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lot farming applications

Source: TDCConsud of Things (IoT) has proven revolutionary in its expansion. IoT technology has entered homes and businesses with IoT applications from home automation, logistics and automotive to the healthcare and fitness industries. It has also affected agriculture and the introduction of connected devices has many advantages of IoT in agriculture. Here's something for you that's recommended: Agriculture has seen many technological transformations in recent decades that have been driven by more industrialization and technology. Thanks to the use of several intelligent agricultural instruments, farmers have gained better control over the process of breeding and growing livestock, which makes it more capable of cultivating and improving its efficiency. In the coming years, the use of intelligent IoT solutions in agricultural activities will increase. According to research reports, the global agricultural market was \$1.8 billion in 2028 and is projected to reach \$4.3 billion by 2023 at a CAGR of 19.3%. In this blog post, we will examine cases of IoT use and applications in agriculture. So if you're thinking of investing in smart farming or building an IoT solution for agriculture, read on! Application and Use Cases of IoT in Agriculture / Intelligent Agriculture Climatic Conditions MonitoringClim plays an important role in agriculture. Lack of knowledge about the weather can significantly reduce the quality and quantity of crop production. But the IoT solution allows you to learn the weather in real time. IoT sensors have been placed both outside and inside farms. They collect all the data from environments that can be used to select the right crops that can grow and sustain under specific climatic conditions. The entire IoT ecosystem is designed with sensors that can identify real-time weather conditions such as temperature, precipitation, humidity and more. There are a large number of sensors that determine all parameters and configure them to meet your smart farm needs. These IoT sensors will monitor crop conditions and the environment. If you notice faulty weather conditions, an alert will be sent. Physical presence is essential in disruptive weather conditions, which ultimately increases productivity and helps farmers gain good agricultural benefits. Pycno, Smart Elements and allMETEO are some of such IoT agricultural facilities. In order to create smart greenhouses, IoT allows weather stations to automatically adjust weather conditions according to a specific set of instructions. IoT sensors provide real-time information about greenhouse conditions such as temperature, lighting, humidity and soil condition. Adopting IoT in greenhouses eliminates human intervention, increases accuracy, and the whole process is cost-effective. For example, Grolink and PharmaP also offer the best agricultural IoT products, among others providing similar capabilities. Green IQ is an exciting brand that uses smart Sensors. Green IQ is an intelligent irrigation driver that allows you to manage your lighting systems and irrigation remotely. Precision farming is also called precision farming, which is about making accurate and effective data-driven decisions. It refines and controls the agricultural process by implementing intelligent applications, including vehicle monitoring, livestock monitoring, inventory monitoring, field monitoring, etc. With precision farming, you can evaluate soil conditions and other parameters to improve operational efficiency. In addition, you can also find the working conditions of connected IoT devices in real time to determine nutrient and water levels. CropX, for example, produces IoT soil sensors that measure temperature, electrical conductivity and soil moisture, allowing farmers to contact the specific needs of each crop individually. Mothive provides similar services, helping farmers improve yields, reduce waste and increase the sustainability of agriculture. The use of agricultural drones in intelligent agriculture is probably one of Agritech's breakthroughs. The UAV also called as unmanned aerial vehicles, agricultural drones are better compared to satellites and aircraft in data collection. In addition to surveillance options, these drones can perform several tasks they previously need to grow crops of human labor, such as spraying agriculture, monitoring crops, fighting diseases and pests, and so on. Droneseed, for example, can build drones for tree plantations in deforestation areas. It is amazing that the use of drones is six times more effective and effective than human labor. Sense Fly Agriculture Drone eBee SQ uses multispectral image analyzers to assess crop health at the lowest cost. Another type of IoT production in agriculture and another aspect of precision farming are IoT crop management facilities. As well as meteorological stations, they must be placed on the holding in order to obtain specific information for the cultivation of crops, from precipitation and temperature to the water efficiency of the leaves and the overall health of the crop. Therefore, you can also monitor crop growth and other irregularities to prevent infestation or disease that could harm your yield. Semios and Arab, for example, serve as the best representation of how this case will actually benefit. Cattle monitoring and managementSimate crop monitoring, IoT farm sensors are added to the farm to monitor the health and log performance of animals (such as cows, buffaloes, etc.). Monitoring livestock and examining help to obtain data on the physical location, well-being and health of the population. This kind of IoT sensors can detect sick animals, so agriculturists can isolate them from the herd and prevent contamination. Using drones to monitor and monitor livestock in real time can also help farmers reduce staff costs. For example, SCR by Collar and Allflex use intelligent agricultural sensors that provide collective information on health, nutrition and herd on each cow. End to end Management systemsAlmed-up farm productivity management systems can provide a more complex approach to IoT products in agriculture. They typically include several IoT sensors and devices that are installed locally, as well as a robust dashboard with analytics