IOT TECHNOLOGY IN AGRICULTURE

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ABSTRACT: -

The purpose behind writing this paper is to improve the production in agriculture and make this essential sector more advance with the help of technology. Agriculture is an important as well as primary sector, this sector beinga primary contributes a good share in GDP of a nation. As we all know that India`s agriculture have a larger share in GDP so the betterment of this sector is important. There are some technologies used in Indian agriculture such as sensors, location data derived from GPS and satellites. We can implement the upgraded version of basic machineries and technologies with the help of Artificial Intelligence as a new face of technology. With the help of advance technology and machinery we can increase the production of this essential sector. In the year 2020-2021 agriculture contributes almost 20% to the GDP of India, the percentage is being increased in the last 17 years. It has being increased from 17.8% in 2019-2020.

KEYWORDS: - GDP (Gross Domestic Product), GPS (Global Positioning System), Technology, Indian Agriculture, Artificial intelligence, Equipment

INTRODUCTION: -

Artificial intelligence is the simulation of human intelligence processes by machines, especially computer systems. Artificial intelligence is a technology that have been created with the human like intelligence and have an ability to do work like humans. The theory and development of computer systems able to perform tasks normally requiring human intelligence, such as visual perception, speech recognition, decision- making, and translation between languages.

There are few examples of Artificial Intelligence:- Smart assistants, Disease mapping, Natural Language Generation, Speech Recognition, Machine Learning, Decision Management, Robotic Process Automation, etc.

During last few years the development and changes were successful in the field of agriculture. This has led to growth in global inorganic fertilizer, consumption of pesticides, animal feedstuffs, tractors and other machinery.We have to use resource conserving technologies such as integrated pest management, nutrient recycling, soil and water conservation, water harvesting and waste recycling.

For example, a farmer uses a multi-purpose tractors from loosening the soil, seeding, special watering and moving plants when they grow bigger till harvesting the tractor is being uses we can update this technology and make that smarter enough so that farmers can consume the time from these activities and able to produce more with agriculture.

EXISTING LITERATURE (TECHNOLOGY): -

Due to industrialization many machineries and scientific technologies agriculture has been upgraded. There are many such machineries and technologies for example tractors, field cultivator, sprayer, seeders and planters, sensors, location data derived from GPS and satellites.

Tractors: - The tractors are commonly used farm machinery. These are used in both commercial and subsistence farming. There are wheeled vehicle used with the other farm equipment as they generally do not do any farm work by themselves. The other farm equipment are attached to the tractor as they are can`t be able to use alone. A farm tractor is used for pushing agricultural machinery, for plowing, tilling, disking, harrowing, planting and similar tasks. There are two types: - Two-wheel tractor & Tracked tractor or Caterpillar tractor.

Field Cultivator: - Field cultivator is a machine used for cultivating the farms or fields. It make the soil soft for plantation. It also helps in eliminating the weeds from the soil.

Sprayer: - This farm equipment is used for to spray insecticide, pesticide, herbicide, fertilizers and the others products meant to be sprayed in the farms. The sprayer are of different types, these are agricultural aircraft-sprayer and blower-sprayer.

Seeders and Planters: - Seeder and planter are used for sowing of seeds or planting of crops. With the help of this machine, 'n' number of seeds can be planted in few hours.

Sensor: - A sensor is a device that detects the change in the environment and responds to some output on the other system. A sensor converts a physical phenomenon into a measurable analog voltage (or sometimes a digital signal) converted into a human-readable display or transmitted for reading or further processing.

GPS: - The full form of GPS is the Global Positioning System and it is a satellite navigation system used to identify the ground position of an object. GPS are widely used for tracking and guiding vehicles, providing the best route from one place to another for shipping companies, airlines, drivers and courier services.

Satellite: - A satellite is a moon, planet or machine that orbits a planet or star. For example, Earth is a satellite because it orbits the sun. Likewise, the moon is a satellite because it orbits Earth. Usually, the word "satellite" refers to a machine that is launched into space and moves around Earth or another body in space.

