

IoT Based Smart Crop Protection System for Agriculture

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IoT based Raspberry Pi Crop Vandalism Prevention system

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Existing irrigation systems can monitor the crop growth, supply of water and maintaining required temperature, moisture etc., Few systems were added with protection process but they exhibit certain limitation where only the neighbors will be warned in the system phase and there is no photo capture to locate for later. The proposed design is a security alarm system that is capable of monitoring isolated fields or home gardening. The camera and the other components are connected to the microcomputer which is turned on 24×7 for the whole day. The camera monitors the fields continually. The Raspberry Pi continually checks for motion in the field or orchard acting as the system's brain. The raspberry pi tests for the presence of animals in the picture if any movement is observed in the area. This provides real-time field photos over the internet if any animal is detected, which can be accessed using a web browser on devices such as computers and mobile phones, and also alerts the nearby people via buzzer vibrations. The proposed system process by image capture involved in order to detect the animal and alert the farmer in the isolated far fields in hilly areas or at night times when animal vandalism is more.

Smart AGRO Using ARDUINO and GSM

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AGRICULTURE uses 85% of available freshwater resources worldwide, and this percentage will continue to be dominant in water consumption because of population growth and increased food demand. There is an urgent need to create strategies based on science and technology for sustainable use of water, including technical, agronomic, managerial, and institutional improvements. Drip irrigation system makes the efficient use of water and fertilizer. Water is slowly dripped to the roots of the plants through narrow tubes and valves. Water is fed directly to the base of the plants which is a perfect way to water plants. There should be proper drainage in the fields or pot plants to avoid any water logging which in case may affect the productivity. There already exist automatic drip irrigation systems which water plants based on soil humidity, pH value of soil, temperature and light. These parameters are required in big agricultural fields where productivity of the crop matters. Then we are preventing agriculture land from animals using ir sensor with gsm module.

IOT Based Wireless Sensor Network for Prevention of Crops from Wild Animals

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The conservation of crop field from the wild animal has been a main aim of this paper. The animals from the wild area are continuously attacking to crop from so many years and the protection of this crop field from wild animals is the serious issue. The wild animals face an shortage of water and food due to which they move towards the agriculture area which creates great loss to the crops and annual income of farmers, when wild animals enter in a farm there is a need for an alert system to prevent crops from damages from wild animal. The proposed paper is completely technical solution for each farmer using wireless sensor network (WSN) and Internet of Things (IOT). This paper focuses on algorithm to detect the presence of animals near the crop field. The main heart of the system that is used here is the Raspberry pi which is a widespread platform and the WSN. The Raspberry Pi is a sequence of credit card– sized single-board computers established in United Kingdom by the Raspberry Pi Foundation. A wireless sensor network (WSN) consists of a large number of autonomous sensors to cooperatively monitor physical or environmental conditions. A typical WSN consists of various clusters connected with the sink node. Each cluster has number of sensor nodes having one Master node capable of collecting the data from remaining nodes. Each Sensor node requires four basic units i.e. sensing unit, processing unit, transceiver unit and a power unit, every node will have all the sensors required to detect wild life activity so as the necessary action will be taken by actuator so that the wild animals will run away. The position of the animal once detected is tracked by ultrasonic sensor then raspberry pi take an image of animal using camera, this image is send to the user using GSM.

Automated Alert Fencing System Using Arduino and GSM SIM Module

Author: Dinesh Joshi, Prabhu Pant

Agriculture plays a vital role in the Indian economy. Over 75 percent of the rural households depend on agriculture as their principal means of livelihood. Recently in India, there have been many technological advancements in the agricultural sector, but warding off wild animals, which trespasses the farms, is still being done manually. In rural parts of India where farmers are not usually well versed economically and technically suffer from hefty losses to these frequent animal intrusion and require a constant manual lookout to protect their fields against such intruders. Crops are usually destroyed by these wild animals and result in large amount of loss to the farmers. A constant manual guarding of the fields is not possible. To tackle this problem, in our proposed work, we shall design a system to prevent the entry of animals into the farm and alert the farmer at the same time via a phone call. Our main purpose is to develop an inexpensive and prohibitive fencing to the farm to cut losses due to animals. The developed system will not be harmful to animals. Theme of project is to design an intelligent security system for farm protection by using embedded system. Firstly, the fields are protected by a solar fencing system, which uses energy from solar panels to drive an electric current through the wires of the fences, that wards off animals by giving them a safe electric shock. If in some cases, small animals like rabbits, manage to enter the farm, then ultrasonic sensors are used to detect their presence. The sensors send the data to the microcontroller which turn on the alarm system which consists of sounds and damping lights. The microcontroller then informs the user by an automated phone call via GSM module and he can decide to turn off the alarm if so desired.