capabilities and built-in reporting and billing features. It provides remote monitoring capabilities for agriculture and makes most business activities more efficient. For example, Cropio and Form logs suggest solutions like this. Predictive analysis for intelligent agriculture And data analysis go hand in hand. While intelligent sensor and IoT technologies are key to highly relevant real-time data, the use of predictive data analysis helps agriturism understand and come up with basic predictions: infestation and disease risks, crop yields and harvests, etc. Predictive data analysis tools help make agriculture more weather-dependent internally, making it more predictable and manageable. For example, the crop performance portal can predict in advance the quality and quantity of yield, as well as exposure to adverse weather conditions such as droughts and floods. It allows farmers to choose yield characteristics to optimise water and nutrient supplies for each crop and improve quality. Conclusion:IoT applications in agriculture enable data collection for farmers and farmers. Both small-scale farmers and large landowners need to understand the potential of the agricultural technology market for IoT by installing smart technologies to increase sustainability and competitiveness in their production. As the population grows rapidly, demand will be successfully satisfied if small-scale farmers, along with ranchers, implement IoT solutions in the agricultural area in a prosperous way. If you have an idea or project in your mind and need someone to implement an IoT solution in your agriculture, contact FuGenX Technologies. Our team is ready to help you 24*7.We are a leading and award winning IoT App Development Company in India and usa. Volume 191, March 2020, Pages 60-84Farm Management Information SystemView Abstract Article was updated on July 7, 2020. With the increasing adoption of the Internet of Things (IoT), connected devices have penetrated every aspect of our lives, from health and fitness, home automation, automotive and logistics to smart cities and industrial IoT. It is therefore logical that IoT, connected equipment and automation would find application in agriculture, and as such would vastly improve almost every aspect. How could one still rely on horses and plows when self-driving cars and virtual reality are no longer science fiction fantasies, but everyday events? Agriculture has seen a number of technological transformations in recent decades that have become more industrialised and technology-driven. Using various intelligent agricultural gadgets, farmers have gained better control over the farming process more predictable and to improve their efficiency. This, together with increasing consumer demand for agricultural products, has contributed to the increased spread of smart agricultural technologies around the world. In 2020, IoT's share in agriculture reached \$5.6 billion. In this article, we will look at cases of IoT use in agriculture and explore their benefits. So if you're thinking of investing in smart farming or planning to build an IoT solution for agriculture, dive right into it. What is smart farming? Definition and size of the market There are many ways to refer to modern agriculture. For example, AgriTech refers to the use of technology in agriculture in general. Smart agriculture, on the other hand, is mostly used to indicate the use of IoT solutions in agriculture. So what does smart farming use IoT? Using IoT sensors to collect environmental and machine metrics, farmers can make informed decisions and improve almost every aspect of their work – from livestock farming to crop cultivation. For example, using intelligent agricultural sensors to monitor the state of crops, farmers can define exactly how many pesticides and fertilisers they need to use to achieve optimal efficiency. The same applies to the definition of smart farming. Although smart farming IoT, as well as industrial IoT in general, are not as popular as devices connected by consumers; yet the market is still very dynamic. The implementation of IoT solutions for agriculture is constantly growing. Specifically, COVID-19 has a positive impact on IoT in the agricultural market share. Supply chain disruptions and a shortage of skilled workers drove its CAGR to 9.9%. In fact, as according to recent reports, smart framing market share is set at \$6.2 billion by 2021. At the same time, the global smart agricultural market is expected to triple to reach \$15.3 billion by 2025 (just over \$5 billion in 2016). As the market continues to evolve, there are still plenty of opportunities for businesses willing to join. Building IoT products for agriculture in the coming years can set you apart from early adopters and as such will help pave the way for success. But why should you consider building an IoT application for agriculture in the first place? Benefits of intelligent agriculture: How IoT shapes agriculture Technology and IoT have the potential to transform agriculture in many aspects. In particular, there are five ways in which IoT can improve agriculture: data, tons of data collected by intelligent agricultural sensors, e.g. agricultural sensors. This data can be used to monitor the state of your business in general, as well as employee performance, device efficiency, etc. Better control over internal processes and, as a result, lower production risks. The ability to predict the output of your production allows you to plan a better distribution of products. If Exactly how many crops you will harvest, you can make sure that your product will not lie around unsold. Cost management and waste reduction due to increased control over production. Being able to see any anomalies in crop growth or livestock health, you will be able to mitigate the risks of losing yield. Increased business efficiency through process automation. With smart devices, you can automate multiple processes throughout the production cycle, such as irrigation, fertilization, or pest control. Increased quality and volumes of products. Achieve better control over the production process and maintain higher crop quality and growth capacity standards through automation. As a result, all these factors may eventually lead to higher incomes. Now that we have outlined how IoT can be advantageously applied in the field of agriculture, let's look at how these benefits can find their application in real life. Cases of IoT use in agriculture (with examples) There are many types of IoT sensors for agriculture as well as IoT applications in agriculture in general: 1.Climate monitoring Probably the most popular smart agricultural devices are weather stations that combine different intelligent agricultural sensors. It is located across fields, collecting different data from the environment and sending it to the cloud. The measurements provided can be used to map climatic conditions, select suitable crops and take the required measures to improve their capacity (i.e. precision farming). Some examples of such IoT farming facilities are allMETEO, Smart Elements and Pycno. 