These technology are already used in agriculture to increase production of crops and other farm items.
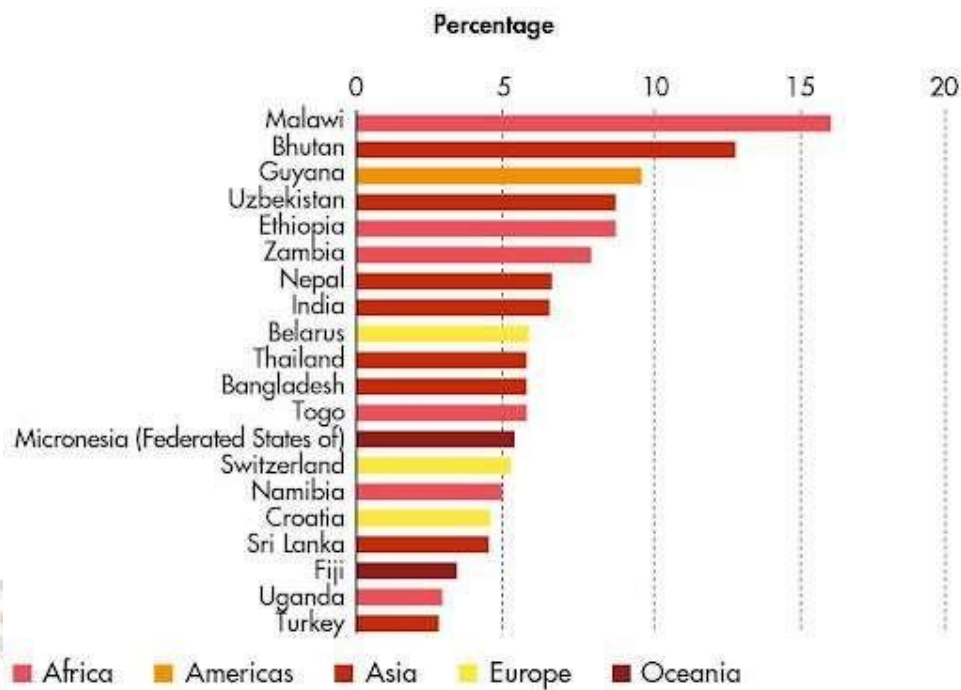
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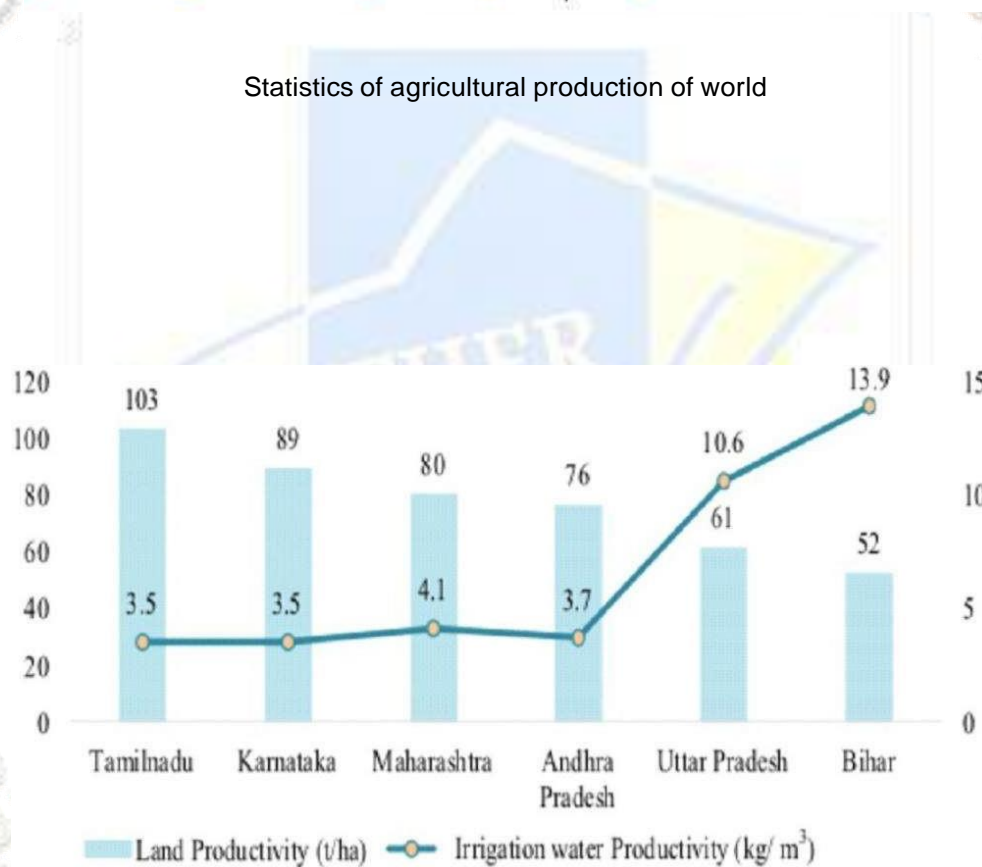
Statistics of agricultural production of Indian States

