminosity, PIR.
- The information collected from the above step is stored in an IoT cloud.
- We also aim to track the location where an intrusion has been detected using beacons. This is later notified to the user via an SMS/email.