2. Greenhouse gas automation Usually farmers use manual intervention to control the greenhouse environment. Using IoT sensors allows them to get accurate real-time information about greenhouse conditions such as lighting, temperature, soil condition and humidity. In addition to obtaining environmental data, weather stations can automatically adjust conditions to match the parameters. Specifically, greenhouse automation systems use a similar principle. Farmapp and Growlink, for example, are also IoT agricultural products that offer these capabilities, among other things. GreenIQ is also an interesting product that uses intelligent agricultural sensors. It is an intelligent sprayer controller that allows you to manage your irrigation and lighting systems remotely. 3. Crop management Another type of IoT products in agriculture and another element of precision farming are crop management facilities. Like weather stations, they should be located in the area to collect data specific to the cultivation of crops; from temperature and precipitation to leaf water potential and overall crop health. Thus, you can monitor the growth of crops and any anomalies to effectively prevent any diseases or infestation that can harm your yield. Arable land and semios can serve as a good representation of how this use case can be used in real life. 4. Monitoring and management of cattle As well as the crop There are IoT agricultural sensors that can be attached to animals on the farm to monitor their health and log performance. Monitoring and monitoring of livestock helps to collect data on health, well-being and physical location. For example, such sensors can identify sick animals so that farmers can separate them from the herd and avoid contamination. Using drones to track cattle in real time also helps farmers reduce staff costs. It works similarly to an IoT pet care device. For example, SCR by Allflex and Cowlar use intelligent agricultural sensors (collars) to provide temperature, health, activity and nutrition about each individual cow, as well as collective information about the herd. 5. Precision farming Also known as precision farming, precision farming is all about efficiency and accurate data-driven decisions. It is also one of the most widespread and effective IoT applications in agriculture. Using IoT sensors, farmers can collect a wide range of metrics on every aspect of the microclimat and field ecosystem: lighting, temperature, soil condition, humidity, CO2 levels and pest infections. This data allows farmers to estimate the optimal amount of water, fertilisers and pesticides their crops need, reduce costs and increase better and healthier crops. CropX, for example, creates IoT soil sensors that measure soil moisture, temperature, and electrical conductivity, allowing farmers to access each crop's unique needs individually. Combined with geospatial data, this technology helps create accurate soil maps for each field. Mothive offers similar services, helping farmers reduce waste, improve yields and increase farm sustainability. 6. Agricultural drones Perhaps one of the most promising agritechs is the use of agricultural drones in intelligent agriculture. Drones, also known as drones, are better equipped than aircraft and satellites to collect agricultural data. In addition to tracking capabilities, drones can also perform a huge number of tasks that previously required human work: planting crops, fighting pests and infections, agriculture spraying, monitoring crops, etc. Read more: Why use agricultural drones? The main advantages and best practices of DroneSeed, for example, are building drones for planting trees in deforested areas. The use of such drones is 6 times more effective than human labor. Sense Fly agriculture drone eBee SQ uses multispectral image analysis to estimate crop health and comes at an affordable price. 7. Predictive analytics for intelligent agriculture Precision agriculture and predictive data analysis go hand in hand. While IoT technology and intelligent sensors are gold mines for highly relevant real-time data, the use of data analysis helps farmers understand and come up with important predictions: crop harvest time, disease and infestation risks, yield volume, etc. Data analysis tools help to make agriculture inherently highly dependent on conditions, more manageable and predictable. Crop Performance, for example, helps farmers gain access to the volume and quality of yields in advance, as well as their vulnerability to adverse weather conditions such as floods and drought. It also allows farmers to optimize water and nutrient supplies for each crop and even select yield traits to improve quality. Used in agriculture, solutions such as SoilScout allow farmers to save up to 50% irrigation water, reduce fertilizer losses caused by watering, and provide useful insights regardless of seasons or weather conditions. 8. Complex farm management systems A more complex approach to IoT products in agriculture may be represented by so-called farm productivity management systems. They usually include a range of agricultural IoT devices and sensors installed on site, as well as a powerful instrument panel with analytical capabilities and built-in accounting/reporting functions. This offers remote farm monitoring capabilities and makes most business operations more efficient. FarmLogs and Cropio provide similar solutions. In addition to these cases of IoT farming use, some significant opportunities include vehicle tracking (or even automation), storage management, logistics, etc. As we can see, the cases of IoT use in agriculture are endless. There are many ways smart devices can help you increase the performance and yields of your farm. However, developing IoT agricultural applications is not an easy task. There are certain problems that you need to be aware of if you are considering investing in smart farming. 