

LITERATURE SURVEY

SMARTFARMER -IOT ENABLED SMART FARMING APPLICATION

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PAPER 1:

Title: Smart Farmer System

Author : Athrva Dalvi, Shefali Kulkarni, Utsavi Kulkarni, Shweta Todkar

Publication year : 2020

Description :

India is a country largely dominated by the agricultural sector, and hence it is our duty to utilize our knowledge of easy and accurate analysis in time efficient manner to boost the agriculture to newer heights. Also, lately there have been innumerable changes in our environmental conditions and hence, the rate of crop failure has increased over time. This is resulting into the increased number of suicides of farmers. Thus, the focus of this paper is to implement a system that would help the farmers of our country to maximize their yields alongwithmaximized profits. The system proposes to predict the accurate crop prediction based on the past and live data that is analyzed using supervised machine learning algorithm, SVM. Both the live data as well asthe big data isstored and retrieved from cloud. Also, the system proposesto make use ofsoil moisture sensors along with the weather conditionsto automate the process of irrigation, which is one of the most time-consuming activities in farming. All the notifications from the system and the queries of the farmer are interacted using an android application.

PAPER 2:

Title: Smart Agriculture System using IoT Technology" Publisher: International Journal of

Advance Research in Science and Engineering

Author : Adithya Vadapalli ,Swapna Peravali ,Venkatarao Dadi

Year : 2020

Description: The farming of agriculture has started past 12000 years back, Neolithic age gave birth of civilization, Farming and later being continued as traditional farming practices. India being an agrarian's country, Mostly Indian farming are dependent on rains, soil, dampness and environment challenges .Our farmers upgraded to modern state of art technology in cultivation. Globally the IoT systems has contributed its application in many fields and proven to be successful. It is the time that Indian farmer need to introduce the Smart Agricultural systems for higher crop yield. The productivity with compilation of data from sensors, actuators and modern electronic gadgets the farmer can monitor agricultural fields. Smart Agriculture can forecast weather data, switching ON the pump motor acknowledging the dampness of soil terms of moisture levels with help of sensors which are interfaced to process module Arduino UNO. The Smart agriculture system can be operated from anywhere with help of networking technology. On joining process in research and development in Smart Agriculture & Artificial Intelligence can be cutting edge technology in data compiling and resource optimization .The pest & insect controls that protects damaging the crop and also optimisation resources utilisation can be breakthrough

Paper 3:

Title: Automatic relationship extraction from agricultural text for ontology construction

Author: Neha Kaushik , Niladri Chatterjee

Published Year: 21 November 2017

Description:

In the present era of Big Data the demand for developing efficient information processing techniques for different applications is expanding steadily. One such possible application is automatic creation of ontology. Such an ontology is often found to be helpful for answering queries for the underlying domain. The present work proposes a scheme for designing an ontology for agriculture domain. The proposed scheme works in two steps. In the first step it uses domain-independent regular expressions and natural language processing techniques for automatic extraction of vocabulary pertaining to agriculture domain. In the second step semantic relationships between the extracted terms and phrases are identified. A rule-based reasoning algorithm RelExOnt has been proposed for the said task. Human evaluation of the term extraction output yields precision and recall of 75.7% and 60%, respectively. The relation extraction algorithm, RelExOnt performs well with an average precision of 86.89%

Paper 4:

Title: Impacts of the precision agricultural technologies in Iran: An analysis experts' perception & their determinants

Author: Somayeh Tohidyan Far, Kurosh Rezaei-Moghaddam

Published Year: 19 September 2017

Description:

The purpose of this study was to investigate factors influencing impacts of precision agriculture from the viewpoints of Boushehr Province experts. The research method was a cross sectional survey and multi-stage random sampling was used to collect data from 115 experts in Boushehr province. According to the results, experts found underground and surface waters conservation, rural areas development, increase of productivity and increasing income as the most important impacts of precision agricultural technologies. Experts' attitudes indicate their positive view toward these kinds of impacts. Also behavioral attitude has the most effect on impacts. 2018 China Agricultural University. Publishing services by Elsevier B.V. This is an open access article under the CC BY-NC-ND license

PAPER 5:

TITLE: Internet-of-Things (IoT)-Based Smart Agriculture:
Toward Making the Fields Talk

PUBLICATION YEAR: 2019

AUTHOR NAME: Muhammad Ayaz;Mohammad Ammad-Uddin;Zubair Sharif;Ali Mansour;El-Hadi M. Aggoune

DESCRIPTION:

Despite the perception people may have regarding the agricultural process, the reality is that today's agriculture industry is data-centered, precise, and smarter than ever. The rapid emergence of the Internet-of-Things (IoT) based technologies redesigned almost every industry including "smart agriculture" which moved the industry from statistical to quantitative approaches. Such revolutionary changes are shaking the existing agriculture methods and creating new opportunities along a range of challenges. This article highlights the potential of wireless sensors and IoT in agriculture, as well as the challenges expected to be faced when integrating this technology with the traditional farming practices. IoT devices and communication techniques associated with wireless sensors encountered in agriculture applications are analyzed in detail. What sensors are available for specific agriculture application, like soil preparation, crop status, irrigation, insect and pest detection are listed. How this technology helping the growers throughout the crop stages, from sowing until harvesting, packing and transportation is explained.

PAPER 6:

TITLE: Monitoring Soil Moisture to Support Risk Reduction for the Agriculture

Sector Using RADARSAT-2

PUBLICATION YEAR: 2012

AUTHOR NAME: Heather McNairn; Amine Merzouki; Anna Pacheco; John Fitzmaurice

DESCRIPTION:

Monitoring the amount of moisture held in the soil is critical in the management of risk for the agriculture sector. Extremes in soil moisture can lead to devastating consequences. Early assessment of soil moisture reserves, and monitoring of changes in available soil moisture, could assist in risk reduction strategies for the agriculture sector and effective delivery of government programs. Agriculture and Agri-Food Canada has been acquiring RADARSAT-2 data since 2008 to evaluate the accuracy with which this sensor can provide soil moisture to assist with implementing risk reduction strategies for the Canadian agriculture sector. The calibrated Integral Equation Model (IEM) was used to estimate soil moisture for 15 RADARSAT-2 data sets acquired over an eastern and western Canadian test site. Higher errors were also observed for data sets where angles between the RADARSAT-2 look direction and field tillage structures were largest. When soil moisture estimates were evaluated at a regional scale, mean errors fell to 3.14%. The IEM was also able to detect increases and decreases in soil moisture which followed periods of rainfall and drying.