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▶ 前沿资讯

1. Agtech to create 2.1 million jobs in Indian agriculture (农业技术将为印度农业创造210万个就业岗位)

简介: 采用精准农业技术将为印度农业部门创造210万个就业岗位。随着印度政府将重点放在新技术上以增加农业产量和农民收入,采用这些新技术将对印度整个农业部门产生积极影响。在数字化转型智囊团印度宽带论坛(BIF)举办的研讨会上,人们发现随着采用物联网(IoT)和人工智能(AI)的应用程序,农业部门将创造超过210万个工作岗位-每年价值47.5亿美元。

农业就业人数下降

BIF的一项研究显示,印度农业部门的就业人数在过去几年一直在下降。印度农业部门的就业比例从2010年的52%持续下降到2018年的42%,基于物联网的应用有可能扭转这一趋势。诸如农业无人机、卫星测绘、电子市场、牲畜可追溯性、气候传感站和产品可追溯性等技术将在未来8至10年内创造像无人机操作员、仓库经理和数据分析师那样的就业机会。该研究补充说,这些应用程序将有助于创建智能农场,并使农业产出更具可预测性,进而有助于提高农民的收入和生活水平。

与IBM合作

最近,印度政府与IBM印度公司签署了一项协议,研究人工智能和其他新技术解决方案在三个州Kharif作物上的应用。通过使用机器学习工具,数据驱动的实现可以改进传统的农业过程,如实时跟踪天气和环境变化、监测作物健康、水分含量,并通过先进的农业实践提高农业产量。

移动应用程序

除此之外,印度政府还致力于启动一种移动应用程序,农民可以通过该应用程序租用农用设备。农民有机会使用现代设备工作,可以提高效率和生产力,从而增加收入。

几家初创公司已经开始运作

一些私营农业公司已经开始在印度提供人工智能服务。CropIn、eKutir、NaPanta、Dehart等公司正在开发和提供农作物监测、田间测绘、施肥、播种和直接与消费者联系的技术。印度农业部长纳伦德拉·辛格·托马尔(Narendra Singh Tomar)在接受《每日商业报》采访时说,政府致力于启用人工智能和新一代气象数据等新一代技术,以获取更深入的见解,从而做出更快、更明智的农业决策。

印度农业的新岗位

根据印度宽带论坛的研究,农业领域的大多数新就业岗位将是牲畜可追溯性(891,030个工作),其次是农业无人机(522,640个工作),气候感应(316,430个工作),卫星测绘(255,343个工作),电子市场(122,530个职位)和产品可追溯性(13,403个职位)。

来源: Future Farming

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全文链接:

http://agri.ckcest.cn/file1/M00/0E/C9/Csgk0F2Ig_OAZ_CLAAgiiyibKX0161.pdf

► 学术文献

1. Current Situation of Agricultural Mechanization and Conservation Agriculture in Latin America (拉丁美洲农业机械化和保护性农业的现状)

简介: This article shows the behaviour of the distribution of agricultural machinery market in Latin America, the major manufacturing countries, main commercial flows, industry, exports and imports of agricultural machinery in the region. It also describes the competitive profile of the sector in Mexico, Brazil and Argentina, advances of no-tillage system, experiences of countries in the region and the conservation agriculture in the world. The objective of this paper is to present the current situation of agricultural mechanization in Latin America and the Caribbean, advances in conservation agriculture in this region and the world, its perspectives and possible alternatives to obtain what is desired.

来源: AMA-AGRICULTURAL MECHANIZATION IN ASIA AFRICA AND LATIN AMERICA

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2. DESIGNING AN INTELLIGENT GREENHOUSE MONITORING SYSTEM BASED ON THE INTERNET OF THINGS (基于物联网的智能温室监测系统设计)

简介: With the development of the Internet, the development of the Internet of Things (IoT) has also been promoted. The IoT is a network of "objects and objects connected." The IoT is based on cloud computing platforms and wireless networks. It acquires data based on sensor groups and conducts decision analysis to change the behavior control and feedback of objects, such as the greenhouse monitoring system studied in this paper. The IoT has subverted the traditional agricultural production model, from the agricultural farming model to the "smart agriculture" production-operation-sales model, which provides a direction for the sustainable development of agriculture in China at this stage. Based on the IoT and Zig Bee wireless sensor network technology, this paper designs a general scheme of an intelligent greenhouse control system based on IoT technology. The greenhouse control strategy was studied using IoT technology and fuzzy adaptive PID control algorithm. The experimental simulation was carried out with MATLAB software. The simulation results show that the optimal control of greenhouse temperature is achieved. The temperature in the greenhouse is always maintained at 16.5° C -23.0° C, and the humidity value is always maintained at 68.2% RH-89.3% RH. The test verified that the paper can achieve the expected effect for the greenhouse.