NEW TECHNOLOGY TO BE INTRODUCED (METHODOLOGY): -

There are some of the new technologies to be introduced in agriculture with the help of artificial intelligence and upgraded technologies. Modern technology when implemented the production increased due to time saving and new techniques. Mentioned below are the new technologies to be implemented in agriculture: -

Auto-driver Tractors: - As tractors are necessary equipment in agriculture, the new technique of auto-driver tractors will work with the help of artificial intelligence. This tractor is able to do multiple jobs like planting the seeds, irrigation and much more. This technology will make work easier as it is with human like intelligence. These tractors will support GPS tracking system which will be helpful for the farmers and their plantation.

Smart Drone: - As drones are also a new face of technology, framers can use these drones in agriculture also. At some places drones are used but can make them more effective and efficient for betterment. People can use them for irrigation not just in one village but from one place to another and more over from flooded area to the drought area, so that framers can get efficient water for their fields. The smart drone will have many features such as Electronic speed controllers (ESC) which will have to controls a motor`s speed and direction, Flight controller, GPS tracking system, efficient battery backup, Antenna, Receiver, Cameras, Sensors (including ultrasonic sensors and collision avoidance sensors), Accelerometer, Altimeter, Weight lifting capacity and much more. It will help to monitor the production of one`s farm.

Crop Monitoring Mobile Application: -This application will be used for keeping a record of production of crops per year. This record will help to monitor the increase in production. Apart from just maintaining the records of production this will also help in maintaining the fertilizers, pesticide and other equipment usage. This application will also distinguish the crops with their sessions and this feature will help the farmers to plant the crop with their respective sessions. For example, Rice is a kharif crop that means this crop is planted in the month of June and July, so this mobile application helps to tell the session of each crop to be sowed.

Robotic Equipment: - A robot is an automatic machine. This is multipurpose machine which is capable of doing number of jobs like painting, house-hold work, drive a vehicle, and much more. Robotic equipment helps to make work easier. These equipment will be the new face of technology and are capable to do work more effectively and efficiently. These equipment can be handle with smart phones and trace with the help of GPS tracking system. This technology helps to increase the production due to the effectiveness of the technology.

CONCLUSION: -

Modern technology is capable for doing work effectively and efficiently but this technology is expensive and poor farmers are not being able to afford it. For this problem government can take initiative to provide farmers with new and latest technology, so that new technologies help in increase in good production of crops. This process will also work in gaining high profits for both farmers and the nation to which the farmer belongs. For improvement in agriculture the basic thing is to make the backbone of agriculture strong. New and effective technologies are the backbones of agriculture.

Auto-driver tractors, Smart Drone, Crop Monitoring Mobile Application and Robotic Equipment are new technologies which will help to make agriculture sector better.

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