Domain

Internet of Things

# Problem Statement

IoT-Based Smart Crop Protection System for Agriculture

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Agriculture farming is the main source of livelihood for many people in different parts of the world. But still, farmers depend on traditional methods for past years. Also, among the reasons behind the low yield of crops includes Animal intrusion, causing serious damage to the crops.

### The Necessity of IoT-Based Smart Crop Protection System for Agriculture :

Crops growing on farms are many times devastated by local animals like buffaloes, cows, goats, birds, etc. This makes the farmers face a huge loss. And it’s impossible to keep an eye on the field or stay on the field for the whole day and protect it.

Low production of crops is one of the major issues faced by the farmers in our country. This includes two main reasons. One of them is the crops destroyed by wild and domestic animals.

**Impact of this issue :**

* Low productivity
  + - The damage to the crops leads to low productivity
* Threat to animal
  + - The electrical fences constructed are a threat to animals which gives an electric shock when animals come in contact.

### How can we do advancement in agriculture using IOT

* Monitoring of climate conditions
* Greenhouse automation
* Typically, farmers use manual intervention to control the greenhouse environment. The use of IOT sensors enables them to get accurate real-time information on greenhouse conditions such as lighting, temperature, soil condition, and humidity.
* In addition to sourcing environmental data, weather stations can automatically adjust the conditions to match the given parameters. Specifically, greenhouse automation systems use a similar principle. For instance, Farm app and Grow link are also IOT agriculture products offering such capabilities among others. GreenIQ is also an interesting product that uses smart agriculture sensors. It is a smart sprinklers controller that allows you to manage your irrigation and lighting systems.

**Crop management**

One more type of IOT product in agriculture and another element of precision farming are crop management devices. Just like weather stations, they should be placed in the field to collect data Specific to crop farming; from temperature and precipitation to leaf water potential and overall crop health. Thus, you can monitor your crop growth and any anomalies to effectively prevent any diseases or infestations that can harm your yield. Arable and Semis can serve as good representations of how this use case can be applied in real life.

Cattle monitoring and management

Just like crop monitoring, there are IOT agriculture sensors that can be attached to the animals on a farm to monitor their health and log performance. Livestock tracking and monitoring help collect data on stock health, well-being, and physical location.

**When does this issue occur :**

Due to deforestation, animals become homeless. The removal of trees reduces available food, shelter, and breeding habitat. Wildlife becomes fragmented, where native species must live on remaining habitat places that are surrounded by disturbed land that is being used for agriculture and other uses.

### Why it is important to fix the problem :

IoT-based Smart Farming improves the entire agriculture system by monitoring the field in real-time. With the help of sensors and interconnectivity, the Internet of Things in agriculture has not only saved the time of the farmers but has also reduced the extravagant use of resources such as water and electricity and thus protecting the crops from getting destroyed.