来源: APPLIED ECOLOGY AND ENVIRONMENTAL RESEARCH

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<http://agri.ckcest.cn/file1/M00/OE/C8/Csgk0F14tdSAf3VpAB1QcKfxoHw999.pdf>

➤ 相关专利

1. 一种可控环境作物表型连续获取方法

简介: 本发明提供了一种可控环境作物表型连续获取系统及方法,所述系统包括:作物培养箱,位于所述作物培养箱内部的滑动导轨、表型传感器盒、环境传感器盒和补光灯,以及位于所述作物培养箱外部的环境控制箱、根系箱和根系营养液循环箱;所述表型传感器盒内设置有高光谱成像传感器、热红外成像传感器、三维结构传感器和可见光成像传感器,所述表型传感器盒在所述滑动导轨的带动下定时及定点获取所述作物培养箱内作物的生长连续表型数据;本发明提供的可控环境作物表型连续获取系统可以在可控环境下开展作物表型指标获取与分析,本发明能够明确环境条件对表型参数变化的影响规律,使得对表型参数的认识更为符合实际情况。

来源: 国家知识产权局

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<http://agri.ckcest.cn/file1/M00/0E/C9/Csgk0F2IhSGAVGOxAAjN0kQor-U773.PDF>

➤ 会议论文

1. Automatic Control and Management System for Tropical Hydroponic Cultivation (热带水培自动控制与管理系统)

简介: Tropical hydroponic cultivation needs to control humidity, temperature, water level, pH, and EC factors suitable for tropical climate. In order to grow qualified hydroponic plants, nutrient solution has to run through bottom channels constantly, and pH and EC factors in the solution have to control as the plant ages, the varieties of hydroponic plants and also the food safety qualification. In addition, tropical counties have hot climate almost the whole year; therefore, the greenhouse humidity and temperature have to be controlled. The power outage should be detected to avoid shutting off the nutrient solution pump. This paper proposes automatic control and management system for tropical hydroponic cultivation. The system aims to reduce information exchange of multisensor data fusion within the wireless sensor network by grouping the sensors to decide the data fusion results. It can control water level, humidity, and temperature as grower setting automatically. It also sends sensor data and status, collects pH and EC values of individual nutrient solution tank, and sends notification via Android mobile application. The data history is available on web application. This therefore is easily to monitor, manage data, and setting online. The system is tested in northern Thailand hydroponic farm. The evaluated results show that the system can decide the results from multisensor grouping as the setting correctly.

来源: 2019 IEEE INTERNATIONAL SYMPOSIUM ON CIRCUITS AND SYSTEMS (ISCAS)

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<http://agri.ckcest.cn/file1/M00/0E/C9/Csgk0F2Ihi6APVQfAA1295TiwBk927.pdf>

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2. Precision agriculture for small to medium size farmers - An IoT approach (面向中小农户的精细农业 - 物联网方法)

简介: World population has almost doubled during the last century increasing dramatically the need for food to support a population over 7 billion persons. According to FAO, by 2050, the agricultural production will have to increase by 70%. Plants growth depends on several factors such as nutrients (NPK), soil characteristics, soil Ph, soil moisture, temperature, weather, and light. To manage all the required information and the complexity of plants growth a system, based on IoT technology, able to measure, analyze, and act is needed. IoT is a solution for precision agriculture. A system for precision agriculture, that will be distributed in the field, far from energy and communication sources needs to be low power and able to process the received information and just sending the most relevant information to the cloud for further statistical analysis. This system will be able to measure the most important parameters for plant growth through a set of sensors and act to fix some of those parameters through actuators when needed as well.

来源: 2019 IEEE INTERNATIONAL SYMPOSIUM ON CIRCUITS AND SYSTEMS (ISCAS)

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