1. Hardware To create an IoT solution for agriculture, you need to choose sensors for your device (or create your own). Your choice will depend on the types of information you want to collect and the purpose of your solution in general. In any case, the quality of your sensors is essential to the success of your product: it will depend on the accuracy of the data collected and their reliability. 2. Brain data analysis should be at the heart of any intelligent agricultural solution. The data collected alone will be of little help if you can't understand it. Therefore, you must have powerful data analysis capabilities and use predictive algorithms and machine learning to get useful insights based on the data collected. 3. Maintenance Hardware maintenance is a challenge that is essential for IoT products in agriculture, as sensors are usually used in the field and can be easily damaged. Therefore, you need to make sure that your hardware is durable and easy to maintain. Otherwise, you will need to replace the sensors more often than you would like. 4. Mobility applications in the field of intelligent agriculture should be adapted for field use. The business owner or farm manager should have access to information on site or remotely via a smartphone or desktop computer. In addition, each connected device should be autonomous and have sufficient wireless range to communicate with other devices and send data to a central server. 5. Infrastructure, to ensure that your smart agricultural application works well (and make sure it can handle data load), you need a solid internal infrastructure. In addition, your internal systems must be secured. If you don't secure the system properly, it increases by breaking into it, stealing your data, or even taking control of your autonomous tractors. 6. Connectivity The need for data transmission between many agricultural installations still poses a challenge for the adoption of smart agriculture. Needless to say, the connection between these devices should be sufficiently reliable to withstand bad weather conditions and ensure non-disruptive operation. Today, IoT devices still use different connection protocols, although efforts are currently underway to create uniform standards in this area. The advent of 5G and technologies such as space internet will hopefully help to find a solution to this problem. 7. Frequency of data collection Due to the high diversity of data types in the agricultural industry, ensuring the optimal frequency of data collection can be problematic. Data from field, antenna and environmental sensors, applications, machines and equipment, as well as processed analytical data may be subject to limitations and regulations. At present, the safe and timely delivery and sharing of this data is one of the current challenges in the field of smart agriculture. 8. Data security in the agricultural industry Precision agriculture and IoT technology mean working with large data sets, which increases the number of potential security gaps that offenders can use for data theft and hacking. Unfortunately, data security in agriculture is still largely an unknown concept. For example, many farms use drones to transfer data to agricultural machinery. This device connects to the Internet but has little to no security protection, such as user passwords or remote access authentication. Some basic IoT security recommendations include monitoring data traffic, using encryption methods to protect sensitive data, using AI-based security tools to detect traces of suspicious activity in real time, and storing data in a blockchain to ensure its integrity. In order to take full advantage of IoT, farmers will need to familiarise themselves with the concept of data security, develop internal security policies and comply with them. Growing your agriculture business with intelligent IoT solutions from Eastern Peak according to the United Nations Food and Agriculture Organization (FAO), the global population is expected to exceed 9 billion people by 2050. In order to be sufficient food for the population, the volume of agricultural production must be increased by 50%. As resources for agricultural activities are limited (most agricultural-friendly parcels are already in use), the only way to increase volume is to improve Efficiency. There is no doubt to what extent smart agriculture can help tackle this problem; in fact, it seems that this is not possible without it. Here at Eastern Peak, we develop our own IoT solutions for agriculture tailored to your specific needs. How to start? IoT applications in intelligent agriculture vary from farm to farm depending on market segment, climate, and region, from cattle tracking to advanced field mapping. In many cases, the prepared tools will not be relevant and you may need a tailor-made IoT smart farming solution. At Eastern Peak, we approach each customer individually to meet their unique needs. The product discovery phase is the best first step you can take to lay a solid foundation for developing your app. It includes a functional specification, UX/UI design and a visual prototype that gives you a clear idea of the final product. On average, this stage lasts 4-6 weeks. The product discovery phase can help you: define the full scope of work and create a plan for the project to set a realistic budget for your MVP and plan your water test resources with your audience using a visual prototype craft compelling investment pitch to get to know your Team We at Eastern Peak has already helped many startups and Fortune 500 companies digitize and streamline their operations with the help of technology. We provide comprehensive services that build IoT solutions across a wide range of business domains, from hardware design to software development, testing, and integration. To get expert advice from our experts, please contact us using our contact form. Read also: also:

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