VINS CHRISTIAN WOMENS COLLEGE OF ENGINEERING,

CHUNKANKADAI

IBM NALAIYA THIRAN

LITERATURE SURVEY

DOMAIN NAME-INTERNET OF THINGS

TITLE: SMART CROP PROTECTION SYSTEM FOR AGRICULTURE

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LITERATURE SURVEY

SMART CROP PROTECTION SYSTEM FOR AGRICULTURE

INTRODUCTION:

Methods of harvest forecasting have become increasingly elaborate. Highly refined statistical techniques in agriculture are now being used to extract information from past data and to project prediction values of economic variables. To a large extent, these advances in the science of harvest forecasting have been made possible by progress in IT technology. But solitary statistical techniques do not provide perfect future situation. Therefore, it is necessary to analyze correlating monitoring crop environments with statistical information about harvest. It is expected that from IoT-based decision support system, this information on statistical pattern of crop can be obtained. The purpose of this study is to improve the agricultural forecast supporting information system, so that real-time forecast will be possible. To this end, it will be needed to manage IoT devices and gather information on them more appropriately. The IoT based agricultural production System consists of three parts: relation analysis, statistical prediction, and IoT service. This system is designed an agricultural decision support system to predict crop growth by monitoring periodically using the IoT sensor technology.

Crops in farms are many times ravaged by local animals like buffaloes, cows, goats, birds etc. This leads to huge losses for the farmer. Due to over population, it occurs a deforestation this results in shortage of food, water and shelter in forest areas. So, animal's interference in residential areas is increasing day by day which affects human life and property causes human animal conflict but as per nature's rule every living creature on this earth has important role in eco-system. Elephants and other animals coming in to contact with humans, impact negatively in various means such as by depredation of crops, damaging grain stores, water supplies, houses and other assets, injuring and death of humans. So here we propose automatic crop protection system from animals. This is a microcontroller-based system using PIC family microcontroller. These systems use a motion sensor to

detect wild animal approaching near the field. In such a case the sensor signals the microcontroller to take action.

TOPIC: " Smart Crop Protection System"

Abstract:

Agriculture is the backbone of the economy but because of animal interference in agricultural lands, there will be huge loss of crops. This article provides a comprehensive review of various methods adopted by farmers to protect their crops. The article also discusses use of modern technology in agriculture. Finally, this article reviews smart crop protection system using sensors, microcontroller and GSM module.

Reference:

[1] Artur Frankiewicz; Rafał Cupek." Smart Passive Infrared Sensor - Hardware Plat- form "Year: 2013 IECON 2013 - 39th Annual Conference of the IEEE Industrial Electronics Society Pages: 7543 – 7547

[2] Discant, A. Rogozan, C. Rusu and A. Bensrhair, "Sensors for Obstacle Detection" 2007 30th International Spring Seminar on Electronics Technology (ISSE), Cluj-Napoca, 2007, pp. 100-105. Doi: 10.1109/ISSE.2007.4432828 Volume:01 Pages:859-862, DOI:10.1109/ICCSNT.2015.7490876, IEEE Conference Publications.

TOPIC: "A Literature Study on Agricultural Production System Using IOT"

Abstract:

The IoT (Internet of Things) based agricultural convergence technology is a technology to create a high value such as improvement of production efficiency, quality increase of agricultural products in the whole process of agricultural production. In addition, implementing precision agriculture, which is an alternative to the future agriculture, through the convergence technology allows prediction of

supply and demand, real-time management and quality maintenance during the entire life cycle of agricultural products.

Reference:

[1]. Moummadi, K., Abidar, R., Medromi, H., "Generic model based on constraint programming and multi-agent system for M2M services and agricultural decision support," Multimedia Computing and Systems (ICMCS), 2011 International Conference on, pp.1,6, 7-9 April 2011.

[2]. Ren Duan; Xiaojiang Chen; Tianzhang Xing, "A QoS Architecture for IOT," Internet of Things (iThings/CPSCom), 2011 International Conference on and 4th International Conference on Cyber, Physical and Social Computing, pp.717,720, 19-22 Oct. 2011.

TOPIC: "IOT in Agricultural Crop Protection and Power Generation"

Abstract:

Agriculture is the science and art of growing plants. Agriculture plays predominant position in the financial improvement of our country and this is the primary profession from many years. To extend the efficiency of the yields and to limit the costs of rural practices we go for smart techniques of agriculture by using IOT technology. Protection of crop during rainy season is major challenge for farmers. By incorporating Greenhouse technology, an environment condition for crop to grown will created along the various features like sensor based totally monitoring, security, crop safety from excessive rain and automatic roof overlaying facility. Greenhouse is operated in two modes i.e., automatic mode and manual mode. It makes use of telegram app for communicating with the cultivators about various environmental factors continuously. Various sensor nodes are deployed at special locations in the greenhouse. Controlling those parameters are through any remote device or internet services and the operations are completed by means of interfacing sensors, with microcontroller. Power generation and supply is usually a massive problem. This project is also consisting of solar power generation and rainwater harvesting as technology method is implemented along with crop safety.

Reference:

[1] Mateos, L., & Araus, J. L. (2016). Hydrological, engineering agronomical, breeding and physiological pathways for the effective and efficient use of water in agriculture. Agricultural Water Management, 164, 190–196. Doi: 10.1016/j.agwat.2015.10.017.

[2] Wasson, T., Choudhury, T., Sharma, S., & Kumar, P. (2017). Integration of RFID and sensor in agriculture using IOT. 2017 Internationl Conference on Smart Technologies for SmartNation (SmartTechCon). doi:10.1109/smarttechcon.2017.835837 2

[3] Gouadria, F., Sbita, L., & Sigrimis, N. (2017). A greenhouse system control based on a PSO tuned PI regulator. 2017 International Conference on Green Energy Conversion Systems (GECS). doi:10.1109/g Sadriwala, A. (2017).

TOPIC: "Implementation of IIoT based smart crop protection and irrigation system"

Abstract:

A centralizing method in the area of IIOT (Industrial Internet of Things) contrived for understanding agriculture which is preceding the arrangements low-power devices. This paper yields a monitoring procedure for farm safety against animal attacks and climate change conditions. IIoT advances are frequently used in smart farming to emphasize the standard of Agriculture. It contains types of sensors, controllers. On behalf of WSN, the ARM Cortex-A board which consumes 3W is the foremost essence of the procedure. Different sensors like DHT 11 Humidity & Temperature Sensor, PIR Sensor, LDR sensor, HC-SR04 Ultrasonic Sensor, and camera are mounted on the ARM Cortex-A board. The PIR goes high on noticing the movement within the scope, the camera starts to record, and the data will be reserved on-board and in the IoT cloud, instantaneously information will be generated automatically towards the recorded quantity using a SIM900A unit to notify about the interference with the information of the weather conditions attained by DHt11. If a variance happens, the announcement of the

threshold rate will be sent to the cell number or to the website. The result will be generated on a catalog of the mobile of the person to take the necessary action.

References:

[1] J. Padhye, V. Firoiu, and D. Towsley, ―A stochastic model of TCP Reno congestion avoidance and control, Univ. of Massachusetts, Amherst, MA, CMPSCI Tech. Rep. 99-02,1999.

[2] Gwo-Jiun Horng; Min-Xiang Liu Chao-Chun Chen; The Smart Image Recognition Mechanism for Crop Harvesting System in Intelligent IEEE sensors Journals Year: 2020

[3] Archana Sahai- Security issues threats in IOT infrastructure international journal of advanced engineering, management and science. International Journal of Advanced Engineering, Management and Science (IJAEMS) Vol4, Issue5, May 2018].